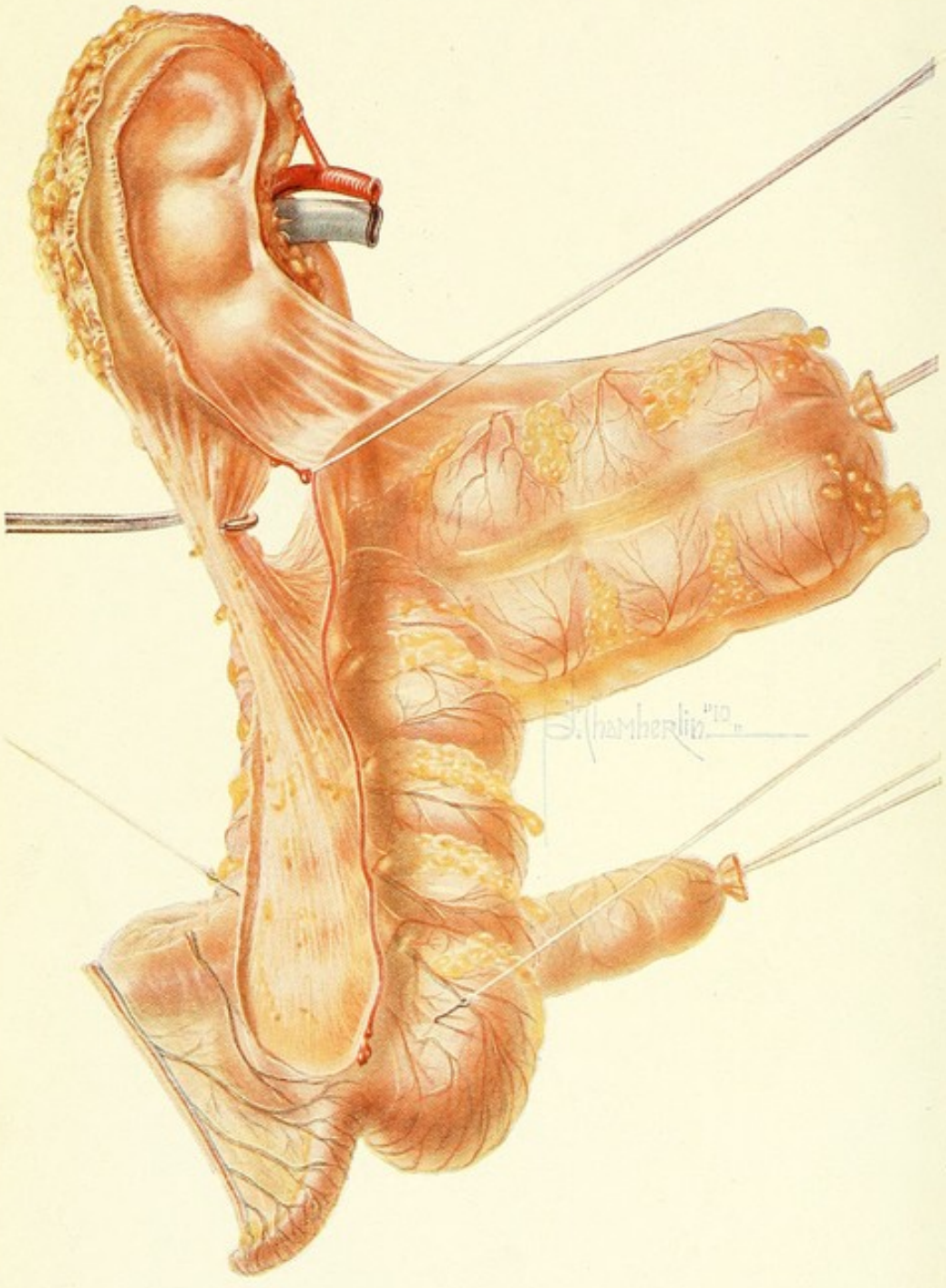
Nephrocoloptosis : a description of the nephrocologic ligament and its action in the causation of nephroptosis, with the technic of the operation of nephrocolopexy, in which the nephrocolic ligament is utilized to immobilize both kidney and bowel / H. W. Longyear.

NEPHROCOLOPTOSIS



LIGAMENTUM NEPHROCOLICUM. (LONGYEAR.)

Illustrating the location of the nephrocolic ligament, showing the right kidney attached to the colon and cecum by the peritoneum and the nephrocolic ligament. The peritoneum has been drawn aside with a cord, and the nephrocolic ligament is shown isolated and drawn away from the gut by the author's forceps hook. The cecum has been turned half around in order to show the insertion of the nephrocolic ligament, the ileum being turned under the cecum.

NEPHROCOLOPTOSIS

A Description of the Nephrocolic Ligament and its Action in the Causation of Nephroptosis, With the Technic of the Operation of Nephrocolopexy, in which the Nephrocolic Ligament is Utilized to Immobilize both Kidney and Bowel

BY

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WITH EIGHTY-EIGHT SPECIAL ILLUSTRATIONS AND A COLORED FRONTISPIECE

ST. LOUIS

C. V. MOSBY COMPANY

1910

AFFECTIONATELY DEDICATED TO THE MEMORY OF

MY FATHER,

JUDGE JOHN WESLEY LONGYEAR

FOREWORD.

This monograph presents my views of the subject treated, and is not a compilation or a historic treatise, mention being only incidentally made of other opinions and theories.

I believe that in the nephrocolic ligament I have discovered the principal positive etiologic factor in nephroptosis. The belief that a nephroptosis, because of the action of this ligament, must always be secondary to and the result of a coloptosis (except when due to trauma), and consequently should not be considered separately from, but of necessity with, the prolapsed colon, explains my reason for both the form of the title of the book and the etiologic basis on which the subject is treated.

My contention regarding this action of the nephrocolic ligament gives a *raison d'être* for, and assists materially in proving the truth of, the observation of Glenard, viz.: "Enteroptosis without nephroptosis, but never nephroptosis without enteroptosis." This fact being accepted, the consideration of the subject of displaced kidney by itself, ignoring its cause and unavoidable accompaniment in the displaced colon, would be a serious pathologic error and an omission of a full statement of fact, which would tend to lead to the unsatisfactory therapeutic results that have usually attended the treatment of cases of nephroptosis in the past.

The terms "splanchnoptosis" and "enteroptosis," while describing a condition which may exist in exceptional cases, give an erroneous idea of the pathology when

applied to all cases of nephroptosis, and tend to lead into a maze of uncertainty and indefiniteness regarding both etiology and treatment. Gastroptosis may be present with a nephroptosis, but not necessarily so, as is the case with a coloptosis, and when so present is almost inevitably a sequel to the nephrocoloptosis, and one of the later developments of the pathology. The liver has no anatomic connection to be influenced by a nephrocoloptosis, and hepatoptosis may occur independently of any of the other conditions.

To arrive at a working basis for treatment, it is true that all of these conditions and their relations to each other must be considered, but a concentration of thought upon the *beginning* of the involvement of the pathology is necessary to such an end. Still more misleading is it to look into the pathology no farther than the loose kidney. I believe that because of the commonly accepted and erroneous idea of considering the displaced kidney by itself, the full pathological situation is misunderstood, as well as the true significance and value of the symptomatology. It is quite commonly asserted by a number of authors that this little body, when movable, can, by the pressure of its weight, cause a variety of serious disorders, such as a kink in the colon by dragging it down, uterine displacements by the right kidney falling upon the organ, appendicitis by its weight interfering with circulation, ovaritis, salpingitis, menorrhagia, metrorrhagia, hematocele, cystitis, etc. When one considers that the weight of the kidney is only from four to six ounces, this all seems absurd; and when the fixation of it by the old methods—even when anatomically successful—so often not only has failed to relieve the numerous manifestations attributed to it, but has augmented them, it is no wonder that many physicians have become skep-

tical on the whole subject, and advise their patients to rather bear the ills they have than fly to those they know not of.

Patients are often told that the displaced kidney is of little importance, and that all that is necessary is for them to "get fat" and they "will be all right." That is quite a safe prognosis, as these patients usually can not get fat, but, on the contrary, continue to lose flesh, regardless of dietetic regimen, tonics, etc. These are the patients who may be temporarily benefited by the Weir-Mitchell treatment of forced rest and feeding. They get up feeling much improved, and consider themselves well, but the erect position soon causes a return of the irritation of the digestive organs, and consequent interference with nutrition. The fat fades away, and the old drag of colon on kidney and duodenum again begins. The rest treatment is not to be decried in these cases, but an operation should precede it, after which the rest and feeding will assist materially in making the cure permanent.

I was much in the uncertain frame of mind mentioned when an accidental observation during an appendectomy led to the discovery of the action of the tissue which I call the nephrocolic ligament. After this the pathologic landscape became clear, symptomatology meant something definite, and therapeutic indications became positive.

The operation referred to took place at the Solvay Hospital, Delray, Mich., December 3, 1903. The patient, a girl of 16 years of age, had complained more or less of constant pain in the region of McBurney's point and increasingly obstinate constipation for over a year. After a thorough examination (no radiograph), in which everything was negative, excepting a sensitive area in the sup-

posed location of the cecum and appendix, appendectomy was decided on. Both kidneys were normally placed and in no degree mobile. At the operation the cecum, with the appendix deformed by adhesions to itself, was found *in the bottom of the pelvic cavity*. During the manipulation it was noted that the right kidney could be pulled well down into the abdomen by making traction on the cecum, and, moreover, could be held in the prolapsed position by continuing the traction, so that it was impossible to return it to its normal position by counter-pressure with the finger inside the abdomen. On removal of the traction, however, the kidney quickly slipped up to its normal position. These observations led to investigations on both the cadaver and the living subject, with the object of ascertaining what connection there could be between the gut and kidney that was strong enough to give such a manifestation. The result was the isolation of the tissue, which I call the nephrocolic ligament, as the only union between the gut and kidney which was strong and inelastic enough to cause the kidney to be so readily pulled down.

This girl's constipation continued to increase, and one year after the appendectomy, reasoning from my previous observations, I concluded that the torpidity of the bowel was due to the low position of the cecum, and made a nephrocolopexy, solely to relieve the constipation. The operation was a marked success, and has continued to be so up to a very recent date (October 17, 1908). At this operation the nephrocolic ligament was found to be long and lax, which accounted for the kidney remaining in place with such a marked coloptosis.

I believe that a more general use of the x-ray, a more thorough palpation technic, and a due appreciation of their symptomatology will result in a needed improve-

ment in the early diagnosis of these cases and consequently in the treatment of less of them for neurasthenia, intestinal indigestion, chronic appendicitis, cholelithiasis, cholecystitis, gastric dyspepsia, etc., and a practical therapeusis based on the existing pathology—the *cause*, and not the *effect*—will then receive attention.

Early diagnosis of these cases should also insure the proper treatment before the development of symptoms of a serious nature, which occur occasionally in an explosive manner, and at unexpected and inopportune times. Such a case came under my observation recently: A young lady, having a well-recognized nephrocoloptosis, had improved for several months and gained some flesh under the use of an abdominal band. She became engaged to be married, and a date was set and invitations issued for the wedding. Three days before this was to occur, while packing a trunk, she was taken with pain in the right side, and a well-marked and very severe attack of Dietl's crisis developed, which completely prostrated her and confined her to bed for several weeks, resulting in much mental distress as well as bodily pain, and great inconvenience and embarrassment of all parties concerned.

No one can foretell the stage of a nephroptosis in which torsion of the pedicle may occur and such an attack be precipitated. Without fixation by surgical means, any case is liable at any time to the accident. The attacks are not only severe and painful at the time, but, especially when long continued, sequelæ of a serious nature are liable to develop.

Diagnosis of this malady has not been taught to students in any practical way in the past, and of recent years teaching has been, at best, superficial. The use of posture, palpation, and the x-ray in abdominal diseases should be as thoroughly taught clinically as is the phys-

ical diagnosis of diseases of the chest. Very few general practitioners know how to examine for nephroptosis; they do not recognize these cases, and wonder where their fellow-practitioners find so many. I was asked regarding this question, during the reading of a paper before the Michigan State Medical Society, by a country physician of large practice, who said he had seen but one case in several years. Another doubted my diagnosis in a case which he had sent me, but subsequently demonstrated the fact of the displacement by following my written directions for examination.

I recently operated on a case of extreme nephroptosis in a woman, who had been suffering from severe neurasthenia and malnutrition, and who had spent the last year in a fruitless search for health, trying sanitariums, osteopathic and other kinds of treatment. She had been examined by a number of reputable physicians, but only one—a neurologist—told her she had a floating kidney, and he barely mentioned it, remarking that it might trouble her some time. She said she had had many elaborate examinations of her chest, blood tests, tuberculin tests, and urine and sputum analyses, but no one even suspected the kidney and colon. She had been treated by these physicians for neurasthenia and intestinal indigestion.

The foregoing is a common and, from my point of view, a rather discreditable picture. The diagnostic *obsessive apathy* that exists among the rank and file of the profession regarding the pathology in question is almost beyond belief or explanation. I believe the tendency to neglect this serious pathologic condition is simply a bit of every-day human nature, arising from disinclination to delve into that which is not definitely understood and for which, if discovered, one is unable to apply a satisfactory remedy.

What it is hoped to accomplish by here recording my observations and experience is to furnish a remedy for this unsatisfactory state of affairs. If by the use of some original theories, and others equally as good, an etiology can be formulated that is not only simple to understand and reasonable in theory, but which is also based on sound mechanical principles, a comprehensive symptomatology advanced, a method of diagnosis described that every general practitioner can apply, and a plan of treatment recommended that will give positive results in the relief of symptoms, then my object will be attained and the science of this important field of endeavor be advanced.

The prevalence of nephrocoloptosis is widespread and not wholly confined to any class, nationality, age, or sex. The floating kidney is found among the Bedouin women, who live a nomadic life close to nature, where the developmental restraints of civilization and the corset play no part, as well as among the women of the most civilized countries, where dress and artificial ways of living are so much in evidence. The hard-working, muscular factory girl and the delicate, pampered society belle suffer equally. Many cases of nephroptosis have been noted in young children, and I have seen a well-marked case in a girl of 8 years of age.

Women are much more subject to the displacement than men, and yet many cases among men have been noted by other observers. Suckling[1] states that he has found movable kidney present in about forty percent of women and in six to seven percent of men suffering from nervous disorders.

As my work has been almost entirely confined to the gynecologic field, my observations relate largely to ex-

[1] Movable Kidney, 1909.

perience in connection with the diseases of women. Of the last two hundred examinations of women presenting themselves with histories of some kind of abdominal or pelvic disease, I have found floating kidneys present in fifty-six—fifty-one right nephroptoses and five in which both kidneys were down, but *not one case* of only a left displacement. In four hundred cases preceding this series I found seventy-six floating kidneys—seventy-four on the right side and two on both sides—but here, also, *not one* only on the left side. In another series of four hundred cases preceding the second series I report only twenty-three cases—nineteen on the right side and four on both sides. These three series show percentages of 28, 19, and 5.75 respectively. The larger percentage in the more recent series doubtless represents the difference in skill acquired in their diagnosis, as well, probably, as my increasing interest in looking for them.

A comprehensive understanding of the subject should lead to more thorough diagnostic effort directed to the kidney and colon than is usually displayed in the public institutions conducted for the treatment of those suffering from nervous and mental disorders. I have been of the opinion for a long time that our asylums and sanitoriums have many chronic invalids whose mental recuperation could be assisted by the discovery and treatment of this condition. Many may also be saved from complete mental breakdown by the early recognition of the condition, as the long continued malnutrition, intestinal irritation, toxemia, and neurasthenia caused by the displacement are so frequently the chief factors in the beginning. The young woman who has a sudden nervous collapse, preceded for some time by indigestion, flatulence, headaches, insomnia, progressive emaciation, and anemia, may be suffering from nephrocoloptosis, and not

be one of those common cases where the easy diagnosis of "just nerves" is made.

Suckling refers to nephroptosis as a frequent and most positive cause in mental and nervous disorders in the following words: "All phases of mental disturbance are met with in dropped kidney, but mental depression and melancholia are the most frequent. The following conditions are very common: loss of memory, suicidal tendencies, mental confusion, homicidal impulses, mental depression, morbid fears, melancholia, emotional disturbances. The frequency of suicide when dropped kidney exists is remarkable." An operation for this condition made by myself in an asylum had a most happy outcome —the patient, a young woman of fine education and brilliant literary attainments, recovering and afterwards marrying. A photograph of her first baby—a fine, healthy boy—was sent me four years after the operation.

I am under obligations to the following persons for valuable assistance in the preparation of the material for this book: Norman Saxon Chamberlin, the artist who made all the drawings and also contributed many helpful suggestions; Dr. C. B. Burr, who contributed the article on "Psychiatric Nephroenteroptic Symptomatology," and rendered valuable revisionary assistance; Dr. P. M. Hickey, who contributed the article on the "Technic of the Examination of the Gastro-intestinal Tract by Means of the Röntgen Ray," made all of the radiographs, and gave freely of time and energy in their preparation; Dr. William E. Blodgett, who contributed the article on "Orthopedic Considerations of Abdominal Ptosis;" and the publishers, who have been most generous and painstaking in practical co-operation.

CONTENTS.

CHAPTER I.

Anatomy and Pathology.

CHAPTER II.

Etiology.

CHAPTER III.

Symptomatology.

CHAPTER IV.

Diagnosis.

CHAPTER V.

Treatment.

CHAPTER VI.

Reports of Cases.

ILLUSTRATIONS.

NEPHROCOLOPTOSIS.

CHAPTER I.

ANATOMY AND PATHOLOGY.

In the presentation of the subject of the anatomy of the parts involved in the pathology in question, no new or previously unrecognized tissue is offered for consideration, but, instead, the privilege is claimed of presenting a new name and a newly discovered function for a previously recognized anatomical part, whose important office had not been recognized until it was presented by the author to the profession in an original observation reported first in the transactions of the Michigan State Medical Society, in June, 1905,[1] and three months later in a presidential address before the American Association of Obstetricians and Gynecologists.[2]

Apart from the description of the nephrocolic ligament, the anatomical descriptions in this book are drawn from well-known sources. Only those parts which are primarily concerned in the displaced colon and kidney, and those which are secondarily affected as a result of the displacement, will be considered. The prime object is to direct attention to the essentials which have an immediate mechanical bearing on the parts involved.

While the apparatus under consideration has that vital force which is called "life" or "vitality," and which

[1] Journal Michigan State Medical Society, vol. 5, No. 1, p. 41.

[2] "A Study of Floating Kidney, with Suggestions Changing the Operative Technic of Nephropexy." Transactions American Association Obstetricians and Gynecologists, 1905.

must be accounted an important factor in any study of the various parts concerned in the displacements, this condition is almost purely of a mechanical nature, and may very properly, and it is thought with profit, be treated largely from a mechanical standpoint.

The parts to be described are arranged diagrammatically for the purpose of indicating the relations of the displaced organs to each other, and, as far as possible, also the continuity of the various structures with each other, which continuity makes possible the ptoses and their sequelæ. It will be found that this arrangement also simplifies the question of pathological sequence of involvement of the various organs.

Relations of the Kidneys with Other Organs and Tissues.

The following two illustrations are diagrams showing the relations of the kidneys with the other organs and tissues involved in nephrocoloptosis.

By referring to and comparing the two diagrams, a glance is sufficient to impress the mind with the fact that the right kidney, because of its adhesion to and intimate relations with more important tissues than is the left, must be of the greater relative importance in any consideration of the displacement of the two organs. It is especially interesting to note the relations of the right kidney to the organs above it which become influenced by the nephroptosis. The chain of descensus is thus seen as beginning from below, with the hepatocolic ligament relaxation (or absence); then, in succession, the right end of the colon, then through the nephrocolic ligament, the kidney (which degree of displacement may be influenced by the adhesion to Gerota's capsule), duodenum (by its adhesion to the fatty capsule, and held in angulation by the mesocolon), stomach, common bile duct—the

latter disturbing the function of the liver and pancreas. On the other hand, the left kidney, being isolated, as it were, above (the duodenal adhesion so slight as to be

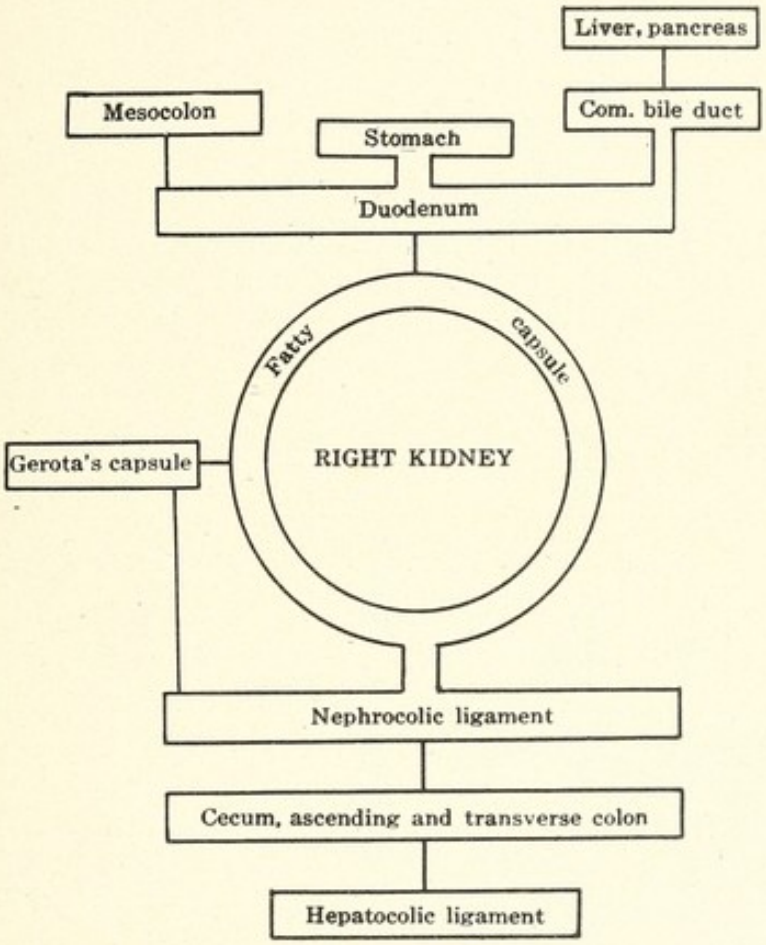


Fig. 1. Diagram showing the right kidney; the fatty capsule surrounding it, and passing downward to form the nephrocolic ligament; Gerota's capsule to the outside of and attached to the fatty capsule, and passing downward to form part of the nephrocolic ligament; the ascending colon connected with the kidney through the nephrocolic ligament; the hepatocolic ligament attached to the colon. Above the kidney the duodenum adherent to the fatty capsule; stomach connected with and continuous with the duodenum; common bile duct connected with the duodenum, and liver and pancreas with it; mesocolon, where duodenum passes under it.

negligible), its displacement affects no other important organs. The great complexity of symptoms arising from a right nephroptosis, and the rarity of symptoms of a left side displacement—which must be of a renal character exclusively—are thus clearly indicated.

The kidney, being the center of disturbance, will be described in detail first, and then the other organs according to their etiologic importance in the displacement.

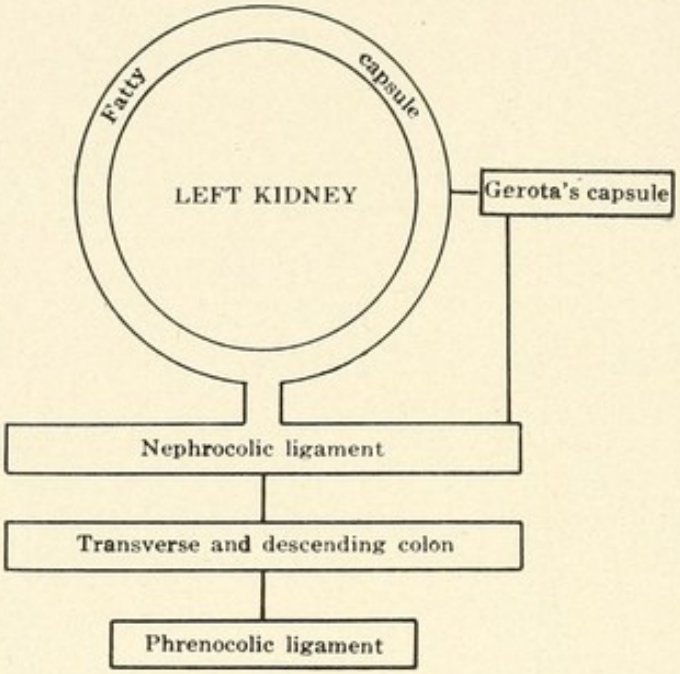


Fig. 2. Diagram showing the left kidney; the fatty capsule surrounding it, and passing downward to form the nephrocolic ligament; Gerota's capsule to the outside of and attached to the fatty capsule, and passing downward to form part of the nephrocolic ligament; the colon connected with the kidney through the nephrocolic ligament; the phrenocolic ligament attached to the colon.

The Kidneys.

The kidneys are bean-shaped organs, situated on either side of the spinal column. (Fig. 3, Nos. 4, 9.) They are usually described as lying in the lumbar region, but are really intersected by the horizontal and vertical planes which separate the hypochondriac, lumbar, epigastric, and umbilical regions from each other, and may therefore be said to pertain to all three segments of the abdominal space. They lie on the fascia of the quadratus lumborum muscle and on the vertebral portion of the diaphragm, and extend from about the third lumbar vertebra to the eleventh rib, or even above. The left kidney is somewhat higher than the right. They are usually of a flattened

oval shape, with the long diameter nearly parallel to the vertebral column; but the form is variable, and they may be slender, the length being three times the breadth, and the convex and concave borders almost concentrically curved; or they may be short and broad, the vertical diameter being only a little greater than the transverse. The "horse-shoe" kidney is found quite frequently, and other anomalous forms may be encountered.

Each kidney is about four inches in length, two inches in breadth, and about one inch in thickness, the left being somewhat longer and thinner than the right. The weight of the organ in the adult varies from four to six ounces, being somewhat heavier in the male than in the female, and the left kidney slightly heavier than the right.

The kidney is surrounded by two sheaths—an inner fibrous layer called the true capsule, and an outer so-called fatty sheath or capsule. As it is in the latter—the fatty capsule—that our special interest lies, being the tissue the framework of which forms the nephrocolic ligament, it will be of interest to note the observations of others on this particular structure.

Gray: An old edition of Gray refers to the fatty capsule as a "considerable quantity of fat," by which the kidneys are usually surrounded.

Kelly-Noble: "The fatty capsule is developed especially on the posterior aspect of the kidney, about the convex border and the lower pole; in front it is very thin. Beneath the inferior extremity of the kidney it forms quite a pad or bolster for the organ, and is continuous with the cellulo-fatty tissue of the false pelvis. The fatty capsule itself is confined between the two layers of what is known as the perinephric fascia, and throughout its extent there are fibrous septa which pass from the kidney to those layers."

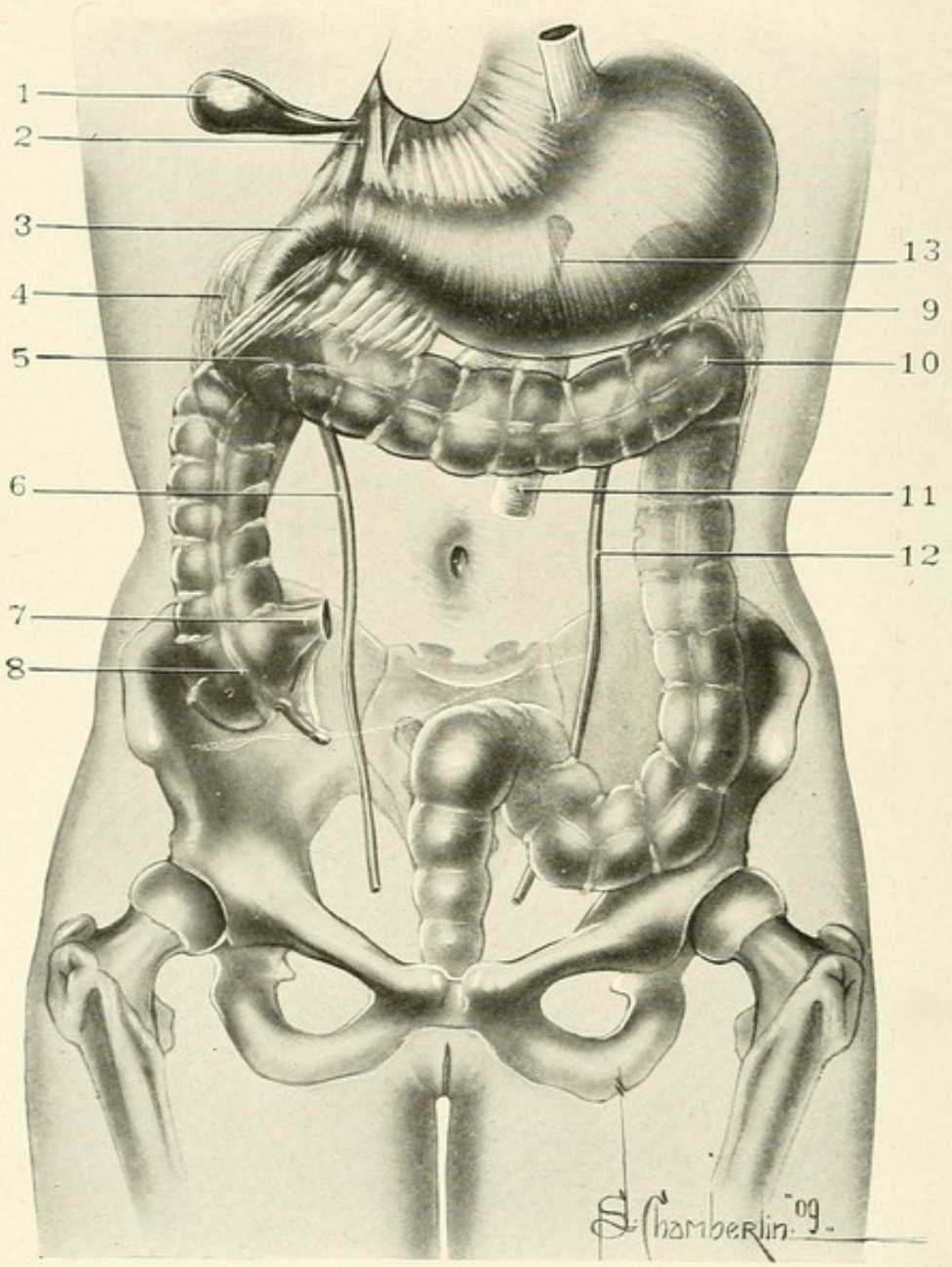


Fig. 3. Front view. Showing the normal location of the organs involved in the pathology of nephrocoloptosis.

1. Gall-bladder.
2. Common bile duct.
3. Duodenum at the point of attachment of the hepatoduodenal ligament and where it passes under the gastrocolic omentum.
4. Right kidney covered with fatty capsule.
5. Hepatic flexure of the colon.
6. Right ureter.
7. Ileum.
8. Cecum.
9. Left kidney covered with fatty capsule.
10. Splenic flexure of colon.
11. Jejunum.
12. Left ureter.
13. Suspensory muscle (seen through stomach) which supports the duodenojejunal angle.

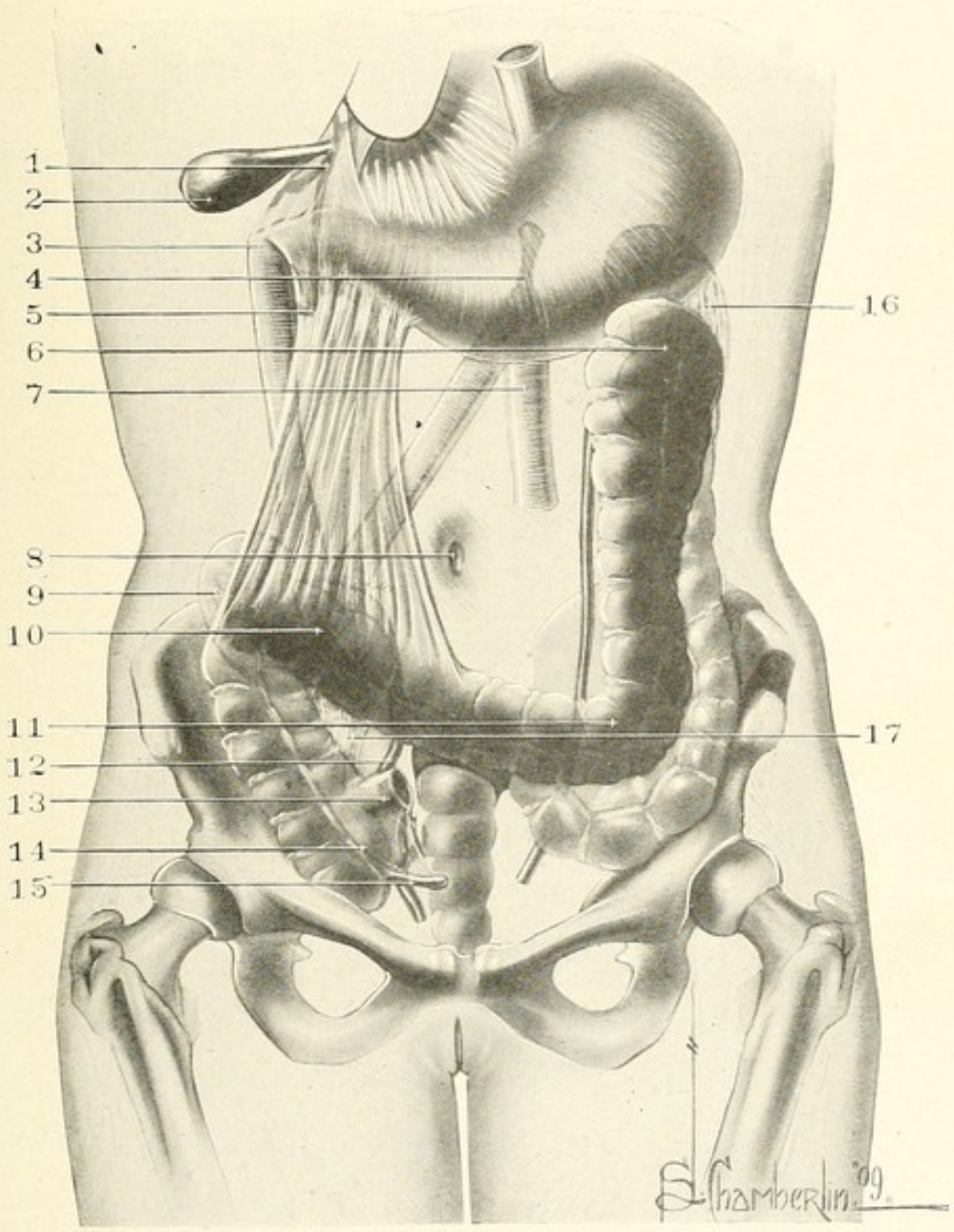


Fig. 4. Front view. Showing the resultant chain of pathology following prolapse of the colon at the hepatic flexure.

1. Common bile duct.
2. Gall-bladder.
3. Angulation of duodenum at the insertion of the hepatoduodenal ligament and where it passes under the gastrocolic omentum.
4. Angulation of duodenum at point of insertion of suspensory muscle, behind stomach.
5. Angulation of common bile duct.
6. Acute angulation and resultant dilatation at splenic flexure of colon.
7. Jejunum.
8. Umbilical region.
9. Right kidney displaced below costal margin.
10. Angulation of duodenum at its point of adhesion to the fatty capsule.
11. Angulation of prolapsed transverse colon at its lowest point.
12. Right ureter compressed and kinked.
13. Ileum.
14. Cecum.
15. Appendix vermiformis situated low in pelvis.
16. Left kidney.
17. Nephrocolic ligament passing from right kidney to posterior wall of descending colon.

Wm. Billington, M. B., M. S., Lond., F. R. C. S., in "Movable Kidney from a Surgical Standpoint:" "A typical movable kidney, as seen during operation, presents certain well-marked features. The true capsule is thickened and has a mottled appearance, due to the presence of opaque, yellowish-white patches of varying size. These patches indicate areas of greater thickness, and to them are attached adhesions, often of great strength. The perirenal fat is usually scanty, and its place is taken by adhesions which surround the entire kidney. The adhesions are sheet-like in appearance, with dense bands leading to the opaque patches on the true capsule. They extend between the true capsule and the fascial capsule outside. . . . *Sometimes the adhesions between the colon and kidney are very dense and their separation is effected with difficulty.*" (Italics by the author.)

C. A. L. Reed, of Cincinnati, in "A New Technique for the Fixation of Floating Kidney, with Special Reference to the Utilization of Longyear's Ligament:" . . . "But another thing that impressed me was the frequency with which, in endeavoring to enucleate the kidney, I found it bound down by apparently connective tissue, striæ extending downward from its lower extremity. I took the trouble to see if these striæ belonged there, but found no reference to them, either in the anatomies or in Glautenay and Gerota's valuable contribution on "Le Fascia Perirenal."

Zuckerkandl was equally silent? "I accordingly looked upon the structure as strictly adventitious, probably of inflammatory origin; but, as it seemed to hold the kidney in its displaced position, I divided it with scissors. This left a good stump, which, situated as it was, seemed to be a good thing to stitch into the upper angle of the wound, where it served a good purpose in holding the kidney pre-

cisely where it belonged. . . . The lower segment of the ligament is best disposed of by fixation to the lower margin of the wound."

Thus is seen the development of recognition of the fact that the structure of the fatty capsule is something besides fat and loose connective tissue. The last two observers—surgeons of large experience—are emphatic in their opinion regarding the strength of the tissue. Both believed its volume and strength to be of inflammatory origin, and thus abnormal and adventitious. Billington's observation that this condition is peculiar to cases of nephroptosis coincides with that of the author, and seems to cover a valuable point in the anatomic experience of some others, who, failing to find the ligament as described, base their opinions on the examination of subjects which have had no displacement of the kidney.

If Billington and Reed had gone a little farther and examined the attachment of this tissue, they would have found the distal portion in the posterior wall of the colon, and that the bowel formed the resistance which prevented the easy delivery of the kidney, which was liberated by cutting through the tissue, as reported by Reed. This is as the author finds it, and would define the structure as follows:

The Fatty Capsule.

The fatty capsule is a sheath which envelops the whole kidney, is situated upon and attached to the surface of the fibrous capsule, and is composed of a network of fine fasciculi, or tendonæ, interspersed more or less with fat. The fasciculi composing the network of the capsule coalesce at the lower pole of the kidney, and, passing longitudinally downward, form

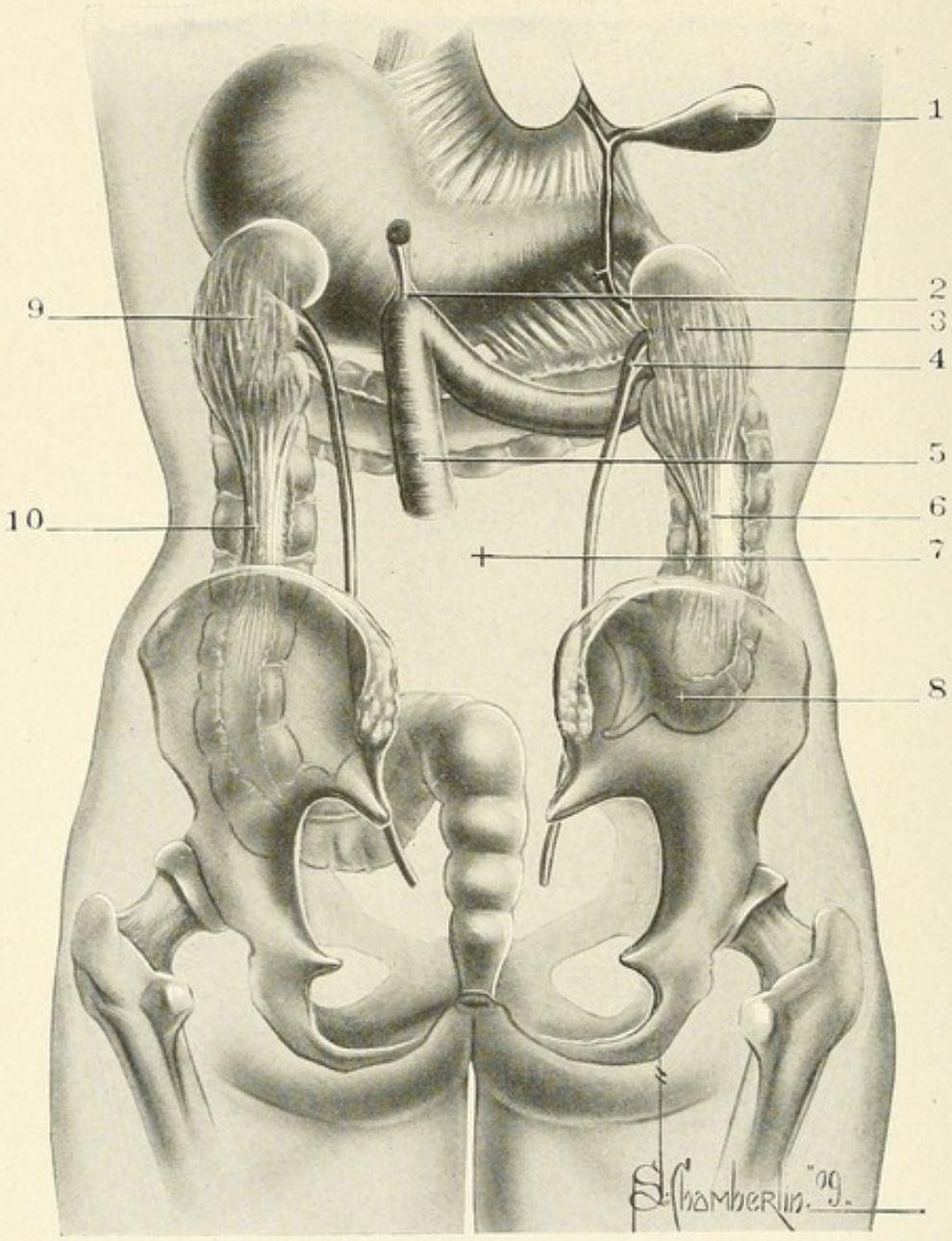


Fig. 5. Back view. Showing the situation of the nephrocolic ligament and the normal location of the organs involved in the pathology of nephrocoloptosis.

1. Gall-bladder.
2. Duodenojejunal angle at the point of insertion of the suspensory muscle.
3. Right kidney covered with fatty capsule, and duodenum adherent to front surface of capsule.
4. Right ureter.
5. Jejunum.
6. Right nephrocolic ligament inserted in posterior wall of colon between peritoneal reflection.
7. Umbilical region.
8. Cecum.
9. Left kidney covered with fatty capsule.
10. Left nephrocolic ligament.

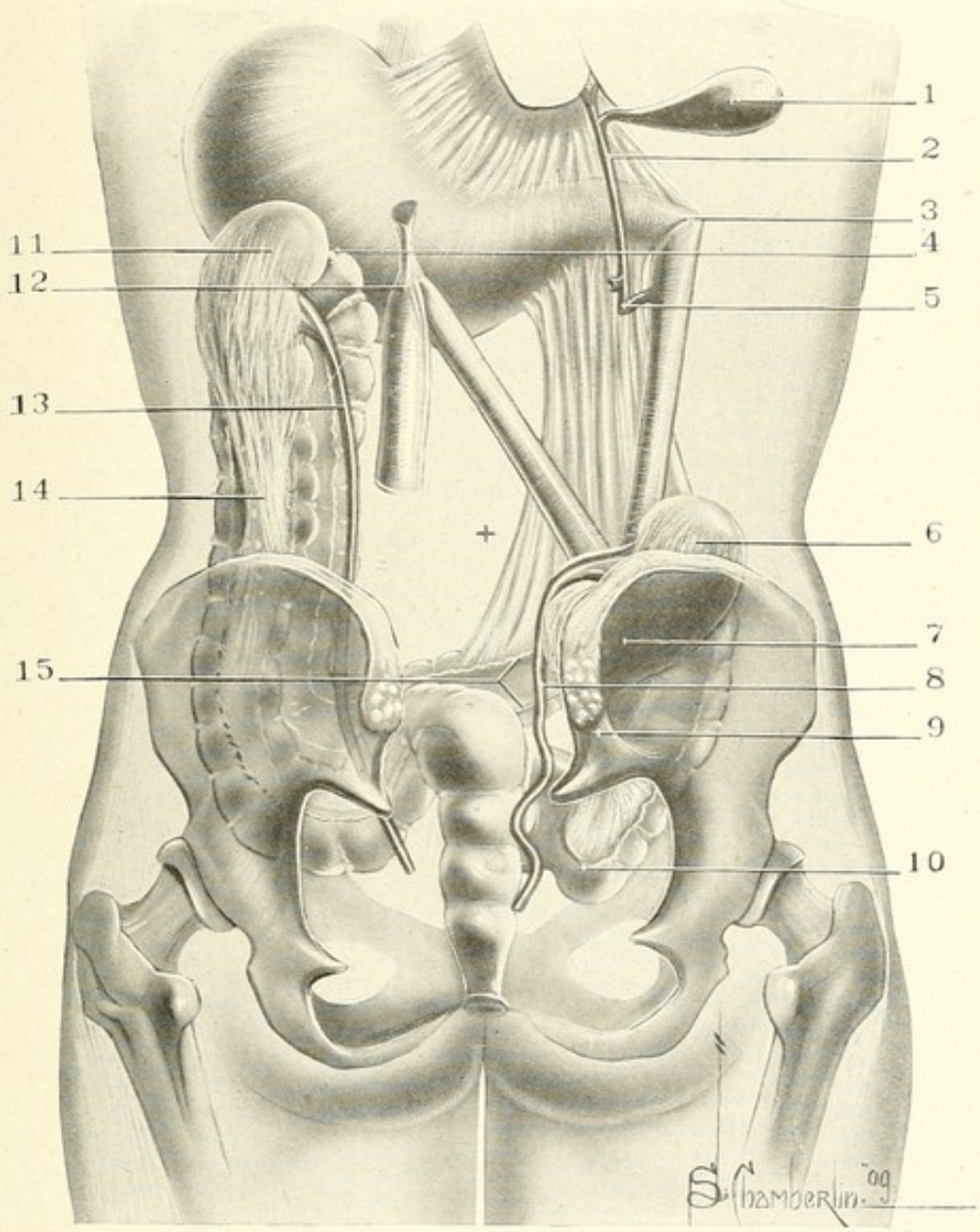


Fig. 6. Back view. Showing the etiologic importance of the nephrocolic ligament and the resultant chain of pathology following the prolapse of the colon at the hepatic flexure.

1. Gall-bladder.
2. Common bile duct.
3. Kink, or angle, in the duodenum at the insertion of the hepatoduodenal ligament and where it passes over the gastrocolic omentum.
4. Angulation of colon at splenic flexure caused by the prolapse of the transverse colon.
5. Angulation of common bile duct.
6. Right kidney covered with fatty capsule.
7. Angulation of duodenum at its point of adhesion to front surface of fatty capsule.
8. Right ureter compressed by position of kidney.
9. Right nephrocolic ligament making traction on kidney by prolapse of colon (seen through ileum).
10. Cecum.
11. Left kidney covered with fatty capsule.
12. Angulation at duodenojejunal junction at insertion of suspensory muscle.
13. Left ureter.
14. Left nephrocolic ligament.
15. Prolapsed transverse colon and lines of attachment of mesocolon.

The Nephrocolic Ligament,

which, on the right side, is inserted into the posterior wall of the ascending colon between its peritoneal attachments, and on the opposite side in a similar manner into the descending colon. (Fig. 5, Nos. 3, 6, 9, 10.) The nephrocolic ligament is adherent, ventrally, to the peritoneum above its attachment to the bowel; its tissue coalesces with the attenuated wall of the anterior lamella of Gerota's capsule, which adds considerably to its tensile strength. The "ligament" is an irregularly shaped aggregation of fasciculi, which have much resisting power when bunched together, but it may be readily torn apart and its continuity destroyed if carelessly and roughly handled, or if traction is made upon it sectionally with tearing or lacerating instruments.

To demonstrate the nephrocolic ligament in its integrity, showing its relations and attachments, the following directions for the dissection should be observed:

Lay open the entire upper abdominal cavity (Fig. 7) to inspection by an incision, severing all of the tissues of the abdominal wall superiorly and laterally, beginning at Poupart's ligament below the crest of the ileum on one side, passing upward close to the side as far as the costal margin, then across to the opposite side and down to Poupart's ligament. The flap thus made and turned downward exposes the entire cavity, so that the ascending and descending colon, with the hepatic and splenic flexures, may be readily reached, and their attachments to the kidney demonstrated without mutilative dissection.

On the right side, tie and cut loose the ileum close to the cecum, and the transverse colon near the hepatic flexure, sever the peritoneal attachments of the ascending colon and the peritoneum covering the kidney, so as to leave

the bowel and kidney covered with the membrane. (Fig. 8.) Then pass the hand under both bowel and kidney, and dissect them, held thus together and protected by the hand, from the loose attachments to the back and the tougher tissue composing Gerota's capsule. The remain-

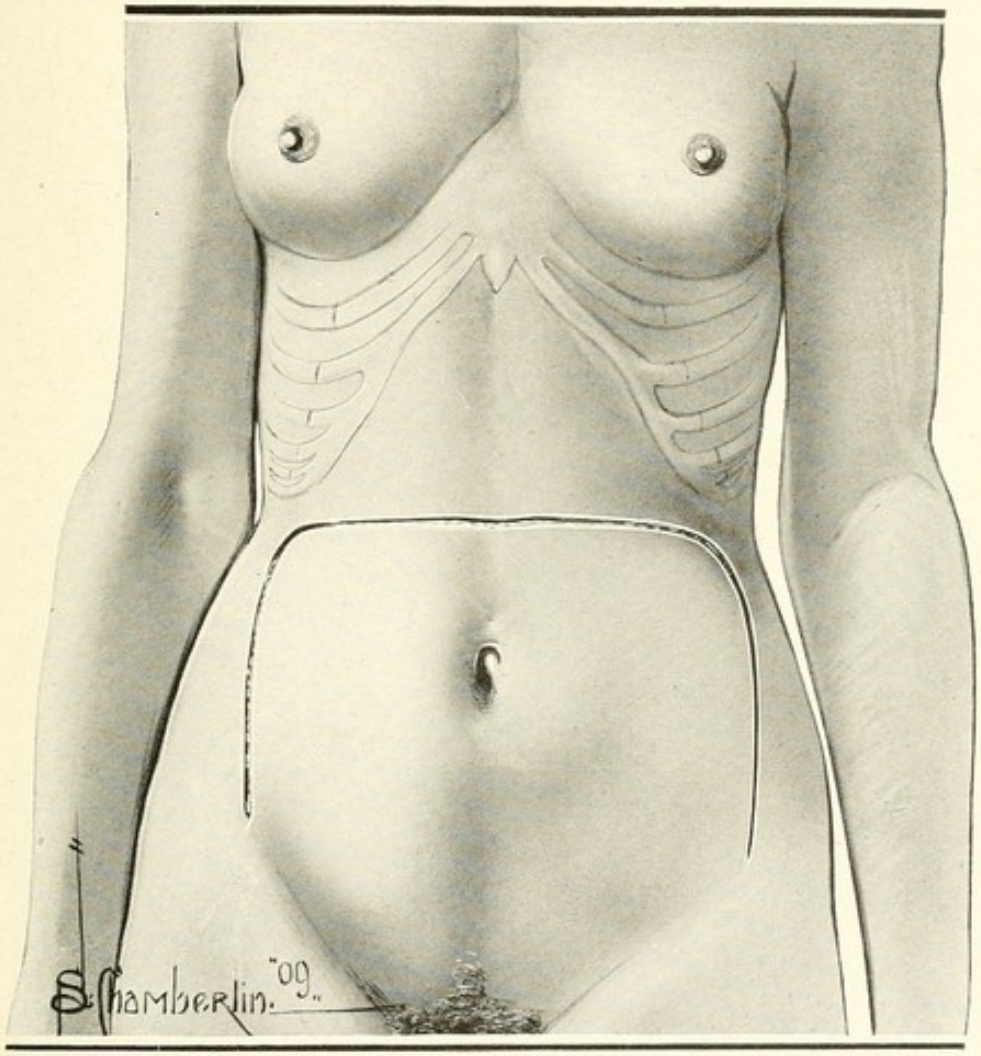


Fig. 7. Showing the location of the incision in the cadaver for the removal of the attached kidney and colon in the demonstration of the presence of the nephrocolic ligament.

ing attachment will be the blood vessels and ureter, which may be severed with the scissors. Now, with the specimen still in hand, turn it over, with the peritoneal side downward, and on removing the hand, which covers the back of the kidney and bowel, the connection of the

kidney to the colon by the nephrocolic ligament is readily seen. (Fig. 9.)

To demonstrate the ligament still farther, turn the

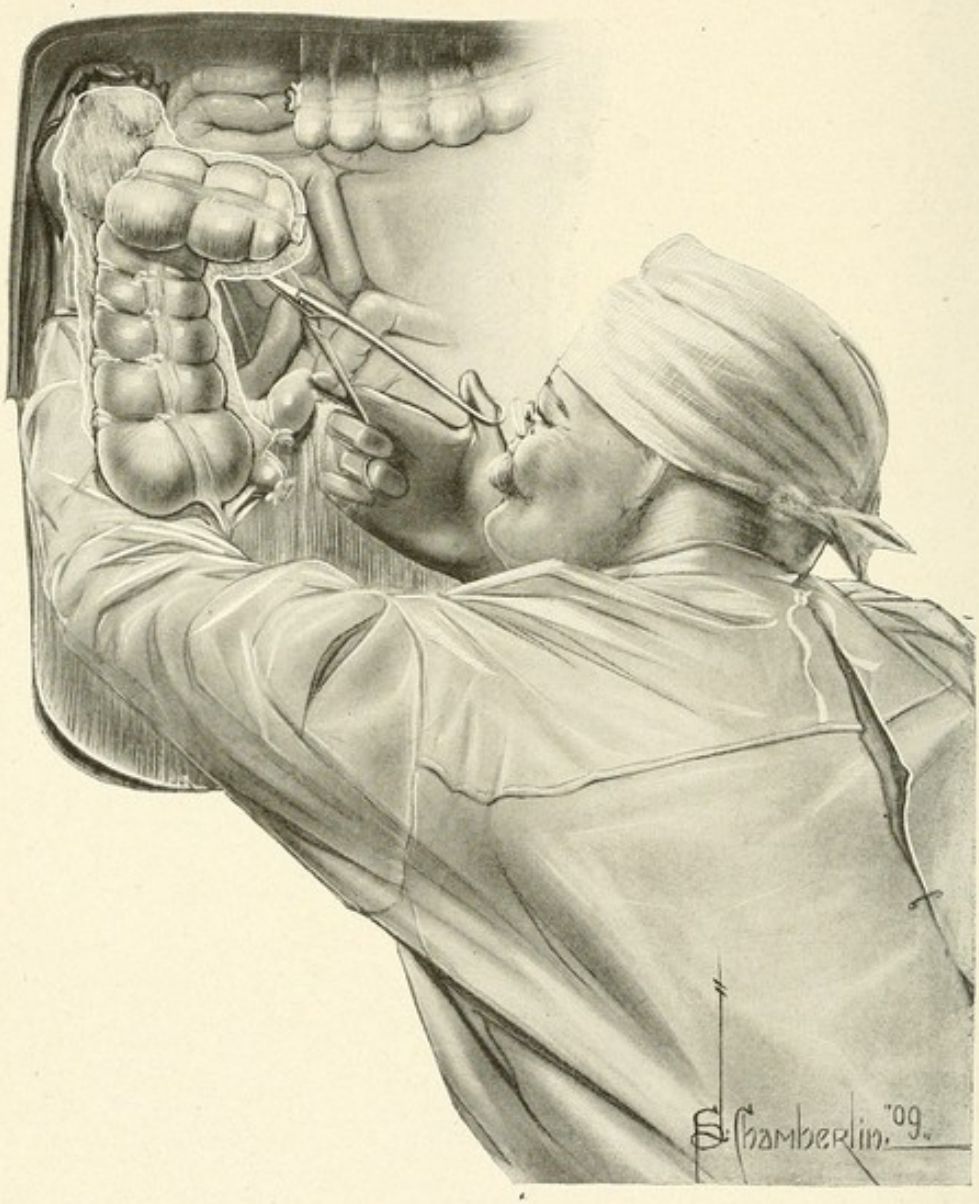


Fig. 8. Showing the method of dissection for the removal of the attached kidney and colon for the demonstration of the presence of the nephrocolic ligament.

specimen over, so that the peritoneal covering of the kidney and bowel will be uppermost; strip back about a half inch of the cut edge of the peritoneum from the parietal side of the kidney and bowel, and the margin of

Gerota's capsule will be uncovered and seen to pass downward and merge with the ligament. (Figs. 10, 11.)

The left side is removed in like manner after severing

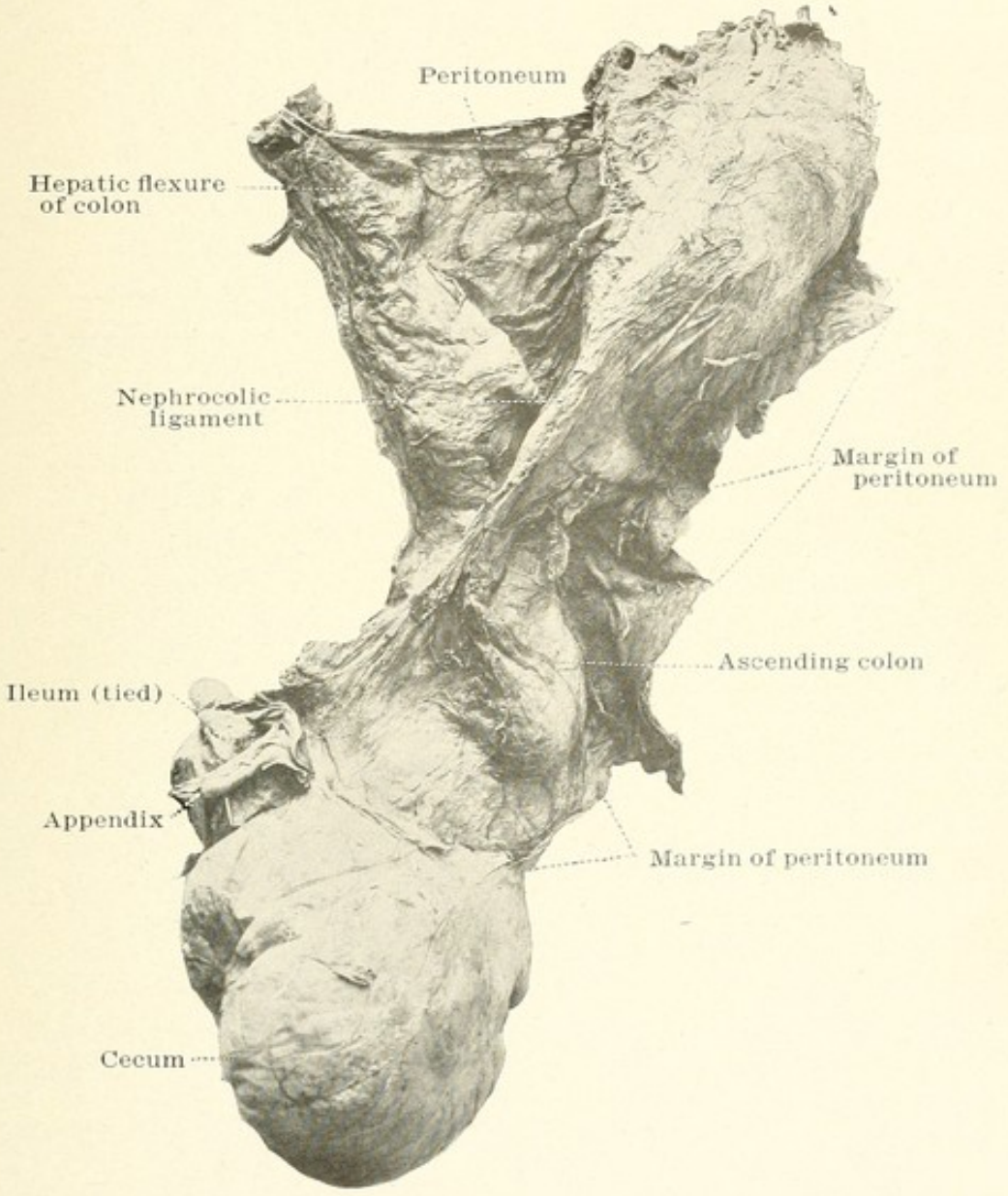


Fig. 9. **The Nephrocolic Ligament.** Posterior view of the right kidney, colon, and cecum, showing the nephrocolic ligament.

the colon above and below the kidney, and shows the same formation of capsule and ligament. (Fig. 12.)

For the best demonstration a very thin subject should be used, as the presence of much adipose tissue may

obscure the characteristic appearance of the ligament. Like many other structures of the body, the nephrocolic ligament will be found to vary much in size and tensile strength in different individuals. Like the round ligament of the uterus, whose constant presence in the in-

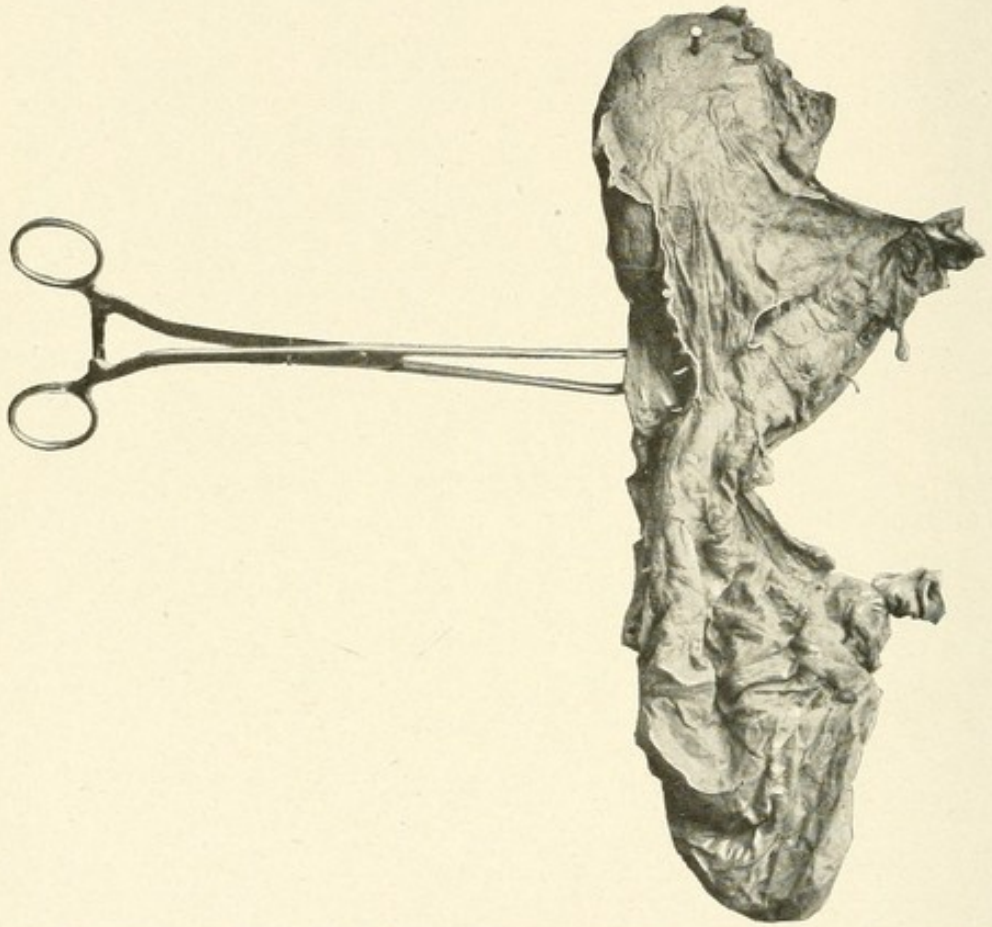


Fig 10. **The Nephrocolic Ligament.** Anterior (peritoneal) view. (Same specimen as Fig. 9, turned over.) Right kidney, cecum, and ascending colon, showing the anterior surface covered with peritoneum, the edge of which has been turned back between the kidney and bowel, showing the nephrocolic ligament secured by the forceps-hook (open), as in the author's operation of nephrocolopexy.

guinal canal was for many years a subject of controversy, in a small percentage of cases it will be found very fragile, but, also like the round ligament, it can always be utilized for practical surgical purposes if skillfully handled, whether large or small.

There is no doubt, however, that in well-marked cases

of nephroptosis the fibrillæ composing this structure are much more voluminous and have more tensile strength—and can thus be practically utilized—than in cases having no renal displacements. Whether this increase of tissue over the average is cause or effect is not known. It may be due to both—a congenital strength of the connection

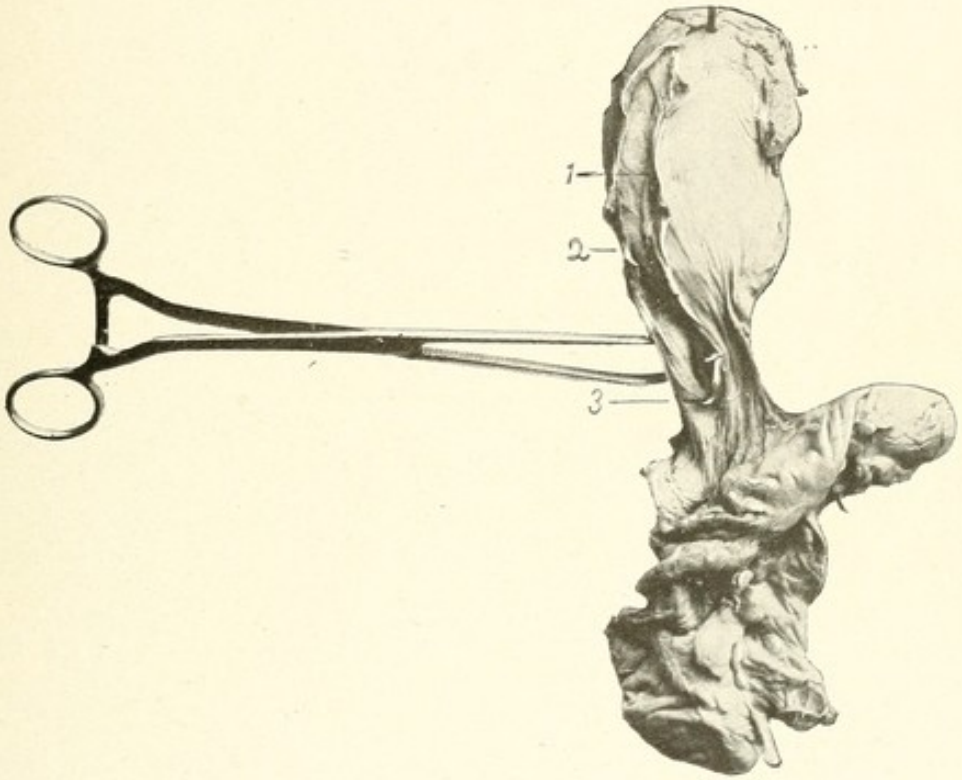


Fig. 11. **The Nephrocolic Ligament.** Anterior (peritoneal) view. Right kidney, cecum, and ascending colon, showing the anterior surface of bowel and kidney covered with peritoneum, the edge of which (1) has been stripped back from the underlying capsule of Gerota, showing its margin (2) to pass downward, and, becoming attenuated, merge into the nephrocolic ligament (3), which is seen secured with the forceps-hook (open), as in the author's operation of nephrocolopexy.

between bowel and kidney allowing the kidney to be pulled out of place, and afterwards the constant activity of the connected parts, due to the great mobility, causing increased development of the ligament connecting them. The attachment to the bowel has been found invariably present. In some cases the ligament is short, and binds the bowel closely to the kidney, while in others it is long

and loose, allowing a good deal of play between the kidney and bowel. The latter condition is believed to be present in cases of coloptosis without nephroptosis.

The nephrocolic ligament and fatty capsule may, for illustration, be compared to the cordage of a balloon—the kidney the bag of gas, and the ascending colon and cecum the car.

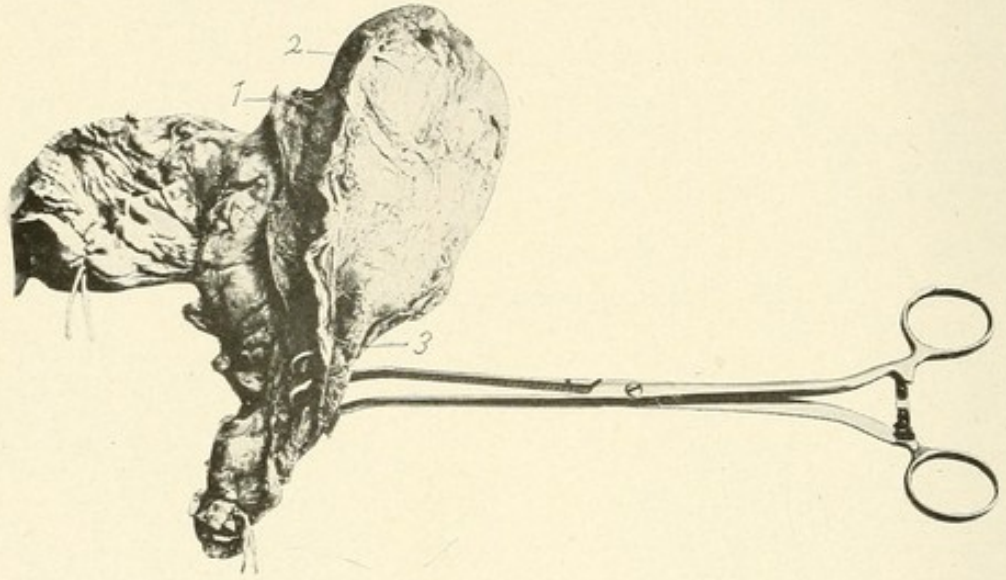


Fig. 12. **The Nephrocolic Ligament.** Anterior (peritoneal) view. The left kidney and attached portion of the colon at the splenic flexure, showing the anterior surface covered with peritoneum, the edge of which (1) has been stripped back from the underlying capsule of Gerota, showing its margin (2) to pass downward, and, becoming attenuated, merge into the nephrocolic ligament (3), which is seen secured with the forceps-hook (open), as in the author's operation of nephrocolopexy.

Gerota's Capsule.

Gerota's capsule, or the perirenal fascia, is a comparatively new anatomical discovery, no mention of it being found in the older text books on anatomy. At the time the author read his first paper mentioning Gerota's capsule, a demonstrator of anatomy in a prominent medical college called on him and asked to be shown the authority for it, stating he had never seen it in dissection, and knew of no literature on the subject. At that time the only reference at the author's command was in the

article on the kidney in that admirable encyclopedia, "The Reference Handbook of the Medical Sciences," which was shown him. The drawing here presented (Fig. 13) is an adaptation of one in the article referred to, and shows clearly the mode of formation of the capsule.

As the perirenal fascia has much to do with both the etiology and therapeutics of nephroptosis, its characteristics and relations should be studied carefully. As described by Gerota, Zuckerkandl, Glautenay, and others, it is composed of the subperitoneal fascia, which splits into two lamellæ when it reaches the line upon the lateral aspect of the abdominal wall on either side of the body, from which the parietal peritoneum is reflected, to pass on to and over the ascending and descending colons respectively. At this point the fascia divides into two layers, one of which passes over the front and on the back of the kidney of each side. The anterior layer (Fig. 13, No. 6), after crossing the kidney in front, is continued and joins its fellow of the opposite side, making a continuous membrane overlying the posterior part of the abdominal wall. From the point at which it separates from the anterior lamella, the other, or posterior, leaf of the perirenal fascia passes behind the kidney and is continued across the psoas muscle, to be inserted on the lateral aspect of the bodies of the vertebræ near their anterior surface. (Fig. 13, No. 12.)

The two lamellæ meet at the upper end of the kidney and send fibers to the under surface of the diaphragm; they also pass between the upper pole of the kidney and the adrenal body, sending fibers to both, thus loosely attaching one to the other. The connection is not an intimate one, and on this account the adrenal remains behind when the kidney is removed, except when there has been

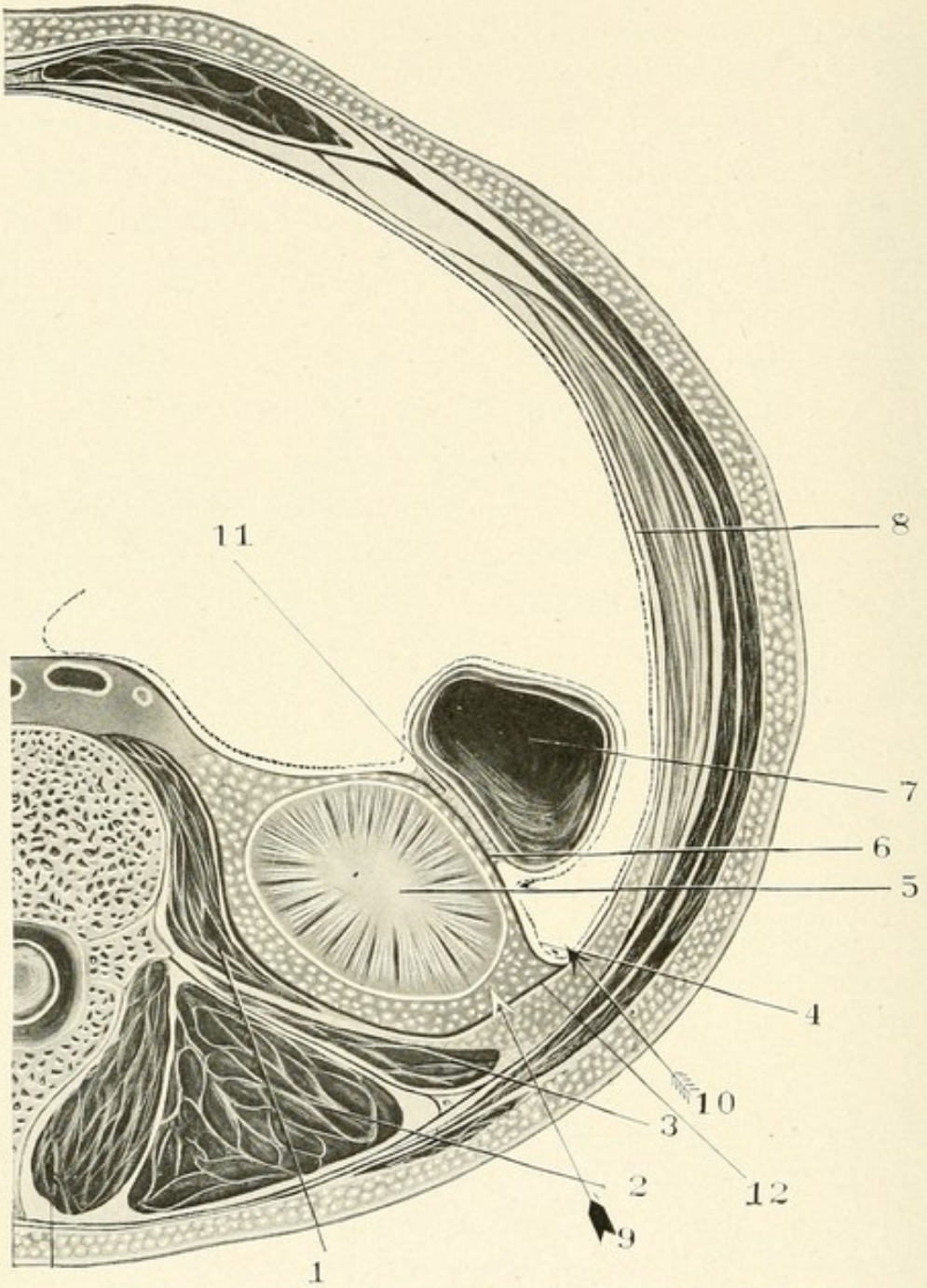


Fig. 13. Transverse section showing the relations of Gerota's capsule and the nephrocolic ligament. (After Gerota, with supplemental notations.)

1. Psoas muscle.
2. Body of the sacrolumbalis muscle.
3. Quadratus lumborum muscle.
4. Peritoneum (dotted line).
5. Kidney.
6. Anterior lamella of Gerota's capsule (becoming attenuated as it passes downward and merges with the nephrocolic ligament).
7. Colon.
8. Subperitoneal fascia.
9. Proper point of entrance to Gerota's capsule in the operation of nephrocolopexy (close to quadratus lumborum muscle, and just below the twelfth rib).
10. Improper point of entrance in the operation of nephrocolopexy (peritoneal cavity, and not Gerota's capsule, will be entered).
11. Nephrocolic ligament.
12. Posterior lamella of Gerota's capsule.

a previous inflammatory process which has produced adhesions, binding them together. In this way there is formed a sac which incloses the kidney and its fatty envelope, and which is closed above and at its outer side, but is more or less open below, and entirely so toward the median line of the body—a very important anatomical point in its relation to nephroptosis.

The trabeculæ forming the framework of the fatty cupsule are more or less adherent to the inner surface of the perirenal fascia, and, as they are likewise attached to the outer surface of the fibrous capsule, the kidney's motility is to a considerable extent dependent on this peculiar distribution of tissue. This adhesion to Gerota's capsule and its attachment to the back around the hilum and blood vessels form the kidneys' only defense against dislodgment.

Thus it is seen that the kidney is, first, surrounded by a closely adhering membrane—the fibrous capsule—which encases it firmly and moves with it; second, around this is the fatty capsule, holding the kidney loosely in a network of fasciculi, which allows the kidney some motion within it, but yet moves with it, and may be pulled downward by its lower attachment to the bowel; and, third, we have the capsule of Gerota surrounding the fatty capsule, excepting at its inner side and below, where it becomes attenuated and merges with the nephrocolic ligament at its attachment to the ascending colon. (Figs. 11, 12.) The kidney, in its excursions, must thus carry with it both the fibrous capsule and the fatty capsule, but the capsule of Gerota, being fixed, remains in place, and, being open at its inner aspect, allows the kidney to pass out of its embrace in that direction. This formation of Gerota's capsule, with resultant action of the loose kidney, explains the cause of the discomfort experienced by

many patients suffering from nephroptosis when lying on the left side.

The Large Intestine.

The large intestine (Fig. 3) is that part of the alimentary canal which connects the small intestine, ending at the ileocecal valve, with the anus, and is from five to six feet in length. It is readily distinguished from the small intestine by its sacculated contour and its longitudinal muscular bands, as well as by the greater thickness of its walls. In its normal position it is horse-shoe shaped, with the curve uppermost, and extends from the right iliac region upward to the under surface of the liver, then across the abdomen—under the liver, stomach, and spleen—to the left side, where it passes down and over the brim of the pelvis to its outlet, the anus. It has three flexures—viz.: the hepatic flexure, the splenic flexure, and the sigmoid flexure—the first two signifying the angles which the bowel forms in passing respectively from ascending to transverse (at the liver) and from transverse to descending (at the spleen), and the third, situated in the pelvis, at the termination of the descending colon, so called because of its fancied resemblance to the Greek letter sigma, ς. These flexures are all important anatomical points in the bowel, as they are so frequently concerned in occlusions and constipation; but, as the pathological conditions under consideration practically implicate no structure lower than the splenic flexure and the beginning of the descending colon, only the hepatic and splenic flexures need be especially considered in this connection.

The large intestine is supported in its position in the abdomen centrally by its mesentery, laterally by its peritoneal attachments (occasionally partly by mesentery

also), and to a considerable extent, in the opinion of the author, by the nephrocolic ligament. The large intestine, at the hepatic flexure, passes in front of the lower pole of the right kidney, to which it is attached by the nephrocolic ligament (which is situated between its peritoneal attachments), and on the opposite side it is in about the same relation with the left kidney at the splenic flexure, being attached to it in like manner by the nephrocolic ligament. The most important points of support derived from the peritoneum consist of two folds of this membrane, a fold situated at either end of the transverse colon. They serve mainly to hold the gut suspended in its upper position in the abdomen. These folds are known as the hepatocolic and phrenocolic ligaments. Gray says the hepatocolic ligament is not invariably present. The hepatic and splenic flexures are apparently formed by the upward pull of these two ligaments at the respective ends of the transverse colon, and become very important etiologic factors in connection with the subject of nephrocoloptosis. The bowel is further supported on each side by the nephrocolic ligaments, which connect the kidney on the right side to the posterior wall of the ascending colon, and the kidney of the left side to the posterior wall of the descending colon.

The diameter of the large intestine decreases from the cecum, where it is about three inches, to the descending colon, where it is about one and one-half inches. The divisions of the large intestine are the cecum, ascending colon, transverse colon, descending colon, sigmoid colon or flexure, and rectum. The cecum is the blind sac which forms the end of the bowel and receives the contents of the ileum through the ileocecal valve. The ascending colon is that portion which extends from the cecum to the splenic flexure at the hepatocolic ligament.

The cecum and ascending colon together form a most important and interesting part of the large intestine, for this portion, unlike the remainder of the gut, performs a very important part of the process of digestion and absorption. It is here that the reverse peristalsis occurs, producing the "churning" action of the bowel, which makes it possible for this sac, with its only outlet upward, to absorb the large quantity of fluid poured into it from the small intestine through the ileocecal valve. This part of the bowel is the most richly supplied with lymphatics, and is apparently designed to finish the process of absorption, passing the residue—the waste and useless matter—along into the remainder of the bowel, which acts simply as a reservoir, holding it only until it can be evacuated.

With this understanding of the office of the cecal end of the colon, it can be readily seen that any interference with the normal mechanics of its function would cause serious derangement of the parts and consequent disturbance of normal nutrition, to say nothing of discomfort, distress, and annoyance caused by the disturbed action of the musculature of the parts incident to such interference.

The transverse colon is that section of the bowel which passes across the upper abdomen from the hepatic flexure to the left side, ending at the splenic flexure. The descending colon is that part which commences at the splenic flexure and passes down close to the left parietes to the sigmoid flexure at a level with the crest of the ileum. The sigmoid flexure lies below this latter point and terminates in the pelvis with the rectum and anus.

The combined form, position, attachments to the body, and peculiar office of the colon result in its easy displacement, which is attended with a greater consequent de-

rangement of function than obtains in the displacement of any other part of the alimentary canal. Its position being semi-fixed, and its contents, beyond the hepatic flexure, semi-solid, and not freely moved by peristalsis—as is the case with the fluid contents of the small intestine—any displacement which causes unusual angulation, it can be readily seen, would result in defective elimination of its contents. Its fixed position, in connection with the fact that it must be of a definite length to fill a given space, renders the question of its distention and elongation—which occurs as a result of long continued partial occlusion by angulation, etc.—a matter of serious importance, and one to be duly considered in connection with these anatomic conditions.

The Duodenum.

The duodenum (Figs. 3, 4, 5, 6) is that portion of the small intestine which passes from the pyloric end of the stomach to the jejunum. It is about ten inches in length and about two inches, or less, in diameter, runs a tortuous course, is covered only in part by the peritoneum, and differs essentially in position from the remainder of the small intestine, being almost completely fixed and immovable. It is this immobility, coupled with the fact of its adhesion to the fatty capsule of the right kidney, which makes this portion of the small intestine an important factor in the somewhat complex pathology of nephrocoloptosis. The gut, soon after it leaves the stomach, passes under the transverse mesocolon, and is within its embrace during the remainder of its nearly circular course, passing through it and becoming intraperitoneal again at its junction with the jejunum. The bowel is further held by the suspensory muscle, a deli-

cate, flat, fibromuscular band, which starts from the left crus of the diaphragm and runs downward to its insertion on the duodenojejunal angle. (Fig. 5, No. 2.)

The common bile duct (Fig. 6, No. 2) empties into the gut shortly after it becomes extra-peritoneal, and the head of the pancreas lies within its concavity and is adherent to it. It is thus readily seen what effect the traction of the descending and adherent kidney must have on the duodenum, held, as it is, rigidly at two points—the first near its origin at the stomach by its attachment to the hepatoduodenal ligament and by the edge of the transverse mesocolon where it passes under it, and the second at the duodenojejunal angle by the suspensory muscle. The result is angulation of the gut at these points, as well as the causation of more or less distortion of the common bile duct, with consequent disturbance of the normal hepatic and pancreatic functions. (Figs. 4, 6.)

The stomach (Figs. 3, 4), when of normal size, should not be in a position for any portion of it to be found below the umbilicus, except, perhaps, in some instances of acute overdistention. The organ is said to be in a state of ptosis when the greater curvature is found to be at or below the navel, whereas the stomach is not usually really dropped, but is in a state of dilatation, and, because of its increased size, the dependent portion is found in this abnormally low position. The cardiac end is still held in its fixed position at the termination of the esophagus, and the pyloric extremity is held solidly by the fixed position of the duodenum, especially at the point where this bowel passes across and under the transverse mesocolon and at the point of attachment of the hepatoduodenal ligament—about an inch from the pylorus. This latter is the important anatomic point which is of interest in connecting the stomach with the chain of

pathology beginning with the relaxation of the hepato-colic ligament, as it is the compression of the duodenum at this point, before described, which causes gastric stasis and consequent dilatation, and the so-called gastroptosis. The elongation of the gastrohepatic omentum, which may be more or less relaxed as a consequence of the constitutional condition of weakness of restraining tissues, gradually eventuates as the unusual strain put upon it by the increasingly enlarging stomach continues.

CHAPTER II.

ETIOLOGY.

The perfect construction of a well-designed machine requires that it shall be so made as to perform its work properly, and at the same time to continuously do its work for a reasonable period without breaking down or getting out of order. That these purposes may be fulfilled, the first requisite that the designer insists on is that the materials used shall be of the quality best adapted to the uses of the various parts of the mechanism. An imperfectly tempered spring, die, or cam results in imperfect working of the machine, if not in utter failure.

The human body may be compared to a well-designed machine, but it must be constructed according to specific requirements in order to enable it to perform its given work in a perfect manner—the functions of the various parts must be performed in harmony, and the purely mechanical parts must operate without friction or failure, and not break or yield when subjected to the normal strains of the working machine. While this human machine has been well designed, its construction is not always in accordance with its requirements, and the results are, naturally, variable—one will succumb to the first strain almost as soon as finished, some vital part in such an instance having inherited the tissue too frail to do its part in the work of life. Defective construction in others may be manifested in functional disorders, leading to incomplete metabolism, gouty diathesis, tubercular tendencies, etc.; or the lack of structural integrity may be marked in the purely mechanical tissues—those which

have to do with the binding together of different parts, the sustaining tissues—aponeurosis, fascia, tendon, and muscle. In this manner the tendency to hernia, uterine displacements, lateral curvature of the spine, prolapse of the internal organs of the body, etc., may be transmitted by heredity as well as a crooked nose, imperfect teeth, or other improperly constructed anatomy. A man says he has a hernia caused by a strain, whereas the strain was but a contributing incident, while the real, the fundamental, cause of his rupture existed before he was born—even at the inception of his existence, concealed in the germinated ovum. It would appear, therefore, that the causes of displacement of internal organs are both **passive** and **active**—the former being the primary, or fundamental, etiologic factor, and the latter the secondary, or contributory, causes. Finely drawn theories and elaborate arguments are not necessary to substantiate this position, as clinical evidence in its favor is abundant. The author has one family of three generations under his care in which nephrocoloptosis occurs in the grandmother, mother, and two daughters. This is not a coincidence, but the outcome of natural law.

On the other hand, it does not seem reasonable that the small weight of the kidney alone is sufficient to cause its displacement, even when loosely secured, and so we must look to the secondary or contributing causes for the link to complete the causative chain. To prove it when found, it must be always present with the nephroptosis, and its action must be positive—mechanically positive. In coloptosis and in the action of the nephrocolic ligament these conditions are fulfilled. This conclusion is substantiated by the evidence of the author's radiographic investigations, which show coloptosis present in all of a large number of cases of nephroptosis examined.

That the kidney is influenced by the bowel, and not the bowel by the kidney, is proved by the fact, as stated, that all the cases of prolapsed kidney had also prolapsed bowel, while a number of radiographs showed prolapsed bowel with normally placed kidney, which is an indorsement of Glenard's theory. The presence and action of the nephrocolic ligament makes it the most important factor in connection with the secondary or contributory causes, as by it the prolapsing colon pulls the kidney out of place.

The factors necessary for the occurrence of nephrocoloptosis are four in number, viz.: (1) weak or absent hepatocolic ligament, (2) loose attachment of kidney at its hilum and to Gerota's capsule, (3) strong and short nephrocolic ligament, and (4) prolapse of cecum and ascending colon. Without this combination the kidney will not be displaced, except by trauma. If the kidney is bound strongly to the back by the tissues around the hilum and blood vessels, and to the perinephric fascia (Gerota's capsule), as usually found in post-mortem, it should not be only impossible to dislodge it by traction, but, with a strong nephrocolic ligament, this mechanical arrangement should assist in **preventing** a coloptosis, and this is the normal mechanical action of these parts.

Reference to the radiographs of cases will show that the laxity of the peritoneal attachment of the colon at the hepatic flexure is the key to the whole line of descensus. When this gives way, the cecum and ascending colon drop, and the drag on the kidney through the nephrocolic ligament begins. Hence the conclusion is reached that the right kidney does or does not descend according to the laxity of its supports and the degree of traction exerted on it by the dropping of the ascending colon and cecum, which is permitted by a lax, or absent, hepato-

colic ligament. The cecum, consisting of a sac with its outlet upward, necessitates the contents of the viscus to be always forced in that direction, which requires the application of tractile force in the opposite direction, and through the nephrocolic ligament the kidney is pulled downward. (Figs. 3, 4, 5, 6.) When to this natural downward traction of the bowel is added the weight of a full torpid cecum, distended more or less with fecal matter, the force applied to the downward movement of the kidney will be still greater. The violent efforts of the bowel to unload itself when so distended, and to force the contents over the acute angle at the hepatic flexure, formed by the descent of the gut on each side, aid materially in the completion of this etiologic factor. The action of the colon on the left side is in the opposite direction, and its contents are there forced downward, thus making no countertraction on the kidney of this side through the nephrocolic ligament. The phrenocolic ligament, which supports the bowel at the splenic flexure, is also an important factor in the prevention of displacement of the gut at this point, as—unlike the hepatocolic ligament—it is always present, and uniformly strong and dependable. In consequence of these favorable mechanical conditions the left kidney is rarely dislodged. When the right kidney is forced downward by the dropped ascending colon, it pulls with it the duodenum by reason of the adhesion of this intestine to the side of the fatty capsule, and this action, causing a kink or angle in the bowel and often closure of the biliary and pancreatic ducts, explains the presence of digestive and biliary symptoms in cases of prolapse of the right kidney. Prolapse of the left kidney alone is exceedingly rare, and when it does occur from any cause, except trauma, gives practically no symptoms. As the author has never found a left dislo-

cation singly, and but eleven cases of floating kidney of the left side in one hundred and fifty-three nephroptoses of the right, there must be some good reason for the great difference. The weak point of construction in the hepatocolic ligament, the presence of the nephrocolic ligament, and the action of the ascending colon and cecum explain this in the most satisfactory manner. As a purely mechanical proposition it can not be refuted if the presence of the ligament is admitted. (Figs. 3, 4, 5, 6.)

Coloptosis without nephroptosis is due to the presence of a long, loose, nephrocolic ligament, which allows the bowel to descend without making traction on the kidney. This has been found to be true in several operations for the cure of constipation and colonic irritability in cases of coloptosis without nephroptosis.

Much has been said of late regarding the body shape as a cause of nephroptosis, and deductions have been made based on elaborate measurements and mathematical calculations, but this theory has been found to be of little practical use from either an etiologic or diagnostic standpoint. While a large number have the conformation of body described, many do not fill the requirements at all, so that the author has come to look upon the imperfectly developed body in these cases as due to the same primary cause as the ptoses which are so frequently found associated with it—viz.: **hereditary laxity of restraining tissues.** Therefore, the body shape should not be considered in any sense as a primary cause, but simply as a concomitant condition. It acts, no doubt, to a considerable extent as a secondary or predisposing cause, and in the therapeusis should receive treatment as such.

CHAPTER III.

SYMPTOMATOLOGY.

The symptoms caused by the displaced colon and kidney are so complex and their manifestations so varied that the patient is liable to be treated for all manner of ailments which do not exist, and frequently gives a history of having "suffered with many physicians"—consulting doctors of all kinds, and each finding good symptomatic grounds for classifying the patient in his specialty. The gastro-enterologist now gets the most of them, with the neurologist (or psychiatrist) a close second. The surgeon has been making a rather unsuccessful bid for them by his nephropexies, which failed so frequently because his pathologic vision took him no farther than the loose kidney.

An intelligent consideration of the true etiology makes plain the understanding of the symptomatic manifestations which lead to correct diagnosis and prognosis, and to practical and efficient treatment. Hence, to understand the symptoms and know what they mean we must know what causes them. The first symptoms indicative of a nephrocoloptosis are usually not those referable to the kidney, but to the stomach or colon. Because of the traction on the duodenum, with resultant angulation of the bowel and interference with the function of the biliary and pancreatic ducts, gastric manifestations will be the most likely to be the first in evidence, and a superficial diagnosis made of "indigestion" and "biliousness." The symptoms are those ordinarily ascribed to dyspepsia —distress after eating (referred to the right epigastric

region), eructation of gas, occasional nausea, etc. The complexion becomes muddy, or a slight jaundice may occur.

The resultant loss of flesh and a general appearance of malnutrition soon show markedly the result of the derangements of the digestive system. Concurrently with the gastric manifestations, or possibly preceding them, there will occur those referable to the colon, caused by its angulations and resultant sacculations and stasis of gas and fecal matter. The most immobile points of attachment of the colon are at the hepatic and splenic flexures, so that when the cecum and transverse colon become displaced, and lie low in the abdomen and pelvis, these two high attached portions of the bowel—being hung up, as it were, like a rubber tube over a peg—cause sharp angulation in each upper hypochondriac region, which partial obstruction of the bowel at these points causes the principal colonic symptomatology. Pain is usually complained of at the points of flexion, and assumes at times a severe colicky character, that on the left side often being the most marked and of a more severe character, which is doubtless caused by the greater mechanical obstruction being at that point, as a result of the sag of the transverse colon toward this side, due to the relaxation of the hepatocolic ligament, thus bringing the greatest weight of the bowel to hang on this support. (Figs. 4, 6, and radiographs of cases.)

The difficulty experienced by the cecum in evacuating its contents frequently causes severe pain, with spastic contraction of the gut, which is sometimes so severe as to simulate peritonitis, or appendiceal disease. During such attacks the distended sensitive cecum can, as a rule, be easily demonstrated by palpation, and, as its descensus may be so extensive as to cause it to lie in the bottom

of the pelvic cavity, the position of the fullness and sensitiveness may be deceptive and lead to faulty diagnosis.

The toxemia resulting from stasis of the colonic contents, and the constant activity of the colon in its efforts to free itself of the overdistention by forcing its contents over these angles, causes a condition of chronic irritability of all of the structural parts of the bowel, besides toxic symptoms of more or less severity. The mucous membrane is the first to suffer, then the musculature, and lastly that portion of the sympathetic nervous system supplying the gut. The indications will be: (1) colonic catarrh, as shown by masses of mucus in the stools, obstinate constipation, and frequently alternating diarrhea and constipation; (2) frequent attacks of colic, often of long duration and of severe character, causing sensitiveness of the colonic region for long periods of time; (3) nervous manifestations of various kinds and degrees of severity, among which the most common are sudden attacks of headache or vertigo, hysteria in various forms, tachycardia (very common, often occurring at night during sleep, causing a sudden awakening with feeling of impending danger), insomnia, loss of memory, and mental irritability. In cases of long standing a condition of neurasthenia often develops that may lead to the most extensive serious disorders of the nervous system, even to the derangement of the reasoning faculties.

A comprehensive and forceful opinion regarding the disturbance of the nervous system related to conditions under consideration is the following by C. B. Burr, M. D., medical director of Oak Grove Hospital for Nervous and Mental Diseases, Flint, Mich.:

Psychopathic Nephroenteroptic Symptomatology.

The theory of autotoxis as a causative factor in the psychoses and neuroses has furnished a working basis for the explanation of certain departures from the normal in the cerebro-spinal sphere of activity. That the theory has been overloaded, possibly goes without saying. This is unfortunately true of every illuminating theory, but many pursuing the treatment of nervous and mental maladies are reasonably well assured that deductions from the favorable action of eliminatives *post hoc* justify the further *propter hoc* assumption of the causative relation of retained toxins to nervous perturbation.

Constipation is a bane of mankind, and seems unavoidable under present-day conditions of living and work. It is especially the bane of womankind, and is often developed at an early period of life through inadequate or indecent toilet facilities in the public schools. "We have taken your advice and built our new school-house around the water-closet," said an experienced member of a Board of Education to the writer on one occasion.

Constipation is indubitably a factor in, if not the ultimate cause of, a frightfully large proportion of mental cases. Its correction and the relief of incidental malassimilation are ends to which the experienced psychiatrist directs early effort. Realizing the importance of elimination, it is impossible to refrain from a congratulatory expression to the author of this book for his painstaking directions for the medical relief of intestinal torpor. Symptomatically the nervous case is invariably improved by skillful attention to abdominal conditions arising from constipation. Is your mental patient restless—attend to the bowels. Is he irritable—attend to the bowels. Acquaint yourself with the condition of the teeth, the ears, the eyes, the chest organs, the kidneys—but incidentally unload the bowels. Is he sleepless—see that the bowels are active. Is he lacking appetite—empty the bowels. In the experience of the writer the best hypnotic is often a dose of castor oil, and the best tonic a colon flushing. Elimination and again elimination—*toujours* elimination should be the watchword in the treatment of morbid mental states.

It is probable that fecal impaction of large amount is a more frequent condition than is generally recognized. Experience in

many cases—one very recent—indicates that impaction may be present in extreme degree without obvious abdominal indications pointing to colonic distention. Nurses may be deceived by the appearance of regularity in patients' stools, while emptying the intestinal canal at higher levels than the sigmoid does not occur. When through well-directed effort this finally takes place, the amount of fecal accumulation may be astounding.

That perverted emotional states in relatively healthy individuals may be induced by temporary bowel inactivity needs no demonstration to one habitually regular in this function. Prevented from its performance, there are irritability, hebetude, lassitude, malaise, vaso-motor perturbation; the person's mental output is indifferent and his emotional responsiveness is unstable. Add to the sensations thus induced the results of months or years of habitual constipation, and it is not difficult to understand how morbid habits of thinking may be augmented, if not engendered, by chronic bowel torpor.

It follows logically that any structural impediment to peristalsis should, if possible, be relieved, and that if relieved the symptoms dependent upon it will improve. Mechanical difficulties (obstructions) that surgery can reach should be relegated to the hands of the operator. The writer has no interest in that conception of surgery which constitutes it the be-all and end-all in treatment. Patients subjected to ill-advised operation are rendered worse instead of better. The efficient and helpful surgeon to nervous and mental cases must needs repress the enthusiasm for operating and intelligently apply common-sense principles in their care and medication. Many cases recover after surgery when the operation is but an episode. A morbid condition has been relieved, a focus of irritation removed, and the patient is afforded a benefaction comparable with that furnished by a dentist who extracts an aching tooth. In addition, the nursing attention, the prolonged quiet, the rest in bed, are all adjuvants to his betterment.

Again, mental and nervous cases recover where obvious and palpable lesions, as of the pelvic floor and uterus, are left uncorrected. The writer has been amazed at the facility with which theoretically pure surgical cases from time to time recover without surgery; on the other hand, he has observed the

beneficent results of surgical attention again and again in mental cases. Rectification of the position of a displaced kidney has been contributory to the relief of morbid depression in a case upon which Dr. Longyear operated and in which he and the writer were jointly interested.

The pathological connection between kidney displacement and morbid mentality has been heretofore difficult of establishment. That the downward dislocation is due, according to the ingenious observations of Dr. Longyear, to a dragging on the nephrocolic ligament—the primary fault being one of displacement of alimentary and emunctory organs, with consequent embarrassment to their functionating—sheds a flood of light on the subject. The question resolves itself into one of impaired nutrition and autotoxis, and the sequence of events in their etiological bearing upon morbid processes in the nervous system is made as plain as a pikestaff. He who runs may read their significance.

The combination of the effects of the colonic disorder with the malnutrition resulting from the interference with the gastric and hepatic functions causes, in extreme cases of long duration, a **facial expression** which is quite as characteristic and typical of this condition as the well-known **facies ovarina** is of ovarian tumor. The muddy, colorless complexion, lusterless eyes, deep facial lines, expressing weariness and exhaustion, and lack of natural roundness of outline, mark the face of the patient suffering with nephrocoloptosis.

Constipation of a more or less persistent character, either alone or alternating with diarrhea, and the movements usually accompanied by colicky pain, is a very characteristic manifestation. The author has found this condition of the bowels to be present in 74 percent of the last one hundred cases.

Severe colicky pain in the right inguinal or lumbar region may be caused by the spastic condition of the cecum, due to fecal accumulation. This is of frequent

occurrence, owing not only to the obstructive angle at the hepatic flexure, but also to the backing up of the colonic contents from the obstructive angle at the splenic flexure. As the cecal contents are of a fluid character, and the hepatic angulation always less acute than that on the left side, serious obstructive symptoms at this point do not occur. Symptoms of obstruction may occur, however, in extreme cases of coloptosis by reason of fecal impaction in the transverse colon. The explanation of this is seen in those radiographs which show a large portion of the transverse colon situated in such a manner as to lie almost parallel with the descending part of the gut. This necessitates the forcing of contents upward and over the acute angulation at the splenic flexure. Dilatation of the cecum results from this back pressure, and causes much of the symptomatology referable to the right side of the gut. The author believes that the majority of the symptoms which are usually attributed to the floating kidney itself are more properly gastric, duodenal, or colonic.

Beyond Dietl's crises and their sequelæ, the symptomatic manifestations of the loose kidney itself are insignificant and not of a serious nature. A sensation of dragging in the loin, or of a constriction just below the ribs, and some tenderness on pressure constitute the indications which can be justly attributed to the loose kidney. The severe pain often complained of in the right hypochondrium is usually found, on critical examination, to be located in the colon at the hepatic flexure; or the duodenum may be the seat of irritation because of the traction on it by the adherent kidney.

Dietl's crisis[1] constitutes the most severe, acute, and symptomatic indication of floating kidney. The attack

[1] Dietl: "Wandernde Nieren und deren Einklemmung," Wiener Medizinische Wochenschrift, 1864, vol. 14, pp. 36, 37, 38.

commences suddenly, with severe pain in the right side at the site of the displaced organ, which becomes swollen and tender. The bowels are tympanitic and sensitive to touch, and the patient, with the knees drawn up and an anxious and pinched expression, has the general appearance of one suffering from the onset of an attack of peritonitis. Jaundice is sometimes observed, due doubtless to the mechanical closure of the bile duct, either from pressure of the swollen kidney or torsion of the duodenum. Nausea and vomiting are usually prominent symptoms at the beginning of the attack. There is usually little or no rise of temperature, but, after the lapse of from ten to twenty-four hours, fever may be in evidence, even of a high degree, caused by intestinal toxemia incident to extreme paresis of the bowel. In severe attacks of long duration, acute nephritis, pyelitis, hydronephrosis, or perinephritis may develop, when the usual symptoms pertaining to these conditions will be manifest. Micturition is frequent during the beginning of the attack, and the urine may evidence ureteral irritation by containing some blood and epithelium. Later, albumin, casts, blood, and pus will indicate the involvement of the kidney or its pelvis.

When jaundice is present, an erroneous diagnosis of gallstone is liable to be made, and the swollen displaced kidney may be mistaken for a distended, inflamed gall-bladder. The tympanitic, sensitive abdomen, simulating peritonitis, may also lead to error in diagnosis in the direction of the appendix, ruptured gall-bladder, or pyosalpinx, and so cause the performance of unnecessary and harmful surgery.

A case referred to the author recently by Dr. B. R. Shurly occurred at Harper Hospital, and, as it presents

quite a typical illustration of an attack of Dietl's crisis, it is herewith presented in detail.

Patient, female, unmarried, waitress, aged 40; admitted January 5, 1909, giving the following history: Diseases of childhood—measles, mumps, whooping-cough, and scarlet fever; good recovery from all. When 20 years of age had typhoid fever, from which she made good recovery, and which began with a "bilious attack," attended with great pain in the right side, similar to others which she has had since. During the last three years these have become more frequent. The seizure usually commences with severe pain in the right hypochondrium and epigastrium, occasionally vomiting at onset. Jaundice is usually present and increases during the attacks, sometimes markedly. Complexion naturally swarthy. Attacks may last from two days to two weeks, one of which, eight years ago, was extremely severe and lasted for about eighteen days. Since then she has been taking olive oil and Carlsbad salts to regulate the bowels. Has noticed that the attacks are more frequent when the bowels are constipated, which is their usual condition, requiring persistent efforts to move them. Between attacks she feels fairly well, although frail and never very strong. Never had any menstrual or urinary disorders.

Her present illness commenced ten days before admission to the hospital, with severe pain in right hypochondrium, chills, nausea and vomiting, slight headache, jaundice, and rise of temperature. Says this is the first attack, commencing with chills. Condition on entering hospital: jaundice, not intense, but eyes somewhat yellow; lips and skin dry; temperature, 100° F.; pulse, 84; respiration, 24. Pain severe in epigastrium and right hypochondrium; nauseated, but not vomiting. Abdomen much distended, tympanitic and tender to touch, espe-

cially over the whole of the right side. Percussion showed flatness in right hypochondrium and resonance over other parts of abdomen. The sensitiveness and distention rendered palpation of the swollen kidney impossible, and its contour could be judged only by percussion, which indicated a mass more than double the size of the kidney.

Urine by catheter: acid, slightly turbid, dark brown; specific gravity, 1,020; albumin present (small quantity), bile, few granular casts, and blood cells.

A diagnosis of Dietl's crisis, caused by torsion of the pedicle of a floating kidney, was made, and the following treatment ordered: physostigmin sulphat. gr. 1/100, hypodermically every four hours; a high enema composed of glycerine ℥j, epsom salts ℥j, and water ℥vj, to be used once daily; a low enema, to be retained, of normal saline solution ℥viij, given every two hours; hot camphor stupes over the abdomen; heroin gr. 1/10, hypodermically, when necessary for pain; fluid diet (no milk).

After five days of this treatment, with some modifications, the tympanitic distention had disappeared and the nausea ceased. A large sensitive mass—the kidney—could then be easily palpated in the right loin and extending well forward into the abdomen. This gradually diminished in size to nearly the normal kidney in ten days more.

An examination of this case later showed a freely movable kidney, and a radiograph taken at the same time (Fig. 83) showed the cecum in the pelvis and much of the transverse colon with it.

This case, while typical of Dietl's crisis, is an extreme one, and is cited as such; the usual attack, however, is not so severe, and is often apparently of less diagnostic significance. Frequently the attacks will last but a few

hours, and consist mostly of pain located in the right epigastric region. Such attacks are often diagnosticated as gastric neuralgia, or gallstone colic. These short seizures are doubtless caused by a slight torsion of the pedicle, of short duration, with consequent dragging and kinking of the duodenum and common bile duct.

A floating kidney, even of the most extreme character, may exist for years without the occurrence of this accident, but as a ptosis of any degree is always subject to it, and as it is known to occur in cases thought to be of a mild degree, prognosis in all cases should be guarded and treatment guided by this fact.

CHAPTER IV.

DIAGNOSIS.

Successful therapeusis—the ultimate aim of medical science—must be founded on correct diagnosis. The drudgery of painstaking examination can not be avoided by the clinician, as his ultimate success in treatment depends upon the accuracy of his findings. To prescribe for a patient for intestinal dyspepsia and neurasthenia without making a physical examination is neither scientific nor honest, and yet the slipshod method of snap diagnosis is too frequently practiced in the class of cases under consideration.

Snap diagnosis often appears wonderful and impressive when witnessed by the inexperienced, but such methodless practice should have no place in the exercise of knowledge pertaining to any branch of the medical art, and least of all to that of diseases of the abdomen, where error may lead to dire disaster. Symptoms of a mild character, meaningless to the tyro, may be of great diagnostic value to the experienced clinician, as he has learned—that which every good diagnostician must know—the **value** of symptoms. This knowledge enables him to translate these ofttimes seemingly meaningless signs into the language of disease.

I know of no class of cases in the field of pathology that will yield a more fruitful reward for correctness in diagnosis, to both the patient and physician, than these enteroptics, whose manifold complainings are apt to be mistaken for hypochondriasis and the imaginings of the chronic dyspeptic. The histories of these cases are ex-

ceedingly valuable as diagnostic indices, and should be taken with care, as it is the analysis of the history, in connection with existing symptoms, which points to the probable diagnosis, and determines the necessity of further investigation by means of physical examination.

Such a history is usually one of long-standing dyspepsia, with constipation—or alternating constipation and diarrhea—gradual loss of flesh, nervous exhaustion and irritability, muddy complexion, and a drawn, weary expression of countenance, frequent attacks of griping pains in the lower abdomen, often located in the region of McBurney's point; mucus in the stools, and often pain in the left upper abdomen in the region of the splenic flexure of the colon. Occasionally a patient will tell of attacks of terrible pain in the right side, attended with swelling around the kidney, fever, jaundice, etc., which are recognized as attacks of Dietl's crisis. Few patients will give all of these manifestations pointing positively to the kidney and colon, and many will exhibit but few. It is especially in such indefinite and obscure cases that the physical examination and the x-ray will give the positive results that make the diagnosis clear. All cases having abdominal symptoms should be examined physically, and this is especially true of the obscure cases.

The physical diagnosis of nephrocoloptosis is a simpler proposition than that of coloptosis alone, because of the easily palpated kidney, and the fact that the colon is always prolapsed when the kidney is displaced makes the coloptosis a foregone conclusion when the nephroptosis is ascertained.

To palpate the kidney, **posture** is of the greatest importance. The subject must be in such a position that the muscles of the abdomen, the loin, and the thoracic region will be relaxed. The position of standing with

forward bending of the body, with arms resting on some support, is found unsatisfactory because of discomfort to the patient, if a woman, and inability to control the muscular movements when in this position. The dorsal and lateral postures, which the author uses exclusively, have none of these objections, and serve the purpose admirably.

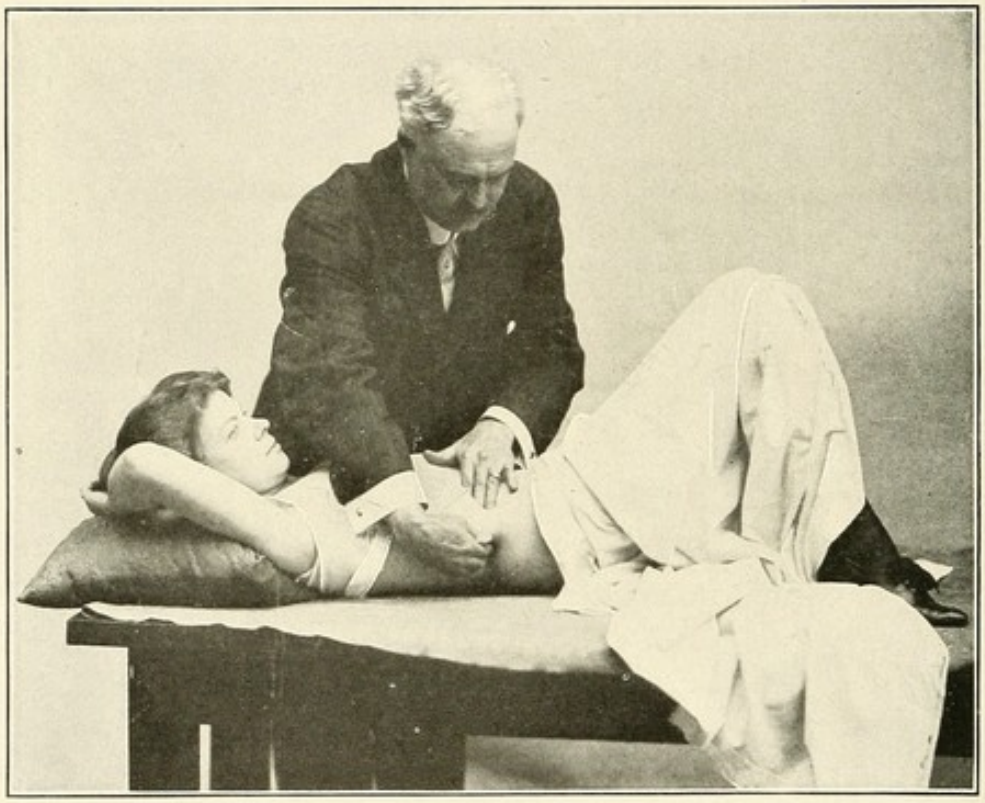


Fig. 14. Showing technic of physical examination for nephroptosis. Dorsal decubitus. First position of examiner's hands.

First place the patient on the back, with a small pillow under the head, the thighs flexed and heels close to the buttocks. Expose the abdomen and the lower thoracic region. (Figs. 14, 18.) Standing on the left side of the patient, place the tips of the fingers of the right hand in the triangular space in front of the right quadratus lumborum muscle, and just below the twelfth rib, and the tips of the fingers of the left hand in front, just below the

costal margin of the same side. Direct the patient to take a deep inspiration, allowing the fingers to gently follow the movement of the parietes. When inspiration is full, have the patient expire the air completely from the lungs, and as this is being done press—at first gently, then deeply—with the fingers of both hands, approximating them toward each other. At the end of expiration re-

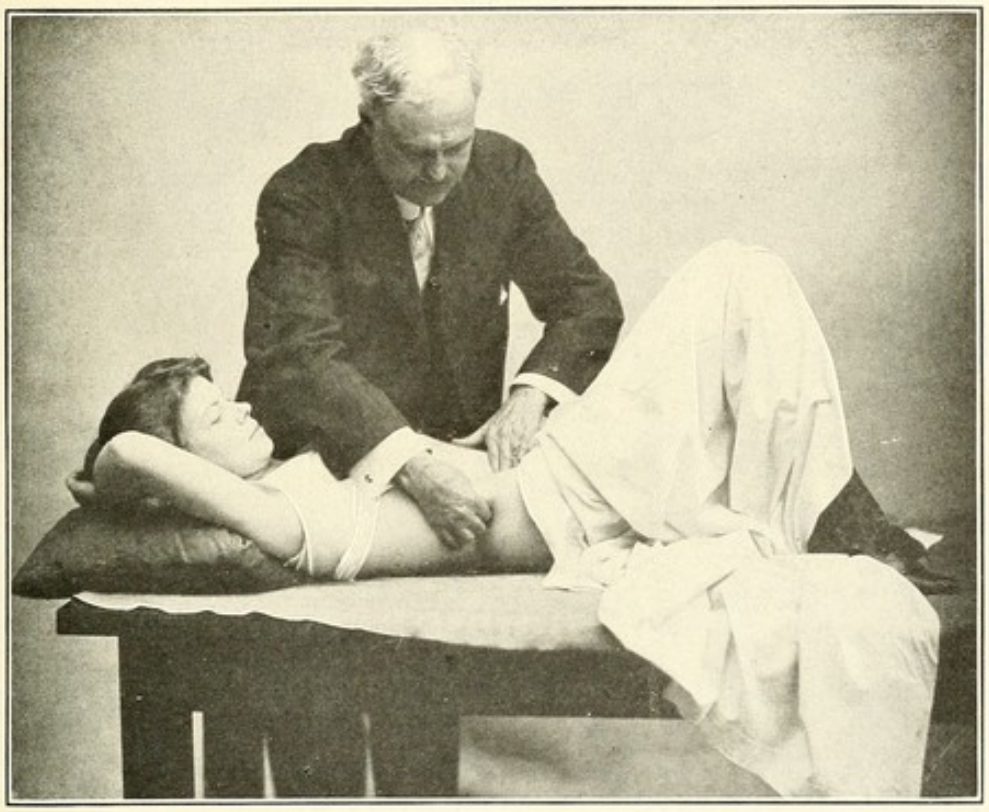


Fig. 15. Showing technic of physical examination for nephroptosis. Dorsal decubitus. Second position of examiner's hands.

place the fingers of the left hand with the thumb of the right, continuing deep compression, and palpate below for the kidney with the left hand. (Figs. 15, 19.) This will usually dislodge a floating kidney of any degree of displacement so that it can be felt, either wholly below the costal margin or partially below. In some cases, however, failure results, owing to absence of muscular relaxation or limited action of the diaphragm. In others,

Gerota's capsule may prevent a **downward** displacement, while permitting free mobility of the kidney toward the median line.

If the foregoing form of examination is negative, the lateral position must be tried. Turn the patient on the left side, with the right hip showing a little more than a quarter turn; flex both thighs slightly, the right one the

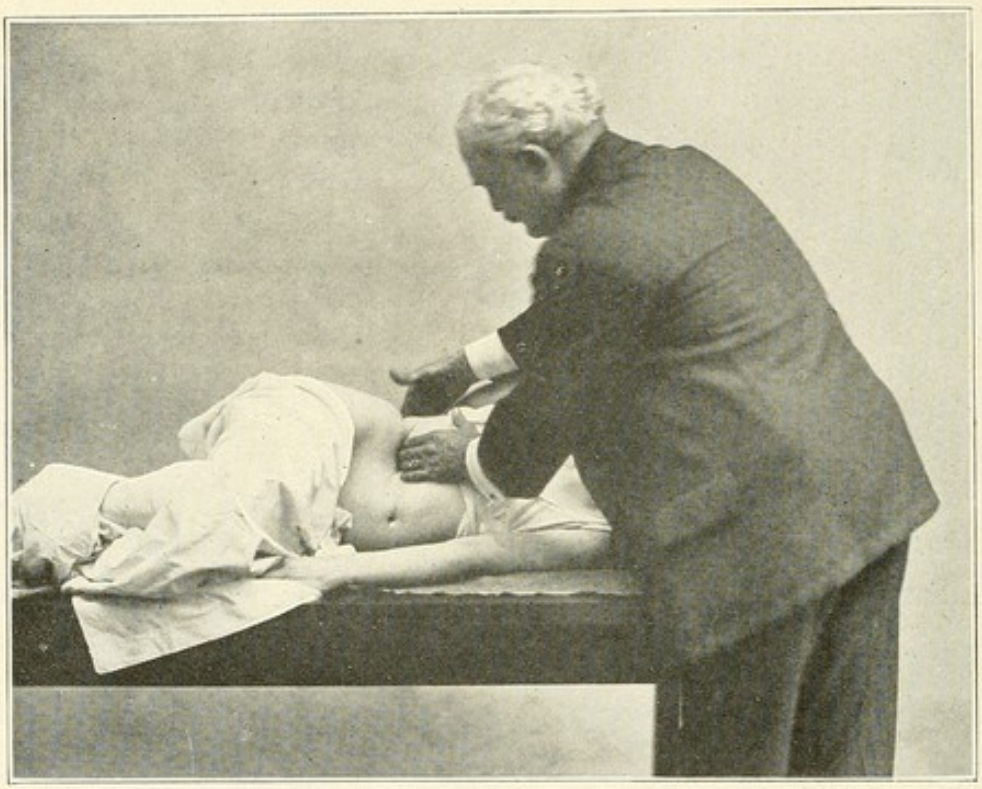


Fig. 16. Showing technic of physical examination for nephroptosis. Lateral decubitus. First position of examiner's hands.

most; proceed in the examination technic as described for the dorsal position. (Figs. 16, 17, 18, 19.) This will never fail to bring the loose kidney to the palpating fingers.

The important detail in any examination is to bring about as complete muscular relaxation as possible. In investigation of the left side the examiner may find it convenient to stand to the right of the patient, but as one

becomes expert this change of position is not necessary. Such an examination may be made without exposure.

Generally, the best method to determine the position of the stomach is by the use of the radiograph, but when this can not be employed it may be quite readily ascertained by percussion and palpation after inflation with carbonic acid gas, liberated through the action of tar-

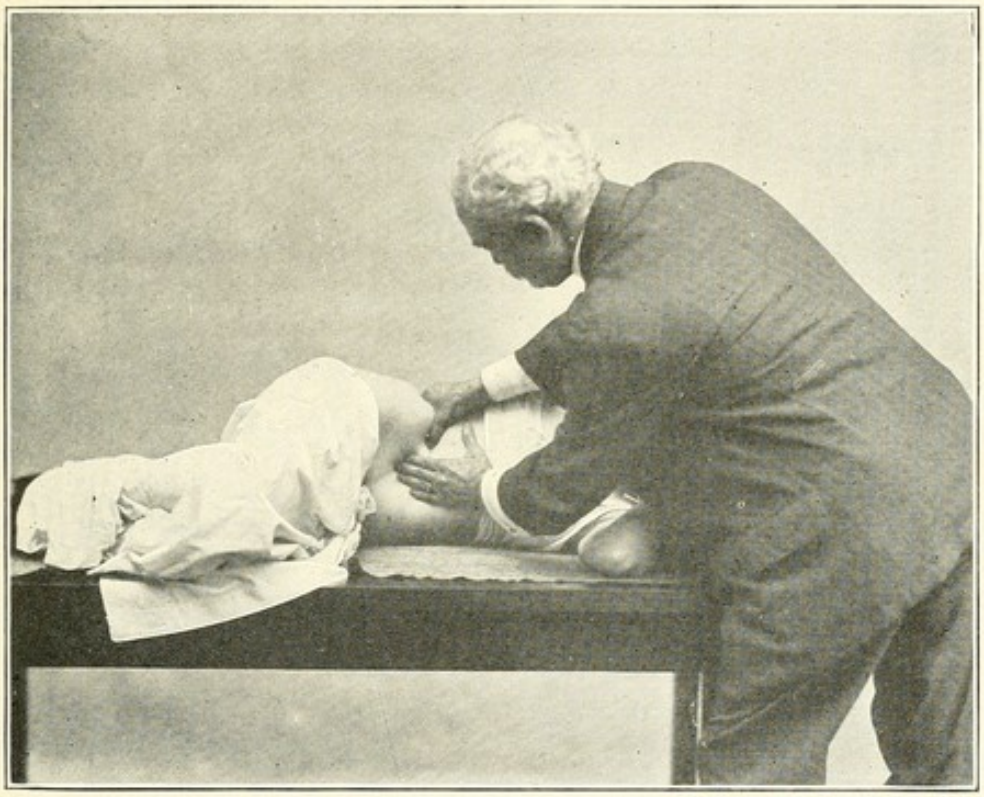


Fig. 17. Showing technic of physical examination for nephroptosis. Lateral decubitus. Second position of examiner's hands.

taric acid upon bicarbonate of soda. In the diagnosis of the displaced colon the inflation of the gut will not be wholly satisfactory. First, there is the inconvenience of using air or gas by way of the anus, and, when successfully employed to distend the viscus, such distention tends to straighten out and shorten the gut, and to give a false impression of the position of the bowel when palpated and percussed. Furthermore, the acute angle at

the splenic flexure, when the bowel is prolapsed, favors obstruction of the lumen of the bowel and prevents the easy passage of air beyond the ascending colon. In the absence of other and better methods, however, this may be resorted to, care being taken not to distend the bowel to its utmost capacity. The inflation of the bowel is best accomplished with the patient in the dorsal position, and

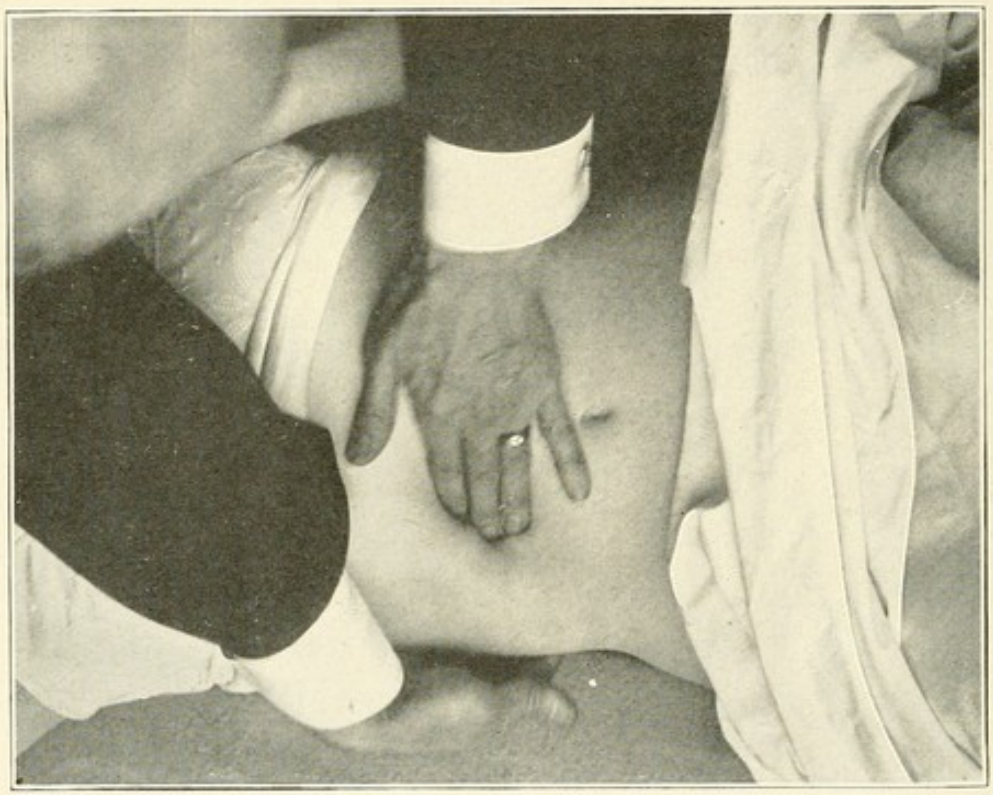


Fig. 18. Showing technic of physical examination for nephroptosis. First position of examiner's hands in both positions of the patient.

by means of air furnished by an ordinary Davidson syringe. Slow distention is preferable. Percussion and palpation, made both before and after inflation, will determine the position of the bowel.

The most accurate and satisfactory way of demonstrating the location of both the colon and stomach is by the use of the x-ray. The radiographs obtained have the advantage of showing the viscera in their ordinary state

of distention and repose, so that a true idea may be had of the existing condition. Photographic prints may also be made for recording cases and for demonstration.

Directions for Preparing the Patient for a Radiograph.

One ounce of subnitrate of bismuth in a pint of milk, koumiss, or gum acacia solution is given from fourteen

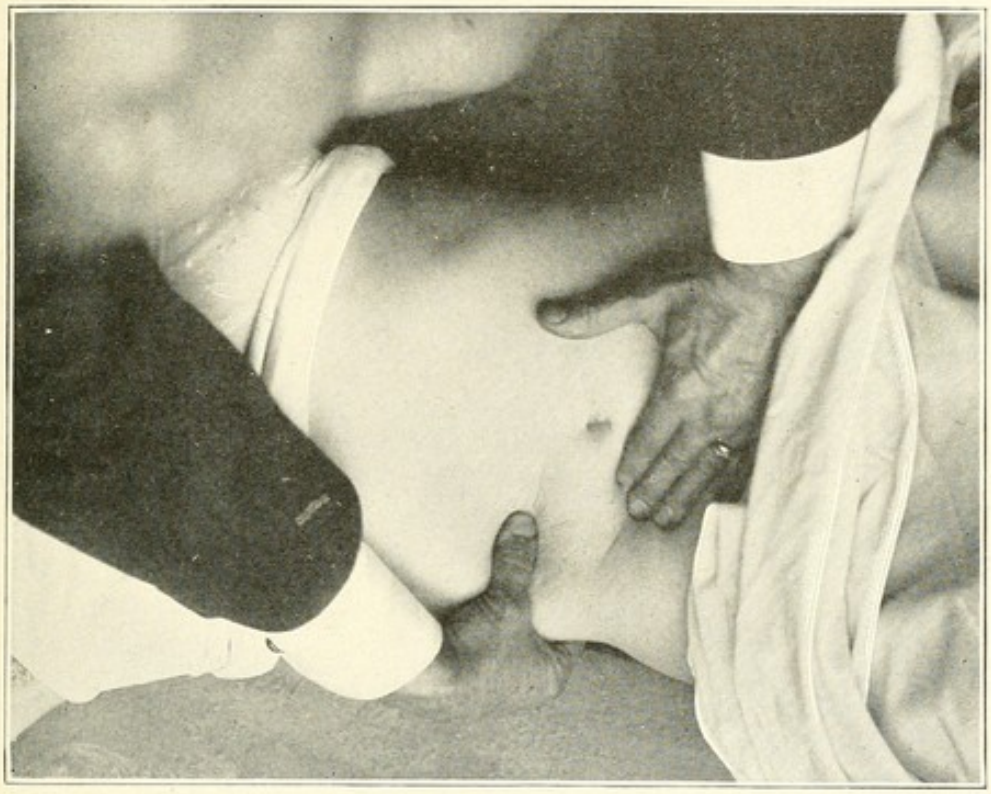


Fig. 19. Showing technic of physical examination for nephroptosis. Second position of examiner's hands in both positions of the patient. The kidney is held in ptosis by deep pressure of the thumb under the costal margin and palpated by the tips of the fingers of the left hand.

to eighteen hours before the colon is to be rayed. Immediately after the ingestion of the mixture a radiograph is taken of the stomach, and again at the expiration of the longer time as the bismuth reaches the bowel. The time necessary for the bismuth to reach the colon is somewhat variable, depending largely on the condition of activity of the intestine. If diarrhea be present, or if

a cathartic has been previously given, the bismuth will find its way much more rapidly than if the alimentary tract has been undisturbed. On the other hand, if given to a patient whose bowels have not acted for several days, the bismuth will fail to reach beyond the cecum.

For a radiograph of the descending colon, sigmoid, and rectum the bismuth emulsion must be introduced by the anus, as the splenic flexure usually resists the passage of it beyond the transverse colon when given by the mouth —unless a longer time is observed, and then it will have passed beyond the cecum and no shadow of this part of the bowel will be in evidence.

The standing position should always be used when the apparatus will permit, as the displaced organs are then in their most abnormal position of ptosis.

The following specific directions for making the radiographic negative are kindly furnished by P. M. Hickey, M. D., editor of the *American Quarterly of Röntgenology*, who has done all of the radiographic work in connection with the investigation of this subject:

Technic of the Examination of the Gastro-Intestinal Tract by Means of the Röntgen Ray.

In considering the use of the Röntgen ray as an aid in the diagnosis of malpositions of the abdominal organs, particularly the stomach and intestines, we must recollect, first of all, that the plate which is obtained is a record of density of the part. When we examine, for example, the chest, we have the density of the heart forming a decided contrast to the density which is present in the lungs, so that in this way we obtain very marked contrast. When, however, we pass the Röntgen ray through the tissues and organs below the diaphragm, we find that the resulting plate, on account of the similar density of these parts, shows only a slight difference in its shading. Accordingly, then, we must introduce into the stomach and intestines some material which will have a

much greater weight than these soft parts. A number of different elements and chemicals have been used for this purpose, but the substance which has seemed most suitable has been either the subnitrate of bismuth or the subcarbonate of bismuth.

For the purpose of outlining the stomach, one ounce of subcarbonate of bismuth can be administered either in watery solution or, preferably, in a thick solution. Kefir or koumiss holds it in suspension for a long time. For the purpose of affording a landmark upon the plate, a metallic object, as a small coin, may be placed over the umbilicus and held in position by adhesive plaster; but, if the abdominal wall is pendulous, as in obese persons, the metallic marker can be attached to the tip of the xiphoid cartilage. The plate can now be taken either with the patient recumbent, with the abdomen resting upon the plate, or, if we wish to know the amount of gastroptosis which is present, we can make the plate with the patient in a standing position.

For the technic of making the plate it is necessary to employ an x-ray apparatus that is sufficiently powerful to allow the exposure to be made in a few seconds, while the patient holds his breath. If the patient is allowed to breathe during the time while the plate is being made, a blurring of the outlines occurs, due to the communicated respiratory movements. If the examination is successful, we have the size, shape, and position of the stomach graphically outlined. The use of this method of examination has quite revolutionized the ideas of the medical profession in regard to the average shape and position of the stomach. From a large series of plates that have been made by numerous observers in various parts of the world it has been learned that the ordinary anatomical illustrations are entirely at fault.

Owing to the rapid movement of the bismuth through the small intestine, it has been impossible, so far, to obtain satisfactory representations of the small intestine, except in cases of marked stenosis of this part of the gut. When, however, the bismuth has passed on into the large intestine, we find that, owing to the slowness of its passage through that part of the alimentary tract, we can obtain an accurate idea of the position and angulations of the large gut.

The length of time that it is necessary to allow to elapse be-

tween the taking of the plate of a stomach and the plate of the large intestine will be found to vary in different individuals. If peristalsis is rapid and the contents of the intestine are passed along quickly, twelve to fifteen hours will be found sufficient. If, however, the peristalsis is slow, it will be found advantageous to wait from eighteen to twenty-four hours. The time of exposure necessary to obtain a plate of the large intestine will be found to be slightly longer than to obtain a plate of the stomach, as the amount of abdominal tissue necessary for the rays to traverse is somewhat greater. In this plate it will be found, also, that distinctness and clearness of outline will be enhanced by having the patient hold his breath during the time that the x-ray tube is acting.

The plates which we obtain of the large intestine show the anatomical construction of this part of the bowel, the position in the lower part of the abdomen or in the pelvis, and show clearly the degree of angulation of the hepatic and splenic flexures.

Some criticism has been offered on this method of examination, due to the fact that a few cases of unpleasant symptoms have been reported from the use of these large doses of bismuth. The following precautions are advisable: large doses of bismuth should never be administered to children; subcarbonate of bismuth should always be employed in preference to the subnitrate, as no cases of unpleasant symptoms have ever been recorded where one ounce of subcarbonate has been given. Where larger doses of the subnitrate have been given, say two and three ounces, symptoms of nitrite poisoning have been observed. It is always best, after the examination, to have the patient take a quickly acting cathartic to clear the bismuth from the intestinal tract.

As a substitute for bismuth, various forms of iron have been proposed, but have not come into general use. The latest suggestion is that zirconium oxide be employed, which has the great advantage of being nontoxic and of making a more contrasty plate. It is, of course, necessary in writing a prescription for the bismuth that the C. P. bismuth, free from arsenic, should be insisted upon.

For the examination of the plate it is advisable that after the

plate has been washed and dried it should be viewed in an illuminating box, with the observer in a darkened room. The contrast of an underexposed plate, such as is sometimes obtained of individuals with thick abdominal walls, can be increased by viewing the plate at some distance, employing, if necessary, an opera glass to make the plate seem nearer to the eye. When one first examines these plates he is often struck by a lack of detail, which is due to the fact that he is unaccustomed to observe what to an experienced eye would be important points. The more one sees of these plates and the more he studies them carefully, the more information will he gather from them.

For the successful employment of this new aid in diagnosis, the röntgenologist should be in possession of a powerful modern equipment. The ordinary type of static machine, which can be successfully used for examination of the thinner parts of the body, does not furnish enough current to permit of the examination being made while the patient is holding his breath. Some of the newer types of static machine are, however, more efficient and may be used for this work.

If the induction coil is used, it should be capable of energizing a high vacuum x-ray tube. Some of the newer types of transformers, which do not necessitate the use of an interrupter (as does the induction coil), deliver a tremendous amount of electrical energy, which can be transformed in the tube and produce a plate in a few seconds. Given, however, a powerful generating apparatus, the next necessary part of the equipment is a suitable tube. This should be of the size and construction to permit of its receiving and transforming, for a few seconds at least, a very large quantity of current.

In making exposures through the thicker parts of the body, as the abdomen, it is necessary that the vacuum of this tube should be high, in order that the penetration may be sufficient. It is obvious that if we use a tube of slight penetration, such as would be useful in the examination of the hand or elbow, that we will not be able to pass the rays through the body, and the resulting plate will be a comparative blank. This matter of the selection of a tube of high penetration is the most important part of the Röntgen technic.

The size of plate employed is usually 14x17 inches. The en-

velope in which it is contained can be ruled with diagonal cross lines, so that the center of the plate is indicated. The junction of these cross lines should be against the umbilicus. The position of the tube is of importance. In order to avoid distortion, the central rays, or those which are perpendicular to the long axis of the tube, should pass through the center of the plate; in other words, the center of the tube should be opposite the center of the plate, and the plane of the plate and the plane of the tube should be parallel. If the center of the tube is placed higher, for example, so that it is opposite the heart, it is evident that the very oblique rays which will strike the lower part of the pelvis will produce a great deal of distortion.

In the development of the plate a contrasty developer, such as hydrochinon solution, with a large amount of carbonate of potash and an excess of bromide of potash, will be of value. The temperature of the developer is also of importance, as, if the solution is warm, the resulting plate will be lacking in contrast. The purpose of the whole Röntgen technic is to produce a plate that will be free from distortion and full of contrast.

Differential Diagnosis.

The diseases having a somewhat similar symptomatology to that pertaining to nephroptosis, nephrocoloptosis, or coloptosis, should be carefully considered and the differentiation made in formulating the diagnosis.

The most important pathological condition, and the one most likely to be confused with the renal and colonic displacements under consideration, is appendicitis. It is the most important by reason of the relative frequency of its occurrence, and also because of the fact that the increasing familiarity with its manifestations leads to eager and often unwarranted, incomplete, and erroneous diagnostic conclusions. Pain and sensitiveness alone, at the McBurney point, are too often made the basis of such diagnosis. A cecum and ascending colon, chronically distended by reason of angulation of the large intestine

anywhere in its course, will cause symptoms simulating subacute appendiceal disease; and an acute distention, with rapid dilatation of the cecal end of the gut, will give several local manifestations of such a nature as to require careful differentiation. The temperature and pulse record, if normal, in the acute cases, is valuable evidence against the diagnosis of appendicitis, but, if a febrile condition be present, further investigation is required, as intestinal toxemia, resulting from the colonic stasis, may be its cause. Absence of the "board-like feel" of that side of the abdomen is valuable in contraindicating appendiceal disease, but in the presence of great sensitiveness the differentiation may be difficult and uncertain. If a radiograph is practicable, the diagnosis may be cleared immediately. The radiograph may show a distended cecum, with its distal end lying low in the pelvis, indicating the presence of the appendix far from the sensitive area around McBurney's point. This would indicate the cecum and ascending colon as the location of the manifested disease, and not the appendix. A very good illustration apropos of this is seen in the report of case 52. A patient suffering from the acute symptoms of Dietl's crisis of a severe type may be considered as having appendicitis, perirenal abscess, or peritonitis. The history of the attack and the location of the sensitive area, showing, by palpation, continuity of structure between the anterior surface of the swelling and the space in the loin just below the twelfth rib, point to the enlarged kidney characteristic of Dietl's crisis.

A tumor of the right lobe of the liver may simulate a floating kidney, and, if movable, may prove difficult of differentiation without resort to exploratory abdominal section. If a malignant tumor, the history of progressive growth and constant pain, with attendant cachexia,

would warrant an exploratory section. Such a case presented these conditions to the author. Abdominal section here revealed a neoplasm springing from the under surface of the right lobe of the liver, the free lower margin of which could be felt before operation, passing over the tumor and distinct from it.

A hard fecal mass, resembling a tumor, situated near the hepatic flexure of the colon, may be mistaken for a floating kidney. The free administration of petrolatum oil and the use of high enemata containing glycerine and epsom salts will usually clear the diagnosis within two or three days.

A distended gall-bladder may simulate a floating kidney. Its fixed position at a distance from the loin, and inability to elevate it into the renal fossa by manipulation, should render the diagnosis fairly certain and determine exploratory section.

A uterine myoma having a long, thin pedicle may be mistaken for a kidney. In such an instance the free mobility of the tumor downward compared with its limited mobility upward, and the fact that traction is felt to be exerted on the uterus when it is pushed forcibly upward, should differentiate it from the kidney.

In severe cachexia, which is often present in cases of extensive renal and colonic displacement, and frequent attacks of pain in the epigastric region, caused by traction on the duodenum by the dropped kidney, may determine a diagnosis of duodenal ulcer. Radiographic examinations should result in correcting the error.

CHAPTER V.

TREATMENT.

In the selection of the therapeutic measures adapted to the pathologic condition in question, the fact should not be lost sight of that the symptoms which bring the patient to the physician 's office are the result of a **mechanical** disarrangement of certain organs, and that consequently any treatment applied for the relief of the condition must of necessity be of such a nature as to cause their rearrangement, or righting. Treatment other than this is palliative, and not curative. And yet, for the purpose of relieving symptoms caused by long continuation of the displacements, such symptomatic treatment is often necessary and of great value, not only in bringing comfort to the patient and in the preparation for curative treatment, but also as a valuable adjunct to be used with the more radical therapeutics. While rare cases do occur which are completely and immediately cured by operation alone (see case 37), they are by far the exception to the rule, as treatment by other methods—sometimes before, but usually after, operation —is necessary to achieve the best results in the shortest possible time. While the author believes that by surgical treatment the only short route to success is attained, and that very few cases—possibly of recent occurrence, before colonic dilatation has occurred—can recover without it, yet it must never be depended upon alone, to the exclusion of other therapeutic measures.

A prominent surgeon recently remarked to the author after the operation of nephrocolopexy and after-treat-

ment had been described to him: "I don't like your operation because you have to put on an abdominal band afterward. When I operate I want the operation to cure and without farther treatment. I don't want to see the patients afterward." He was assured that it was largely that mental attitude of the surgeon that had continued the use of the old unsatisfactory operation of nephropexy, but a change of the visual standpoint must now be made. If these patients are to be cured, the complexity of the pathology must be recognized and all the indications met. These are not "Gordian knot" cases, to be cured by one sweep of the knife, and the sooner that idea is understood the better, both for the patient's welfare and for the advancement of the medical art.

The successful operation merely places the patient in position for nature to undo the damage done to mucosa, muscle, and nerve by the displacements. The repair, the regeneration of tired and worn nerves, the renewal of muscular tone, and the restitution of long disordered functions demand all the assistance possible until natural conditions are assured.

Treatment may be considered under five heads, viz.: Prophylactic, Medicinal, Topical, Mechanical, Surgical.

Prophylactic Treatment.

The consideration of the **primary cause** of the ptosis is of paramount importance in the selection of the measures best adapted to the prevention of the displacements of the colon and kidney.

The child showing a tendency to weakness of ligaments and muscular tissues should receive the most careful attention during the whole of the developmental period. Every effort should be made to gradually strengthen the developing tissues of the entire body in

such manner as to cause symmetrical growth of the muscular and bony parts, and toughness of the restraining tissues. Most children of delicate physique, with hereditary tendencies toward displacements, lateral curvature of the spine, stoop shoulders, prominent shoulder blades, hernia, and other muscular or ligamentous insufficiency may be made to develop into healthy men and women. Well-poised, graceful bodies will result, chronic invalidism will be obviated, and the misery to themselves and others from ill health and awkward deformity escaped.

To accomplish this properly requires intelligent direction and patient teaching on the part of the doctor, and persistent application on the part of the patient and attendants for a considerable time. Gymnastic exercises are of the greatest benefit, and will accomplish the most satisfactory results in these cases, but the exercises must be carefully chosen with reference to the tendencies of these patients, and they must be so applied and their increase so graduated that the frail tissues which are to be worked on shall be raised in tone and endurance slowly, steadily, and surely, without depleting by overwork or crippling by undue strain. The author has seen such careful gymnastic training, carried out under the supervision of a competent orthopedist, accomplish really wonderful results in the stimulation and development of these weak tissues.

Breathing exercises should be conducted in ways to develop the intercostal muscles and diaphragm, and cause broadening and increase of capacity of the lower part of the thoracic cavity. Moderate work with light dumb-bells, exercises to develop the abdominal muscles, correct posture in standing and sitting—all of these intelligently and persistently followed are of the utmost value.

The author has been so much impressed with the value of well-directed orthopedic treatment in these cases of imperfect development, that there is here presented a

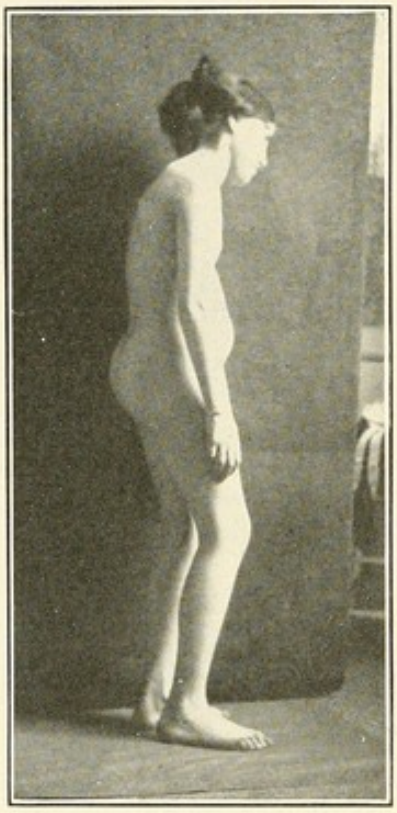


Fig. 20. Faulty standing posture. Chin forward; chest sunken; shoulders forward-drooped; lumbar lordosis decreased; abdomen prominent; knees slightly flexed; feet everted and pronated. The appearance of exaggeration is because persons in ordinary life are clothed, and involuntarily assume under observation an improved attitude; faulty attitude is, therefore, commonly not seen at its worst.

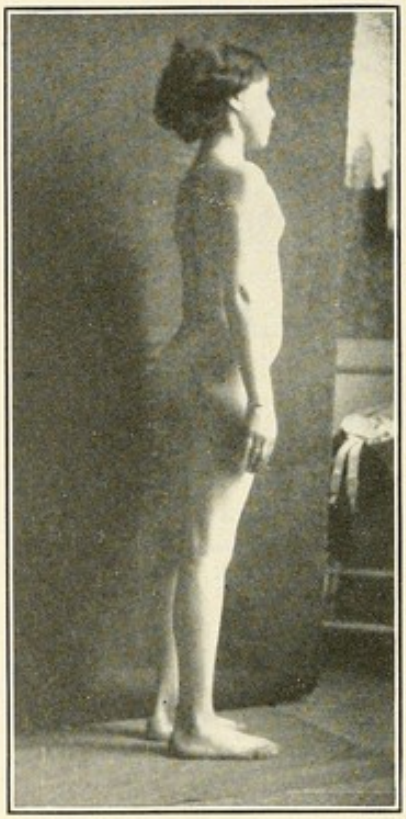


Fig. 21. Favorable standing posture. Chin retracted; chest the most prominent part; shoulders flat behind; abdomen flat; buttocks prominent; knees fully extended; feet straight forward.

supplemental and detailed article from the viewpoint of the orthopedist by William E. Blodgett, M. D., member American Orthopedic Association:

Orthopedic Considerations of Abdominal Ptosis.

Faulty posture may be a factor in causing or aggravating displacement of abdominal viscera, and, correspondingly, favorable

posture is important in prophylaxis and treatment of visceral ptosis.

Faulty and favorable posture in standing and sitting are illustrated by Figs. 20, 21, 22, 23, from photographs of a normal, well-developed child, 11 years old. This model is young enough to be

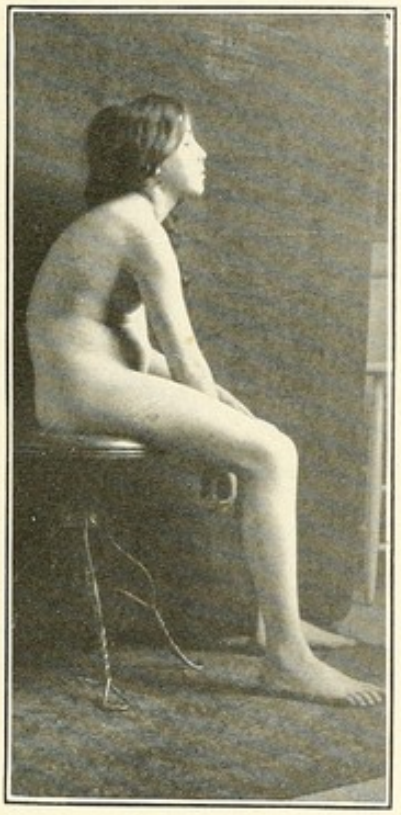


Fig. 22. Faulty sitting posture. Chin forward and upward; spine below neck makes one long curve, convex backward; shoulders forward-drooped; abdomen prominent.

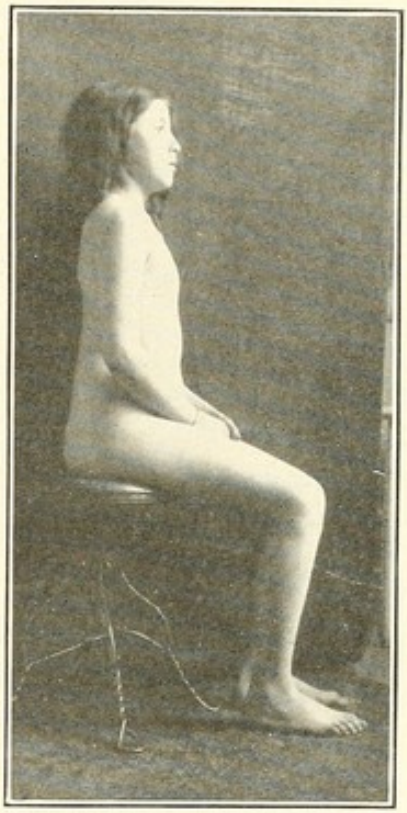


Fig. 23. Favorable sitting posture. Chin retracted; chest prominent; spine and abdomen flat.

free from clothing deformity, artificial poses, and nervous constraint, and old enough to suggest the adult figure.

There are three chief ways in which faulty posture tends to cause abdominal ptosis: (1) by reduction of the lordosis, or forward convexity of the lumbar spine, with the attached soft parts, which, when normally curved, makes a projecting shelf in the lower half of the abdomen; (2) by relaxing the recti abdominis muscles; (3) by the general weakness, of which faulty posture is a cause and a result. Faulty posture tends to reduce mental

and moral vigor, and the resultant psychical depression reacts unfavorably on the physical health.

Faulty posture may cause also structural round shoulders—i. e., shoulders which can not be placed in normal position—sacro-iliac joint strain (a very common cause of lumbago, coccygodynia, and sciatica), and pronated painful feet. Presence of any of these conditions assists in the diagnosis of habitually faulty posture.

Treatment is chiefly by education and exercise in favorable posture. The patient is first taught to assume the favorable posture upon command, and then to execute simple movements without departure from this favorable posture—movements such as breathing and symmetrical movements of the arms. A long mirror in front of the patient is helpful. Next, the patient is taught to execute more complicated movements of the whole body, always starting from and returning to the exactly favorable posture. In some cases the chief need is re-education and new co-ordination of the muscles to secure and hold favorable posture; in others the muscles and ligaments need strengthening as well. In the latter cases, gradually increased weight-lifting and dumb-bell exercises are indicated; but in all these exercises exactly correct posture is to be kept in mind and overexhaustion avoided. Special exercises for strengthening the recti abdominis can be undertaken, such as powerfully retracting the abdomen, and raising the trunk from dorsal decubitus to the sitting posture.

When pain interferes with normal posture of any of the parts, temporary artificial support may be needed, notably shoulder supports, sacro-iliac joint supports (a tight belt about the pelvis, just below the anterior superior spines), abdominal supports, spinal jackets, and arch supports for the soles. Such supports should be made to fit the individual patients and their special needs; the object of them is to relieve pain, or assist in maintenance of favorable posture, without interference with normal function, until natural support has become sufficient and new co-ordinations established. Passive resistance of the shoulders or feet to being placed in favorable posture, or the presence of any interfering deformity or disability, may require surgery.

In addition to this education and exercise in favorable posture, clothing, outside air (especially at night), cold bathing, regular

and complete defecation, and general personal hygiene are to be considered. If the clothing can not be suspended from the hips, as in young girls, the supporting shoulder straps should pass close to the neck and not over the more easily depressed tips of the shoulders; the corset, if worn, should be very loose in its upper half and properly shaped; the stockings should be supported by straps from slightly in front of the sides of the corset and not from the front; the shoes should have fairly straight inner borders, and broad, not excessively high, heels. These matters of clothing and invigorating personal hygiene are all together an important help in the establishment of favorable posture.

To prevent and assist in the care of abdominal ptosis, education and exercise in favorable posture must be painstaking, exact, and long continued.

Attention should be paid to the diet, and each patient's digestive abilities and peculiarities studied, so that the greatest benefit may be acquired from nutrition, and also that intestinal toxemias do not poison this fountainhead of supply.

It is of great importance that these patients be taught natural methods of regulating the bowels, and the too free use of cathartic medicines should be prohibited. Regular habits of going to stool should be advised. The patient should go and make the effort to defecate at a certain hour each day, preferably after breakfast, even if there be no desire to have a movement. Long habit of neglect of regularity of the function induces an obtuseness of the nerves of the rectum, which allows distention and often impaction of the viscus, without the patient being aware of the condition by any sensation of a desire for defecation. The daily systematic effort to unload the rectum will usually overcome this habitual torpor, and gradually the natural sense of rectal fullness will return; the patient will know by the sensation when the bowel needs emptying, and be uncomfortable until it is

accomplished, as is the case in the normal condition. The patient should be instructed to exercise the anal and rectal muscles, while attempting defecation, by alternately raising and lowering the anus by muscular action. The expulsive effort by the abdominal muscles should accompany the relaxation, and, if the patient sits with the knees high and thighs flexed against the abdomen, the expulsive force will be augmented, and be more natural than if sitting in the usual manner, with the thighs at right angles to the body, or even somewhat dependent. Abdominal massage may be used to advantage.

The knowledge that colonic stasis, with the consequent fecal accumulation and increasing weight as the bowel expands, acts mechanically upon the hepatocolic ligament, and induces the beginning of the ptosis that gradually extends and causes the complex pathology under consideration, should make this question of constipation —especially among the young—a very important one from a prophylactic standpoint. The family physician may use his influence here to advantage in the prevention of much future suffering. But, be the patient young or old, the advice can not be too strongly emphasized.

If the kidney of a child is displaced in any degree, an abdominal band should be worn until the formation of a good intra-abdominal pad of fat shall make its use unnecessary. In those cases which have a predisposition to ptosis, or in which it has previously been present, the rapid loss of flesh, from wasting disease or other causes, removes the omental fat—the intra-abdominal pad—which acts as a support to the colon. The bowel, unsupported, is then liable to drop, as the weak hepatocolic ligament gives way to the unaccustomed strain. Such cases should be under careful supervision, and all tend-

encies to colonic distention discovered and overcome. The same caution is to be observed after childbirth. A snugly fitting abdominal band worn until the abdominal muscles regain their tone is a valuable prophylactic in all post-partum cases. Corsets which contract the lower thoracic zone should be avoided, and breathing exercises used to expand this portion of the anatomy.

Increase of body fat is only of mechanical use, as it applies to the support of the colon intra-abdominally, and for this purpose it should be encouraged in every way. Enforced rest and feeding are of value in many cases for this purpose.

Medical Treatment.

While the number of drugs which can be used with direct benefit to the displaced colon and kidney is limited, yet the conditions are such that, in addition to them, indirect medication is often of value, and many cases are very materially benefited by the use of other remedies for the correction of disordered systemic conditions which may appear not to be directly associated with or caused by the ptosis. The uric acid diathesis, digestive disorders, inefficient metabolism, and nervous disorders are pathologic conditions which are very common to these cases, and require appropriate treatment.

Cathartics should be avoided as much as possible, as the colonic irritability is likely to be greatly increased by their use. The use of eliminatives which act by increasing peristalsis, for the purpose of accelerating defecation, may be compared to the principle illustrated by the application of an increase of power to the machine whose bearings require oil—apparent immediate efficiency results, attained, however, at the expense of future useful-

ness of the apparatus. The action of the bowels must be regulated by remedies which smooth out, as it were, and soothe the sharp angles of the bowel, and at the same time cause the material to be soft and easily moved forward by the natural peristalsis. Nature endeavors to do this by throwing out much mucus, which is so frequently seen in the stools of these patients.

Lubricants, then, rather than cathartics, must be the rule, and, when used intelligently—frequently by enema as well as by the stomach—the results are usually of the most gratifying nature. For this purpose the author has found nothing else which serves the purpose as satisfactorily in most cases as the so-called "petrolatum oil," or liquid vaseline. The properly prepared oil should be tasteless, nearly clear—not amber colored—and should be thick and heavy in consistency. The thin oil, which is used largely as a medium in spray medication, is not suitable for this purpose. The preparation is, chemically, paraffin, and not a fat, as its name would signify, and consequently does not saponify with alkalies, or become digested or altered in passing through the alimentary tract. It is this quality which causes it to act in a mechanical way only, passing through the stomach and small intestines unchanged, and then into the colon, where, by mixing with the fecal matter and coating the mucous membrane, the effectiveness of peristalsis is augmented; the contents of the bowel pass over the angulations with a minimum amount of effort and irritation, to the consequent comfort of the patient. The dose is usually one tablespoonful taken clear twice daily on an empty stomach. The author usually directs one dose to be taken late in the afternoon, about an hour before the evening meal, and the other at bedtime. The effect of this oil is usually sufficient to cause the contents of the

bowel to pass into the descending colon, and in some cases to result in regular and satisfactory defecation; but the long habit of irregularity is often not so easily overcome, and, unless further assisted, the torpid descending colon and the rectum do not act. Therefore, it is the rule of the author to direct the patient, while taking the oil, to use an enema of normal salt solution, to overflow, every evening if no satisfactory defecation has been had during the day. After a time the enema becomes unnecessary, and as the action of the bowel becomes regular the dose of the oil is gradually reduced and discontinued. Difficulty is often experienced in holding those patients rigidly to the performance of this formulary who have long been addicted to the use of cathartic medicines. Any relapse occurring after the use of the oil has been once discontinued is liable to be followed by repetition of the old habit of pill dosing, with consequent results of colonic irritability. To prevent this, patients who are not to be under frequent supervision, especially after operative treatment, should be warned against the perniciousness of such action.

In cases of extreme torpidity, especially those in which the fecal matter fails to reach the rectum, causing the evening enema to be unsatisfactory in results—or, as in rare cases, painful—the use by enema of four ounces of warm olive oil at bedtime, the patient holding it until morning, will usually act very kindly in the induction of the desired morning stool, possibly assisted by the enema. Some patients find it necessary, in order to retain the oil taken thus by rectum, to assume the Sims, or knee-chest, position for a few minutes after its injection. Cases having dilatation of the sigmoid are much benefited by the oil enema.

The author has found a few cases much improved by

the administration of olive oil in gelatin capsules—three to five capsules of thirty minims each after each meal. The oil given with the gelatin in this manner seems to be more efficacious than when given alone; its nutritive value is certainly enhanced, as the stomach bears it better by this method. The gelatin doubtless acts somewhat as a demulcent, besides subdividing the oil and rendering it more digestible. As an aid to any method of increasing the fatty tissue of the patient it is of much value. In some instances a laxative becomes necessary, and in such cases castor oil, given in the same manner in gelatin capsules, small doses after meals for a day or two, will be sufficiently effective and comparatively free from irritative action.

The taking of two tablespoonfuls of wheat bran in a glass of hot water immediately on awakening in the morning, and some little time before breakfast, acts well as a demulcent, and also mildly as a food laxative. Small doses of bromide of sodium and chloral given in chloroform water will be found useful, symptomatically, in soothing the colic caused by the spastic contraction of the bowel, and may be given in preference to the opiates, which dry the mucous membranes and increase torpidity and stasis.

In cases having uric acid diathesis the spastic condition is frequently much improved by using the appropriate treatment for this condition.

Intestinal antiseptics are useful in combating the toxemia which the sluggish condition of the colon frequently induces. For this purpose the author has used, with good results, the sulphocarbolates of zinc, calcium, and soda, carbolic acid, menthol, eucalyptol, salol, salicylic acid and the salicylates, powdered charcoal, aspirin, etc.

Physostigmin sulphate, gr. 1/100, given hypodermically every three to six hours, has been found to be a dependable remedy for controlling the intestinal paresis which is often such an alarming symptom in Dietl's crisis.

Topical Treatment.

Heat, which may be applied in various ways, is the principal and most reliable remedy of this class. Hot fomentations, applied alone or in combination with spirits of camphor, are useful in allaying the colonic irritability and relieving the general abdominal soreness and pain. The severe colicky pains caused by the spastic condition of the bowel may be treated with gratifying results by these applications.

In severe attacks it is sometimes necessary to keep the patient in bed, and apply the heat almost constantly for several days at a time before the pain and soreness are overcome.

Dry heat is the most useful when the application is to be long continued. The hot water bag, or hot plates, may be used for this purpose, or the electric pad may be employed. The latter is convenient for the continuous application, as it is capable of developing any temperature desired. It can be left on indefinitely, and requires no changing and reheating as does the bag or fomentation.

The camphor stupe is especially useful in the tympanitic condition of Dietl's crisis.

Mechanical Treatment.

Any treatment by mechanical means should be directed with a view to replacing the dropped organs, and

to do this understandingly the underlying etiologic factors must be borne in mind.

The knowledge of the part played by the nephrocolic ligament and Gerota's capsule in ptosis of the kidney explains the cause of failure of the old method of placing a pad directly under the kidney. The same knowledge points to a mechanical treatment that will be the most efficient. The proposition is simple and purely mechanical in its nature. Remove from the kidney the downward strain of the nephrocolic ligament, press the intestines against it from the direction of the median line, so that it can not easily slip out of Gerota's capsule, at its only open side, toward the median line. The kidney will then remain in its normal position, the weight of the bowel, and not that of the kidney, being the aggressive factor.

This means that a suitable apparatus should be worn by the patient to cause the cecum and transverse colon to be held up out of the pelvic cavity and lower abdomen. This may be accomplished by the use of bands, trusses, or corsets, which must be adapted to individual peculiarities and requirements. A very thin woman, with retracted abdomen, broad pelvis, and projecting iliac crests, presents far different requirements from one with fat, protruding abdomen and narrow pelvis. The name or make of an apparatus is of value only as signifying a type, a shape, or a principle, and becomes useful only when it is made to meet the requirements of the individual patient. Perfunctory band and corset fitting by the average artisan is liable to be productive of much harm, and tends to bring the use of valuable therapeutic methods into disrepute. The fitting of apparatus of this kind is an art, and should be done by those skilled in such work, and with a definite knowledge of the objects to be

attained by their use. Moreover, when the fitting is declared right, the patient should be directed to report to the physician for inspection. It is only by such painstaking attention to details and individual requirements that satisfactory results are achieved. The first requisite for any appliance to be used for this purpose—such as pads, trusses, corsets, bands, etc.—is that all pressure exerted by them should be applied to the lower abdomen, in the space bounded above by the navel, below by the pubes, and laterally by the iliac crests and Poupart's ligaments. With pressure supporting the abdomen over this area, and the avoidance of all constricting bands, corsets, or other clothing which contract and lessen the capacity of the abdominal cavity above the navel, or at the lower thoracic zone, the fundamental principles governing the use of mechanical supports for the bowel and kidney will be met.

The practical application of these principles in the form of some mechanical contrivance seems to be largely a matter of individual experience, as there are in the market many varieties of trusses, bands, and corsets, the respective inventors of which extol their individual merits. A corset specially adapted to support the abdomen is, no doubt, practical, and can be made to fulfill the requirements, but the greatest, and a very potent, objection to the use of the corset is the difficulty of controlling its continuous proper application. There is too much variation in adjustment, which the patient may control at will, often causing the desire for a good figure on the part of the patient to frustrate the therapeutics of the doctor. The corset is also more difficult to adjust in such a way as to give the requisite abdominal support in cases having prominent hips and retracted abdomen, and, as these patients are nearly all undernourished and thin

in the beginning of treatment, preference is decidedly in favor of the band or truss, to be used until the patient gains sufficiently in flesh, when a corset possessing the proper requirements may be substituted. For patients whose iliac bones are not prominent, and those of little or no flatness of the abdomen, the author uses a silk elastic band having steel stays and leather re-enforcement, and with a thick hair-filled pad placed beneath, so as to make pressure on about half of the lower abdominal space. The band is held downward by two perineal straps made of heavy tape, covered with soft rubber tubing, the fastening being behind by an adjustable knot and forward by a ball-and-socket glove fastener. The band is laced behind to fit, when the ends should be about an inch and a half apart, to allow for tightening when the elasticity decreases. It should be just wide enough in front to fill the space between the navel and pubis, which varies in different individuals from five to seven inches, and behind about two and a half inches less. After it is once fitted, the patient slips it on and off over the thighs, morning and night, without farther attention to the lacing, which may be left in adjustment until the elasticity decreases, or the form of the patient changes, demanding the alteration.

The majority of patients, however, require a support so constructed as to exert more pressure on the lower abdominal space, and especially one which will be made efficient in this respect in the class of patients before mentioned—those of meager habit, flat abdomen, and prominent hips. Such a band the author has in the form of a combination of the elastic band and truss. (Fig. 24.) The shape of the band proper is exactly the same as the elastic band. It is made of strong linen, with elastic webbing only over the hips, laces together behind, and

is fitted the same as the elastic band. The truss attachment is made by the use of a strip of flat spring brass, which is made to exert any amount of pressure desired on the center of a hair-filled pad placed beneath the band. This spring is adjusted to the figure of the patient by first making a pattern of soft sheet lead, and then bending the spring to conform to it. After the spring is fashioned to fit, the center is bent inward more or less, according to the amount of pressure desired in each case. By this device the thinnest of patients, with prominent hips and

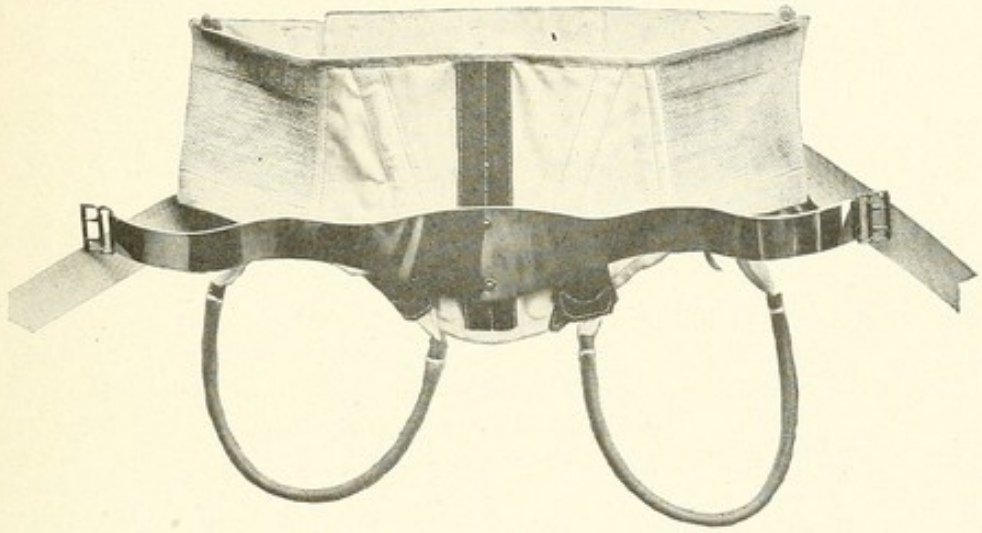


Fig. 24. Author's abdominal supporter.

flat abdomen, can be fitted perfectly, and without the discomfort of making a too tightly constricting band. Each end of the spring is turned back around the hip and ends in a buckle, by which a strap of webbing passing behind connects the two and tightens the spring. The device is light in weight, thin, and not cumbersome in any way, so that it can be worn without disarranging or interfering with ordinary clothing. The adjustment of the band should be such that its grip will be around the circumference of the pelvis, and in no case allowed to ride upward around the waist. The perineal cords, when

properly adjusted, should prevent this, and the patient should be instructed to see that the upper margin of the band is on a level with the navel. The patient should always wear the band when not in the recumbent position. It may be slipped on and off without unlacing in the same manner as with the elastic band, except for the fastening and releasing of the truss. In the daily

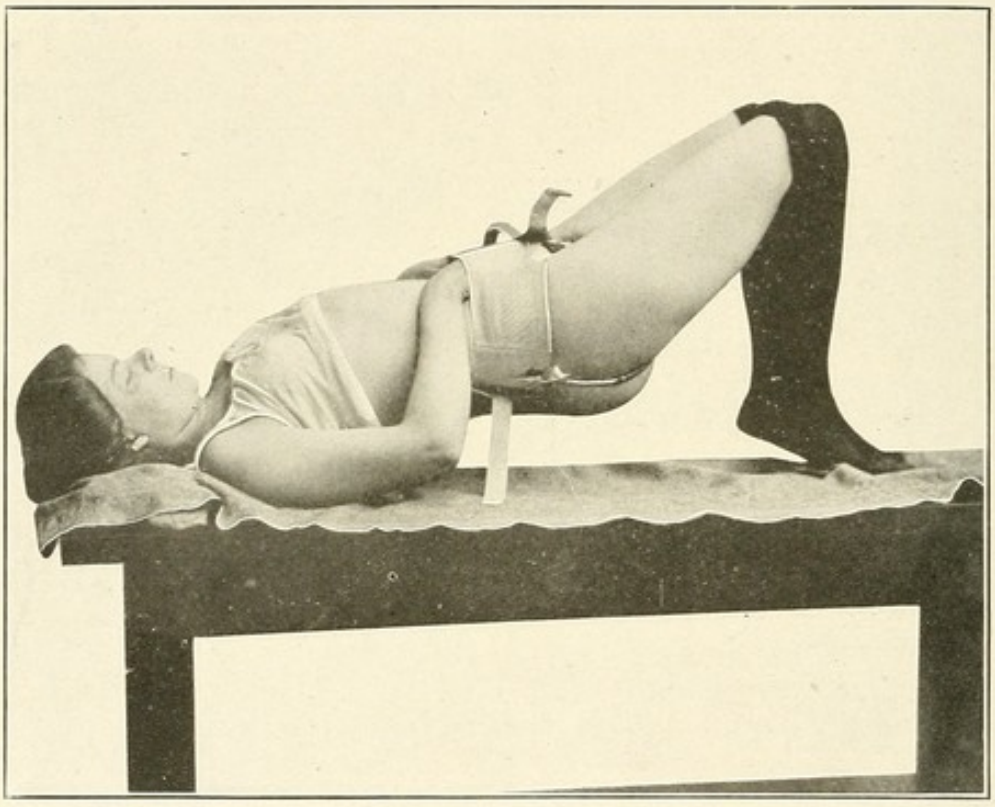


Fig. 25. Showing position assumed while massaging the abdomen previous to fastening the truss attachment of the author's abdominal supporter.

application of the band, after it is pulled up over the thighs and adjusted to its proper position around the hips, the patient should, before buckling the truss fast, assume the dorsal position, with the hips raised rather high—a modified Trendelenburg—on cushions if necessary, and while in this position massage the abdomen deeply from the pubis upward with the ends of the fingers of both hands under the pad. (Fig. 25.) This

should be done for several minutes for the purpose of freeing the lower abdomen, as much as possible, of the prolapsed bowel. The truss is then fastened by the buckles while still assuming this position. The author has found this band to be an ideal support for the cases in question, and makes use of it in many cases which are being prepared for operation, and in all cases, for

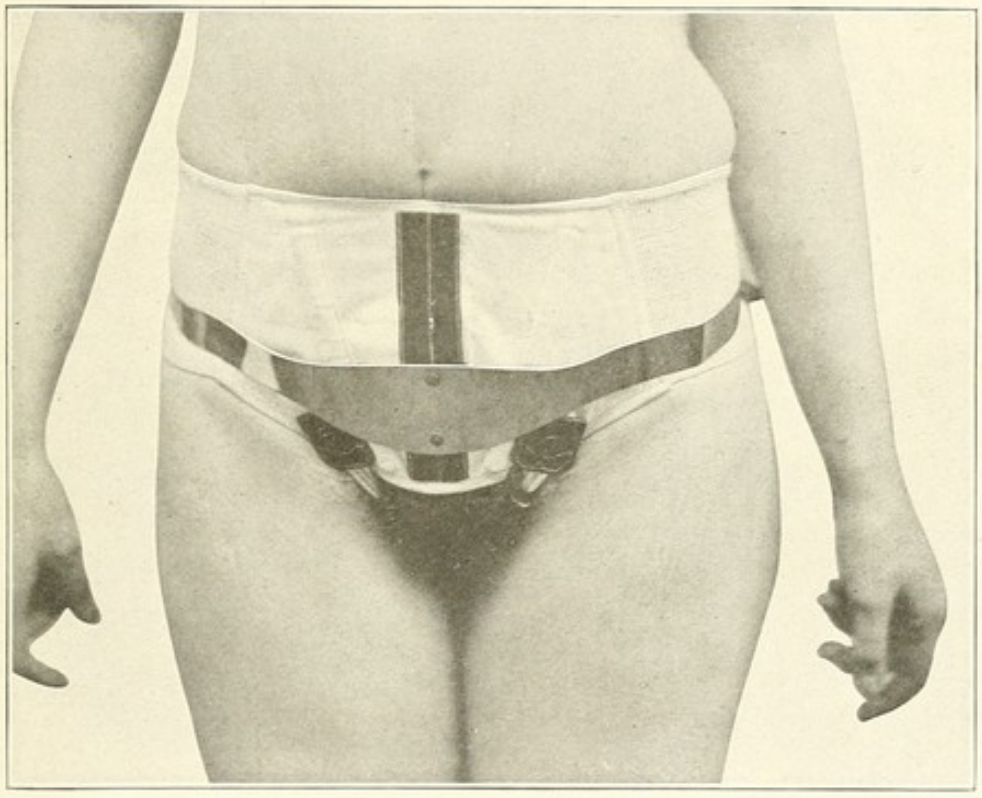


Fig. 26. Front view. Proper adjustment of the author's abdominal supporter.

varying periods of time, after operation. While this supporter is the most satisfactory in filling all the requirements of all others with which he has had experience, he uses it only as a valuable assistant in the cure of these patients—the operation about to be described being essential to permanent recovery.

Figs. 26 and 27 show the proper position of supporter when adjusted. Note the width in front is from navel to

pubis, and on the sides a little less, so as not to ride up above the hips and around the waist. The truss is so placed on the sides between the iliac crests and the groin that it will remain stationary during ordinary movements of the body, and will not interfere with the flexion of the thigh.

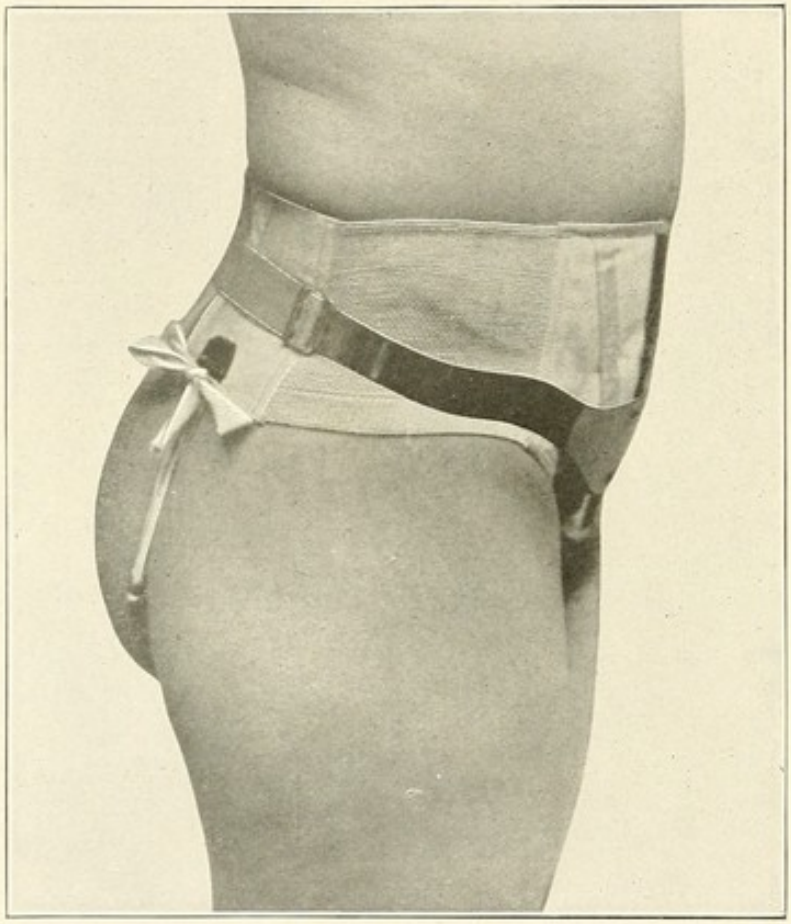


Fig. 27. Side view. Proper adjustment of the author's abdominal supporter.

For temporary use, a pad may be held in place by adhesive straps, which should pass around the pelvis, and be applied in such a manner as to fill the requirements of the band before mentioned. The iliac crests should be protected from pressure by thin pads of gauze or cotton. Ten days is almost the limit of time that such a support can be worn, as the plaster causes a good deal of irrita-

tion of the skin if left much longer. This is a useful method of support, applied immediately after the operation of nephrocolopexy, and is applied in all cases until the band can be worn.

Operative Treatment.

Any surgical treatment of nephroptosis which ignores the accompanying and **causative** coloptosis must fail as a therapeutic procedure. A moment's glance at the anatomic relations of the parts involved is all that is necessary to confirm this observation. Strip the fatty capsule from the kidney, fasten the kidney to the muscles of the loin or other tissues in that region, and what happens? (Fig. 28.) The **floating kidney** may be cured, anatomically speaking, but the patient is not, as nearly all the symptoms, but especially the digestive and nervous symptoms, not only continue as before, but become even more aggravated. This is due to the connection of duodenum and ascending colon by the fatty capsule, the framework of which forms the nephrocolic ligament. The result of freeing the fatty capsule from the kidney is to increase the mobility of the ascending colon and cecum, so that the traction exerted by the large intestine on the duodenum not only continues in force, but is augmented. All symptoms would then be aggravated, excepting possibly those which may have been due to Dietl's crisis.

The principal cause of the frequent failure of the usual operation of nephropexy is thus explained.

As the first step toward nephroptosis is made by the relaxation of the hepatocolic ligament and the consequent increased mobility and dropping of the ascending colon and cecum, so must the first step toward a surgical cure be either the restitution of this support or the crea-

tion of a substitute for it, which shall do its work in the prevention of the downward drag of the colon on kidney and duodenum. It seems, therefore, that the prime fac-

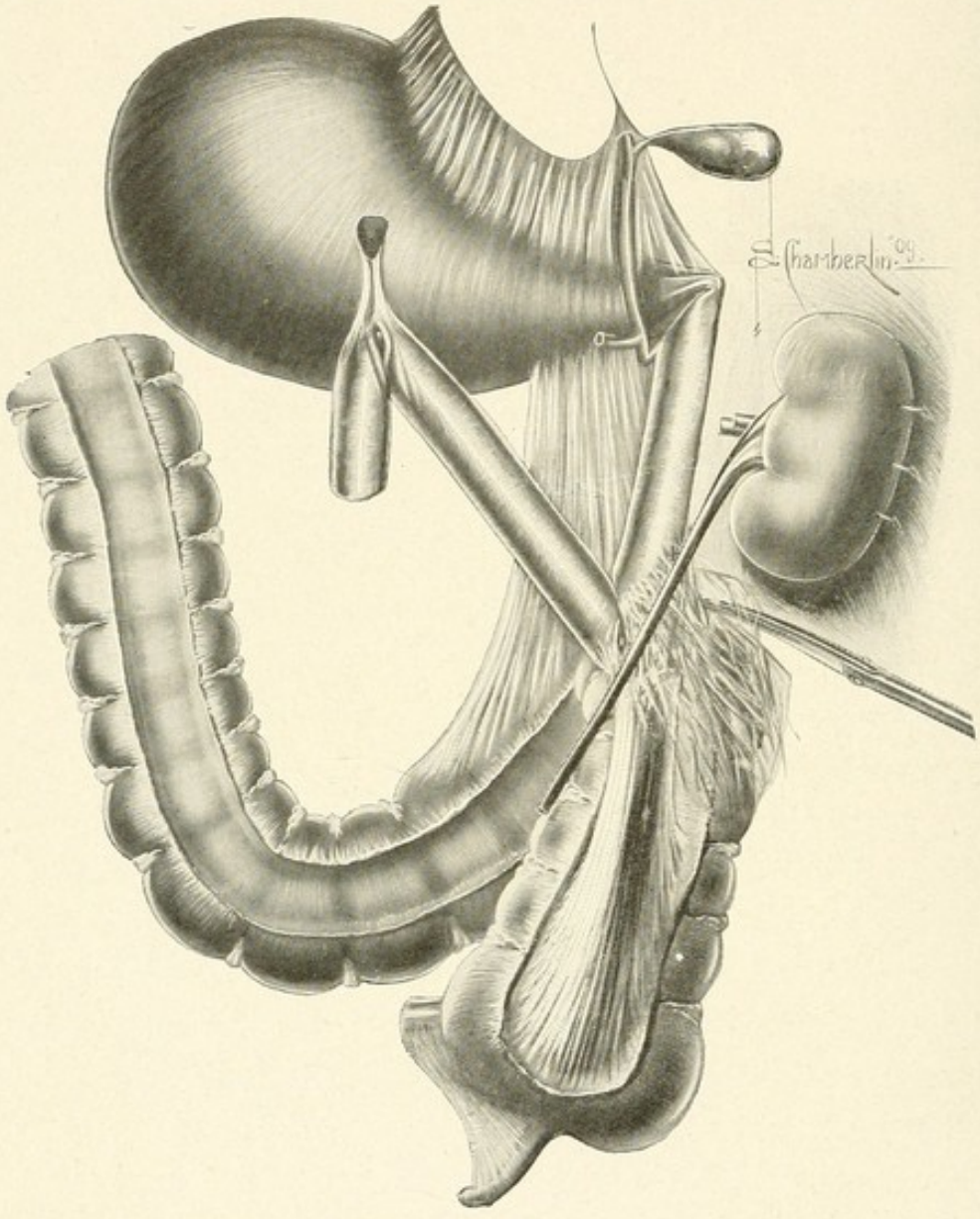


Fig. 28. Back view. Showing the result of cutting away the fatty capsule from the kidney in the old operation of nephropexy. Increased descent of cecum and traction on duodenum ensues. (In confirmation of this theory see Figs. 87, 88.)

tor in the surgical therapeutics is **fixation of the colon,** and that fixation of the kidney is of secondary importance.

Before becoming convinced of this principle, and be-

fore realizing the surgical importance of the nephrocolic ligament, the author made several operations in which it was attempted to make fixation of the bowel by fastening the peritoneum at the hepatic flexure into the wound in the loin. It was this work which led to the practical investigation of the nephrocolic ligament in the living subject, and when the author became convinced that it had sufficient tensile strength, when the fasciculi were bunched together, to support the bowel, he abandoned the peritoneal route and developed the simpler and safer method—the extra-peritoneal operation—which he now uses to his great satisfaction.

In a series of fifty-six operations the author has found only two cases in which the tissue of the ligament was so distributed that its utilization was difficult and unsatisfactory. In these cases the network of fasciculi, instead of enveloping the whole kidney and passing down together around the lower pole of the organ, as usually found, were placed on the front side of the kidney and were spread out and closely adherent to the peritoneum, between the kidney and colon, which caused the difficulty in isolating them.

The first idea of the author, in utilizing the ligament, was to cut it through midway between the kidney and bowel, suture the intestinal portion into the lower angle of the wound and that attached to the kidney into the upper angle, but he ultimately adopted the present method of making a loop of the ligament and slinging up both bowel and kidney by suturing the tough tissue of Gerota's capsule under it and re-enforcing this by fastening the transversalis fascia to and under the ligament by a silver wire suture. This is the best possible way of securing the fixation, because its permanency does not depend on the adhesion of the ligament alone to adjacent

tissues. The union of heterogeneous tissues, especially when containing fat, is a doubtful process at best, and needs the assistance of all possible favoring conditions, which would not be the case if the ends were simply sutured fast and no other safeguard made against failure. Reed, of Cincinnati, utilizes the nephrocolic ligament in this manner, but he safeguards the suturing by also fixing the kidney in the usual way.

Author's Operation of Nephrocolopexy.

Preparatory treatment.—In cases which are recovering from Dietl's crisis or extreme colonic irritability, the patient should be put to bed and treated by the methods already described for these conditions, the operation being made only after the complete subsidence of all acute manifestations and the entire disappearance of all inflammatory perirenal exudate. Special care should be exercised in examinations of the urine, as all evidence of acute nephritis, which frequently persists for some time after Dietl's crisis, must be absent. The alimentary tract should be completely emptied the day previous to operation, preferably by a saline cathartic. For this purpose the author usually uses Seidlitz powders, giving a double powder every two hours, beginning before breakfast, and continuing their use until five or six satisfactory stools have resulted. By commencing the use of the cathartic thus early in the day the evacuation is complete before night, giving the bowels time to become quiescent before the time of operation the next morning—which is important. The diet during the day should be light—soft.

The field of operation is sterilized in the evening, and a pad wet with sublimate solution applied with a binder. The morning of the operation the patient receives a

simple enema, and immediately before going to the operating room a hypodermic of strychnia sulphate gr. 1/40.

Anesthetic.—Nitrous oxide gas, followed by sulphuric ether, unless otherwise indicated. Gastric lavage with normal salt solution is used at the conclusion of the operation.

Severe post-operative vomiting, which must always be a menace to the success of a recently fixed kidney, is practically a thing of the past in cases in which this routine is followed.

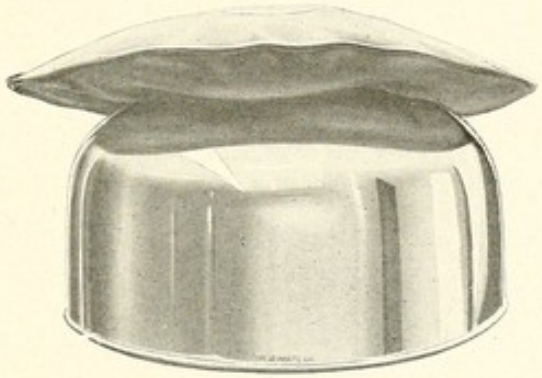


Fig. 29. Author's kidney elevator used in the operation of nephrocolopexy.

Before the adoption of the use of the author's kidney elevator, much time was usually consumed in placing the patient in a satisfactory position, owing to the unstable condition of the body of the patient caused by the use of the inflated rubber bag.

The author's kidney elevator (Fig. 29) is composed of two parts: (1) a round-top dome of nickel-plated spun brass, having an open base and a round opening cut in the top, and (2) an ordinary rubber ice cap. To prepare the appliance for use, the rubber portion of the ice cap is pushed through the hole in the top of the dome from within, filled about half full of warm water, and the stopper screwed on. The flange onto which the stopper is screwed, being larger than the hole in the dome, holds

the water cushion well in place on the top of the elevator. By the use of this simple device, which may be used on any kind of a table, the patient may be placed in position without loss of time by raising the hips high, with the patient lying face downward, and sliding the elevator under, with the water cushion uppermost. (Fig. 30.) As the weight of the patient is let down on the cushion, it being placed centrally under the abdomen, the abdominal contents are pushed upward and the kidney held in position. A pad or sand bag placed against each thigh holds the patient in exactly the position desired, which is usually with the side to be operated on slightly the higher.

Before making the incision, the reposition of the kidney should be assured by examination, as a very loose kidney in a broad subject having a relaxed abdominal wall may not be pushed into place by the elevator, and may need manual direction into the fossa.

Instruments used in the operation of nephrocolopexy.—(Fig. 31.) Scalpel, 1; scissors, 1; narrow retractors, 2; hemostatic forceps, 1; short Kocher forceps, 2; long Kocher forceps (made with loose lock to avoid crushing tissues), 1; tissue forceps, 2; curved ligature carrier, 1; bayonet-pointed side-curved handled needle, 1; full-curved large Hagadorn needle, 1; author's nephrocolic ligament forceps-hook, 1; shot crusher, 1; suture material, No. 1 twenty-day catgut throughout, excepting for the stay suture in the transversalis fascia, where No. 26 silver wire is used, the twisted ends protected by a perforated silver shot.

The seat of operation, having been previously sterilized, is simply washed with alcohol. The incision, about

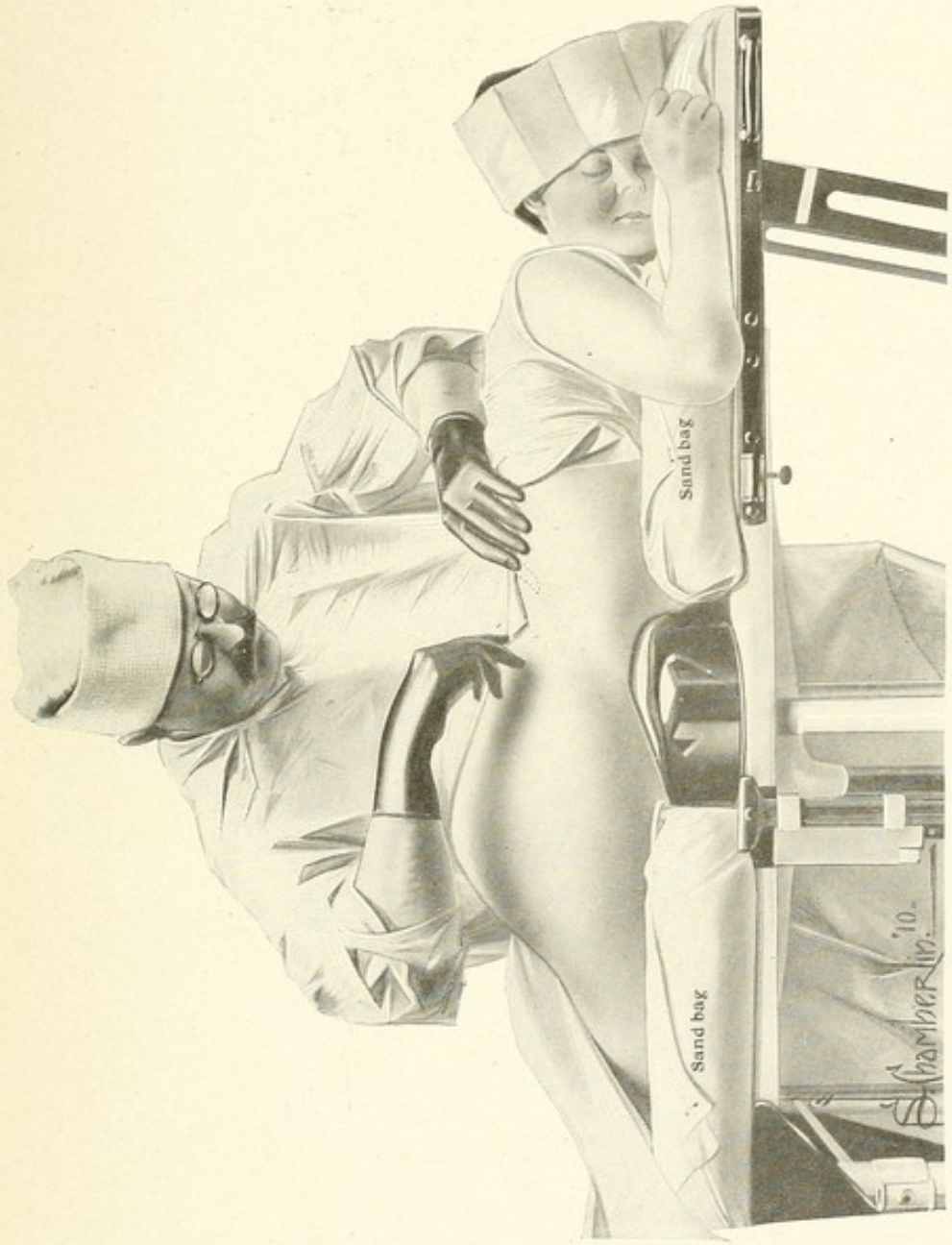


Fig. 30. Showing position of patient, method of using author's kidney elevator, and location of incision (beginning at the twelfth rib) in the operation of nephrocolopexy. (For the purpose of clearly illustrating the technic, the usual preparatory dressing of the patient for operation and the aseptic gauze cover for the kidney elevator are not shown.)

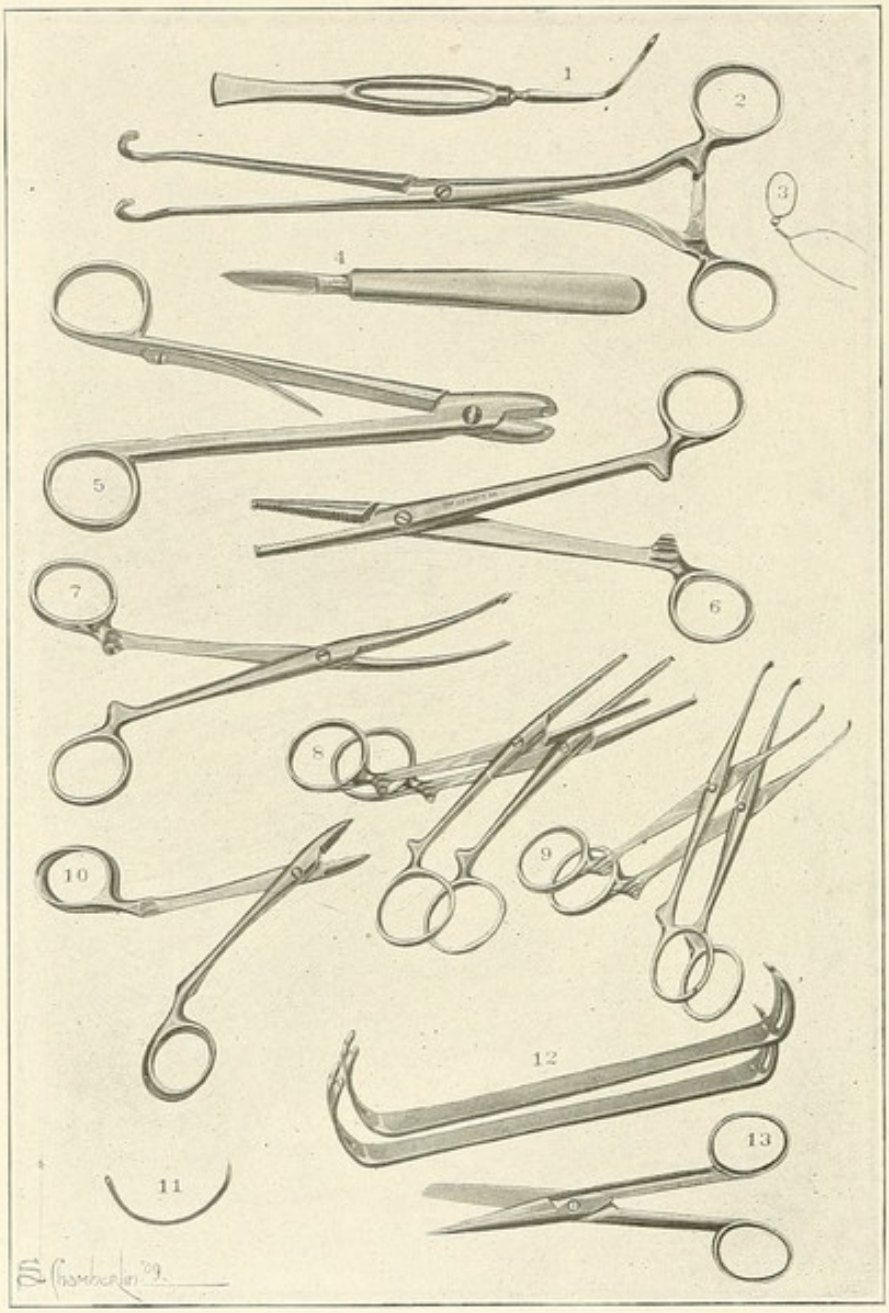


Fig. 31. Instruments used by the author in the operation of nephrocolopexy.

1. Curved handled needle, with bayonet point and eye close to it.
2. Author's forceps-hook for securing and forming a loop of the nephrocolic ligament.
3. No. 26 silver wire and perforated silver shot for buried mattress suture of transversalis fascia (shown as applied).
4. Bistoury.
5. Shot crusher.
6. Long Kocher forceps (with loosely fitting teeth) for finding the nephrocolic ligament.
7. Ligature carrier for passing ligatures under the loop of ligament.
8. Short Kocher forceps for isolating margins of transversalis fascia.
9. Fine-toothed tissue forceps for isolating margins of Gerota's capsule.
10. Hemostatic forceps.
11. Hagadorn needle.
12. Retractors.
13. Scissors.

two and a half inches in length, is begun just over the lower margin of the twelfth rib, and at the outer margin of the quadratus lumborum muscle—which point is a little over two inches from the vertebral spine—and carried a little diagonally outward toward the iliac crest. Skin, fat, and superficial fascia are severed, when blunt dissection is used through the latissimus dorsi muscle to the transversalis fascia, which is grasped by two Kocher forceps and incised between; or the fascia may be entered also by blunt dissection by thrusting through and opening the hemostatic forceps. The subperitoneal (not perirenal) fat appears. Retractors are inserted and the fat pushed downward with the finger, when Gerota's capsule (perirenal fascia) is seen at the upper angle of the wound, near the twelfth rib, as a pinkish-colored membrane, somewhat resembling peritoneum. This is grasped with the two fine-toothed tissue forceps and incised between, when the perirenal fat appears. If incision has been made through the transversalis fascia too far downward, and not near the twelfth rib, the peritoneum (Fig. 13, No. 10), and not Gerota's capsule, will be opened at this stage of the operation. The index finger is inserted through the opening in Gerota's capsule (Figs. 32, 33), and the lower pole of the kidney located—and it is important that the lower end of the kidney be made out definitely, as the nephrocolic ligament, if grasped and fixed at the side of the kidney, is secured in but a small part and will have little supporting strength. With the end of the finger against the lower pole of the kidney, acting as a guide, the long Kocher forceps are thrust deep in beside the finger and about an inch below the kidney, opened wide, transversely to the axis of the kidney, and the tissue below the finger grasped by gently closing the forceps. Traction indicates to the finger the

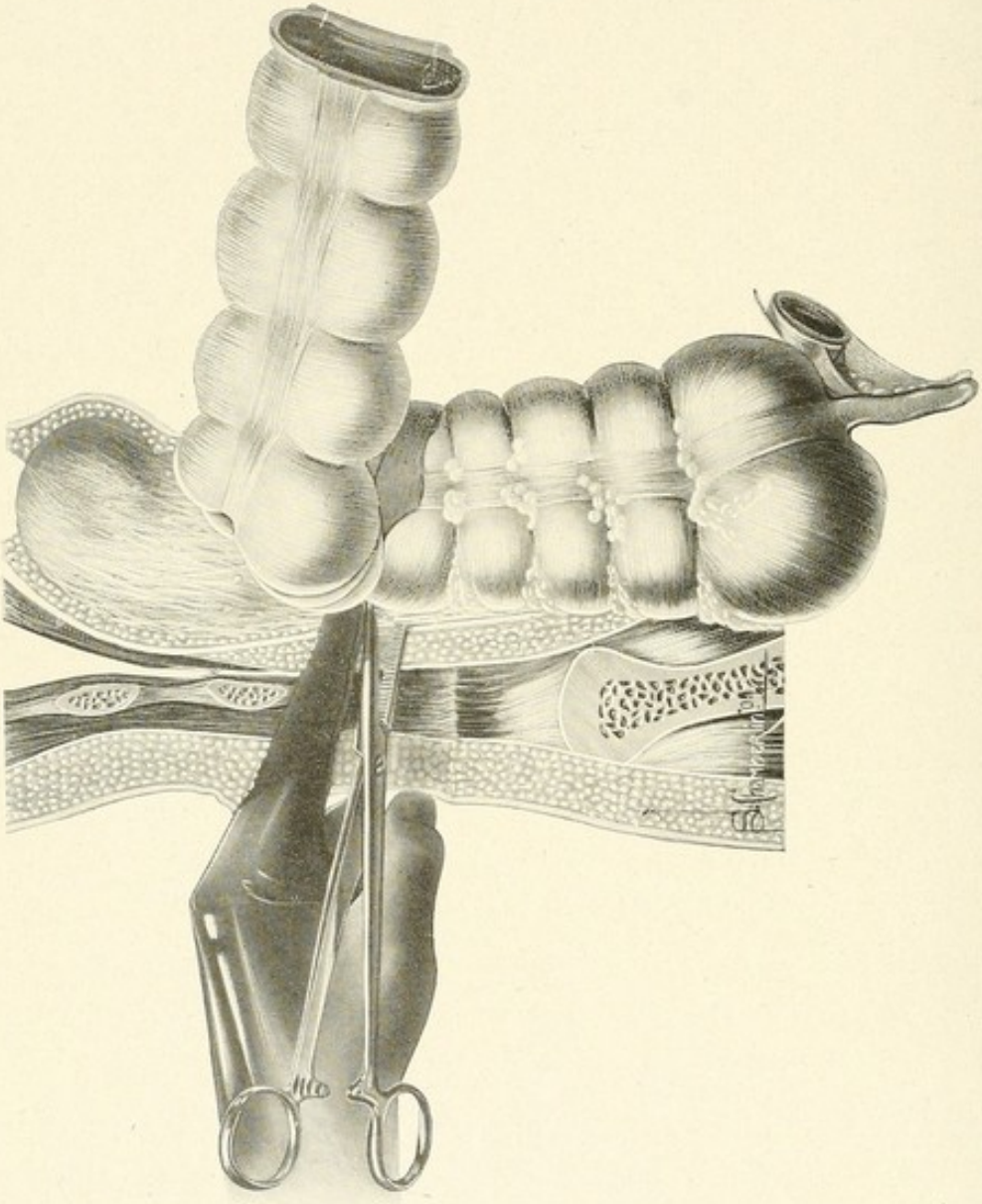


Fig. 32. Author's operation of nephrocolopexy, showing the method of finding the nephrocolic ligament after Gerota's capsule is entered.

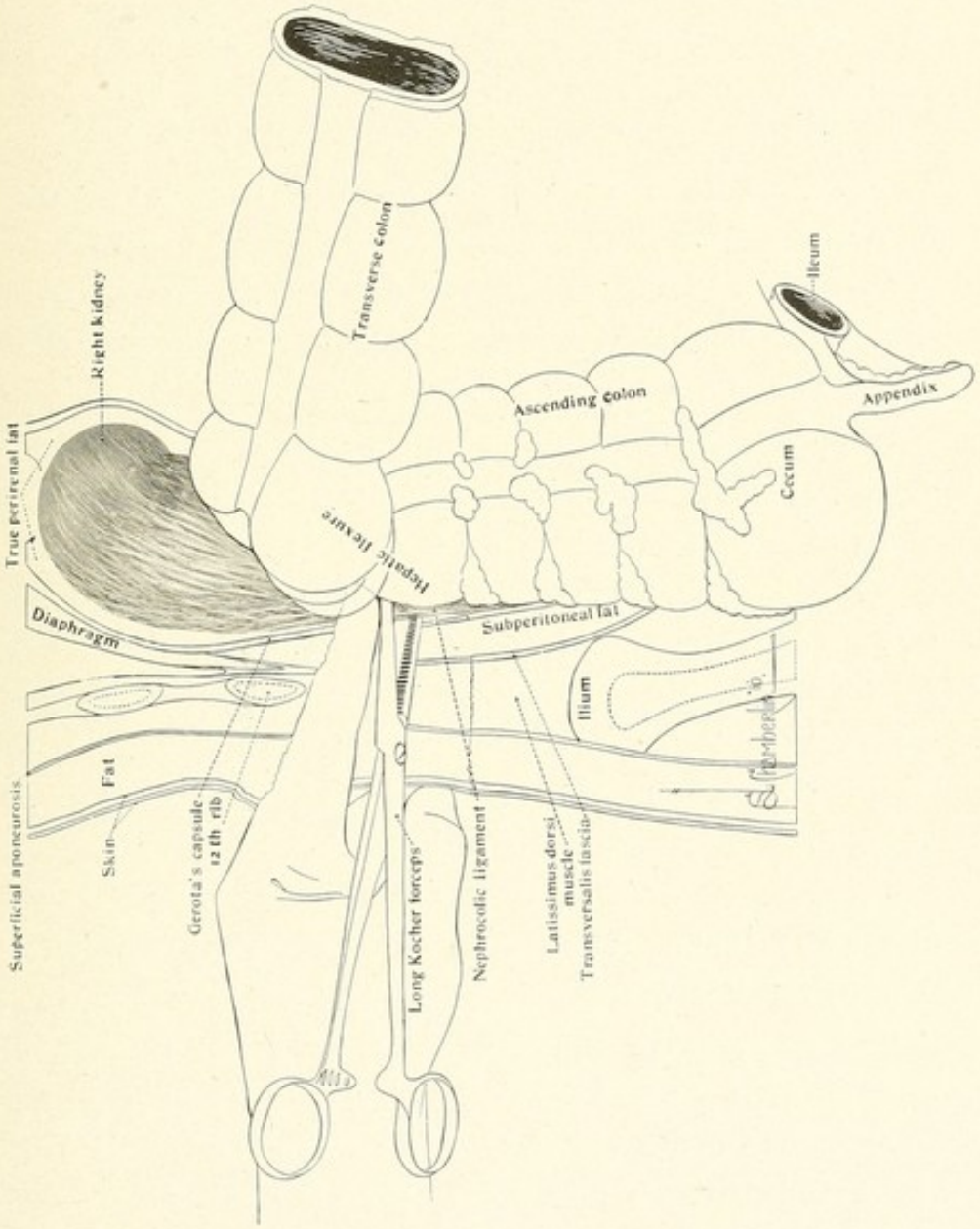


Fig. 33. Skeleton reference to Fig. 32.

success or failure to locate the ligament. If properly held by the instrument, the kidney may be pulled up forcibly against the finger by it, and the fasciculi of the ligament may be felt to pass from the forceps to the kidney. Several attempts may be made, in some cases, before the ligament is satisfactorily secured, but it is usually found at once. Occasionally the kidney lies low, or in such a position that the examining finger can not reach the lower pole, in which case two forceps may be used, and the kidney brought up by a "climbing" process, so that the ligament below the pole may be reached. When secured, the kidney is pulled up to the wound. (Figs. 34, 35.) This spreads out the fasciculi of the ligament in a fan-shaped manner, as the inner side of it is adherent to the peritoneum between the kidney and bowel. To gather together these separated fasciculi into one mass of parallel fibers is the next step, which is accomplished by means of the forceps-hook. (Figs. 36, 37.) While the assistant holds the ligament gently taut with the long Kocher forceps, the closed hook is passed, with the finger as a guide, into Gerota's capsule anterior to the ligament and about an inch below the kidney, and pushed gently backward slightly beyond the lower pole of the kidney, the end being held upward, so that the hook lies parallel with the kidney. After it is placed in this manner, the end is turned toward the back of the patient, so as to cross the back of the ligament with the hook, and then drawn upward toward the wound. The finger, being removed at the same time from the anterior side of the ligament and placed on its posterior side—still within Gerota's capsule—guides the end of the hook up out of the capsule and forces it through the tissues clinging to it. Examination is then made, and if a good mass of tissue has been secured, which pulls strongly on the

kidney and holds it firmly up to the wound, the hook is opened about an inch, which strips some of the ligament from the peritoneum and forms a loop through which the fascia and capsule are to be sutured. (Figs. 38, 39.) After opening the forceps once, they are allowed to close, and are opened only when necessary in passing ligatures under and drawing the edges of the capsule through. Some tough tissue is usually brought up on the tip of the hook, which is the part of Gerota's capsule that passes down with the ligament to its insertion in the bowel, and should be included with the ligament, as it materially strengthens it. (Fig. 11.)

The next step is the suturing of the overlapped margins of Gerota's capsule under the loop of ligament. (Figs. 40, 41.) For this purpose a mattress stitch of catgut is used on each side, the first being passed twice through the free margin of the capsule on the abdominal side, the long ends brought through the loop of ligament under the hook with the curved ligature carrier, passed under the capsule on the vertebral side, and with the handled needle the separate ends passed through the capsule and tied about half an inch from the margin. A similar ligature is then made fast to the margin of the capsule on the vertebral side, the ends threaded through the eyes in the end of the hook and the hook withdrawn, bringing the catgut through under the ligament with it, when it is passed through the outside of the capsule on the abdominal side, about half an inch from the margin of the loop of ligament, and tied under the edge of the flap. The loop of ligament is still held by the long Kocher forceps, which are not removed till the suturing around the ligament is finished.

The opening in Gerota's capsule at each end of the projecting tissue of the ligament is closed with ligatures,

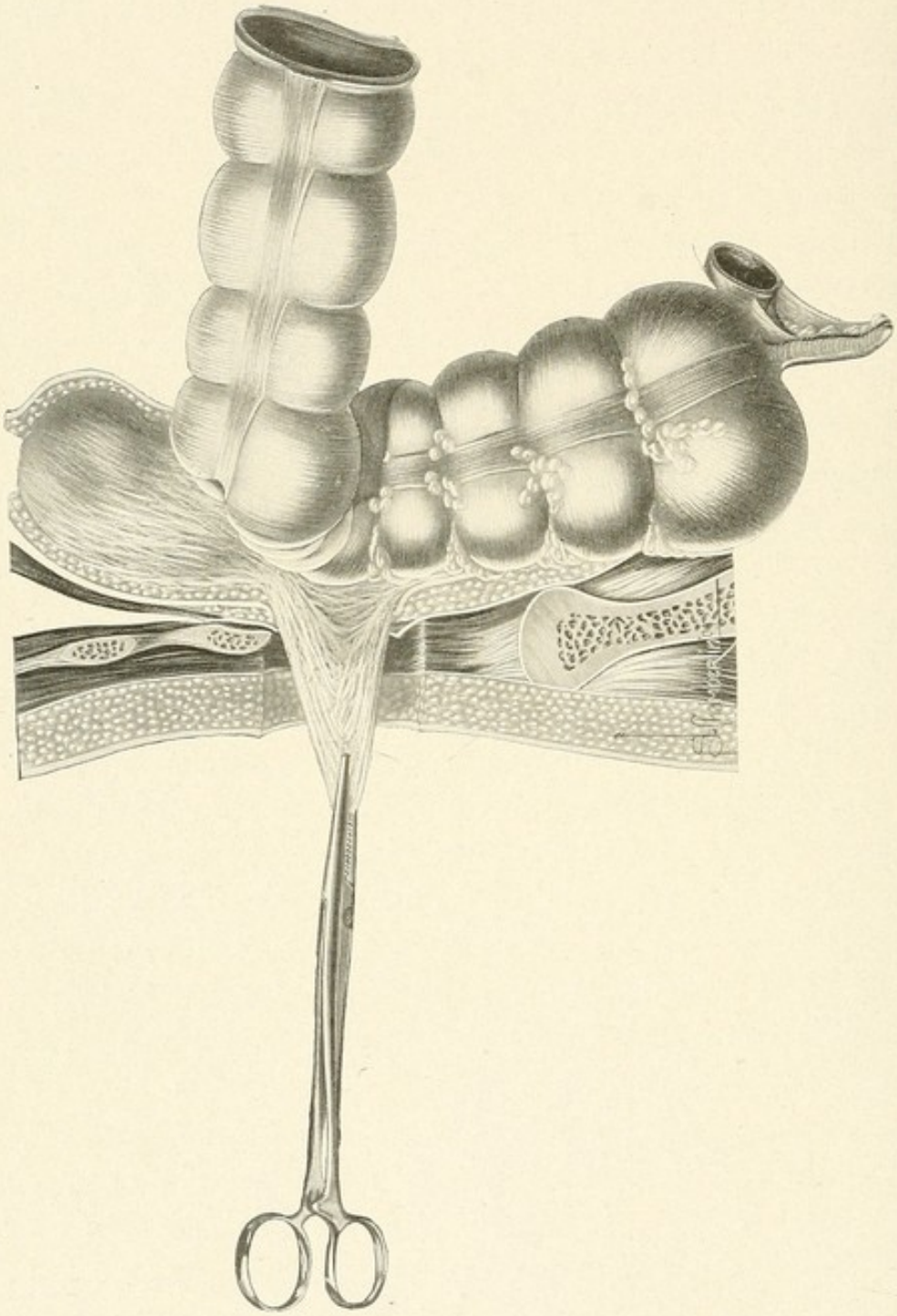


Fig. 34. Author's operation of nephrocolopexy, showing the finding of the nephrocolic ligament, which is drawn out and its fasciculi made taut, so as to be felt to pass from the forceps to the kidney.

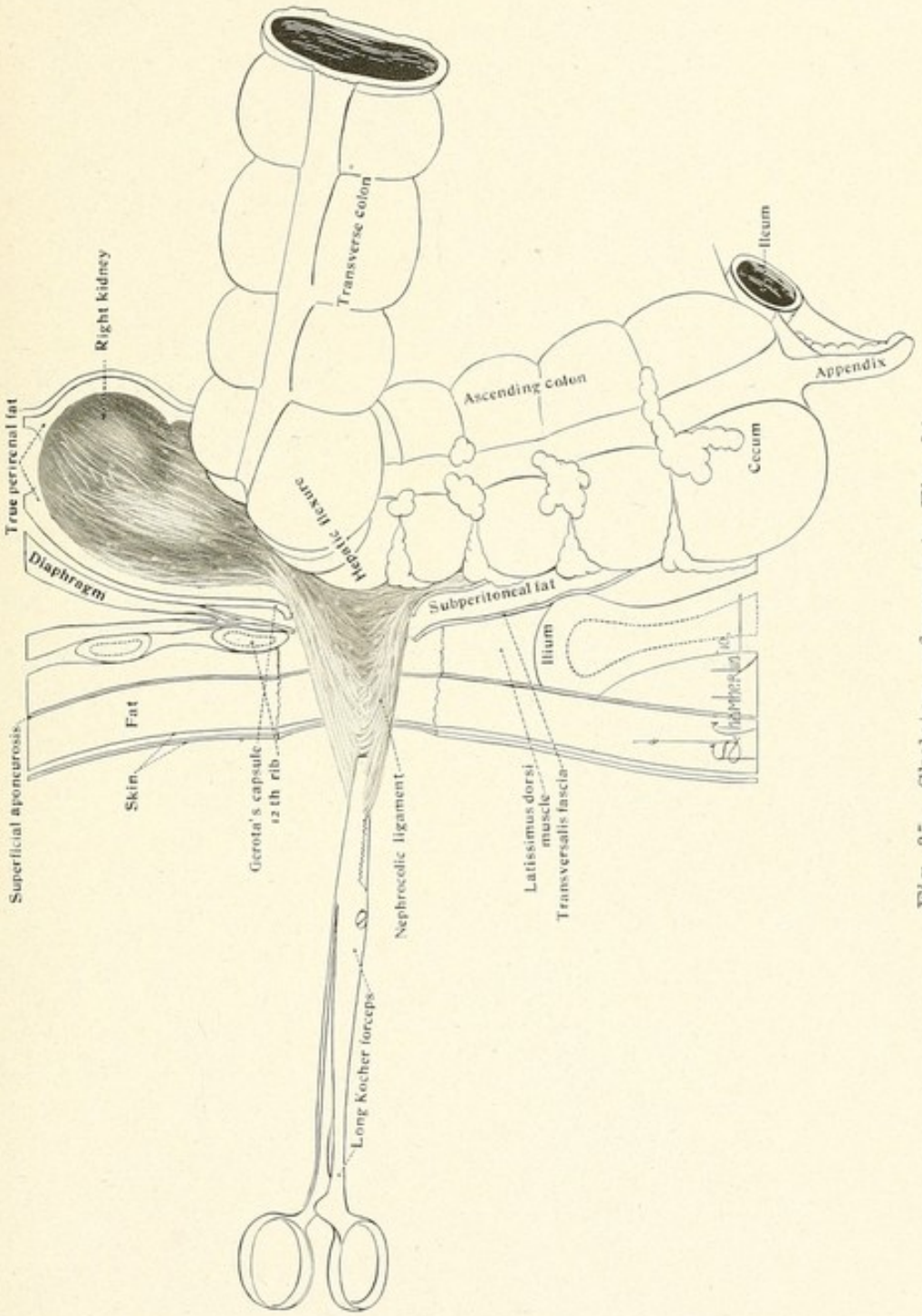


Fig. 35. Skeleton reference to Fig. 34.

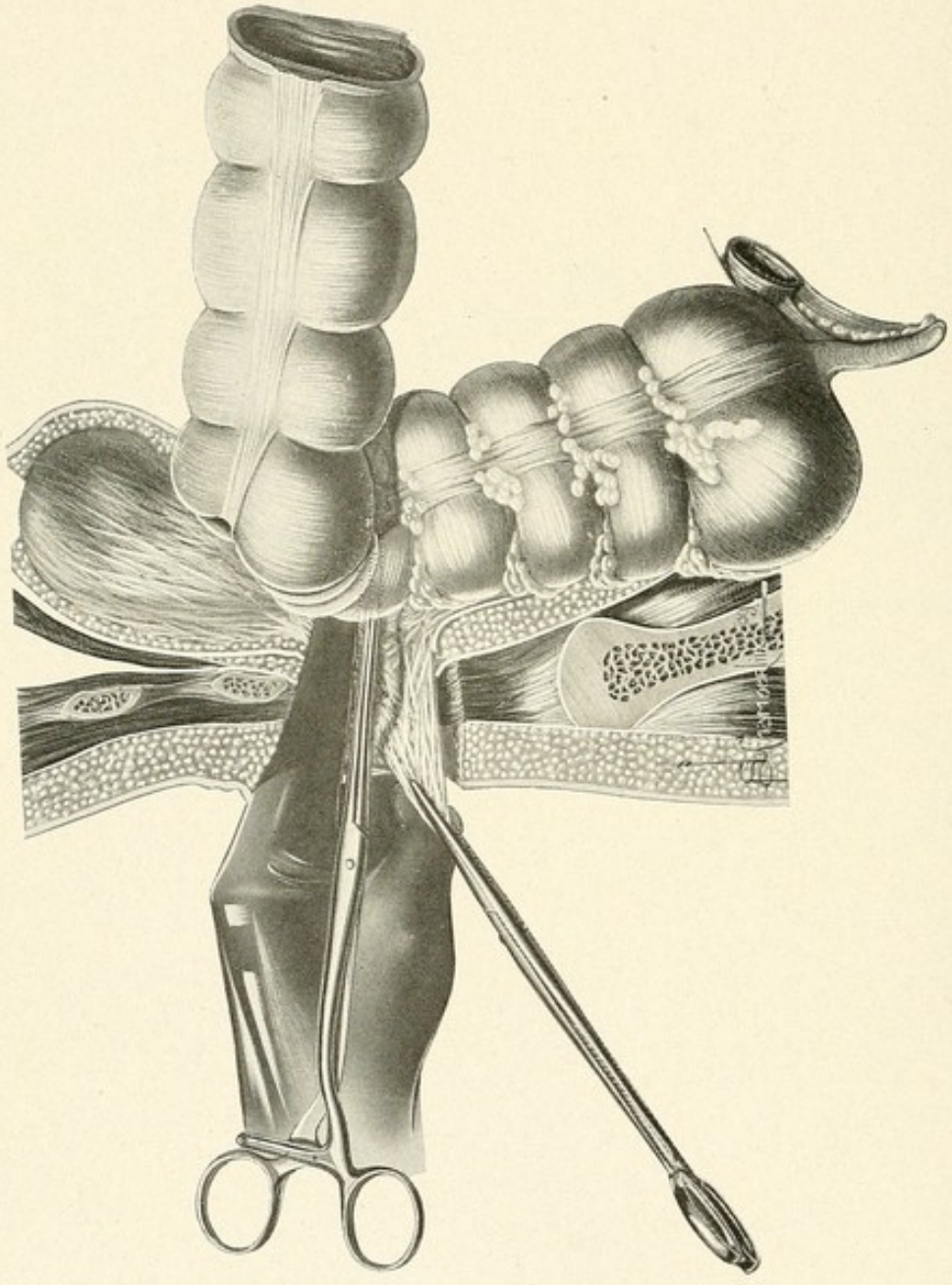


Fig. 36. Author's operation of nephrocolopexy, showing the method of gathering together the entire nephrocolic ligament by the use of the forceps-hook.

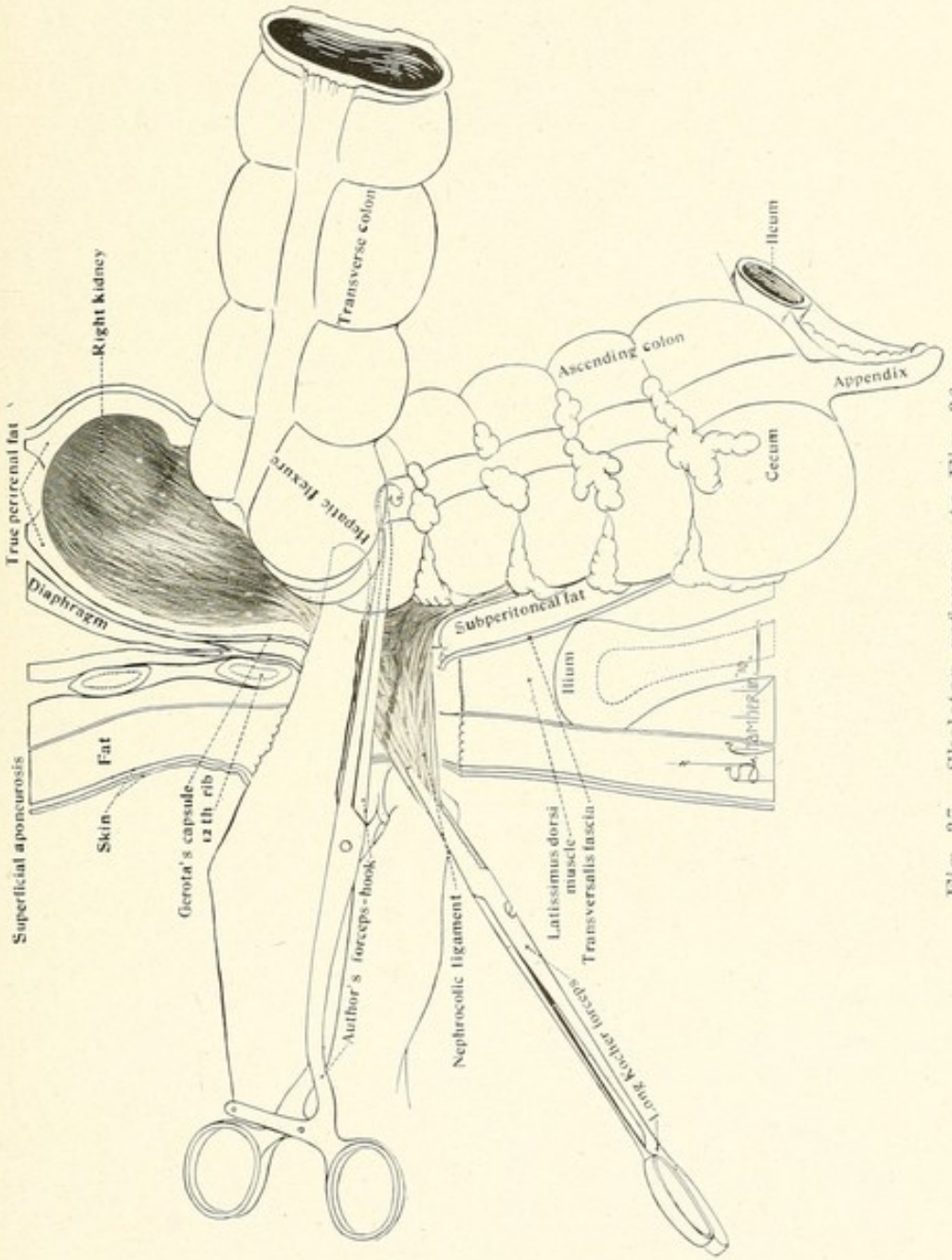


Fig. 37. Skeleton reference to Fig. 36.

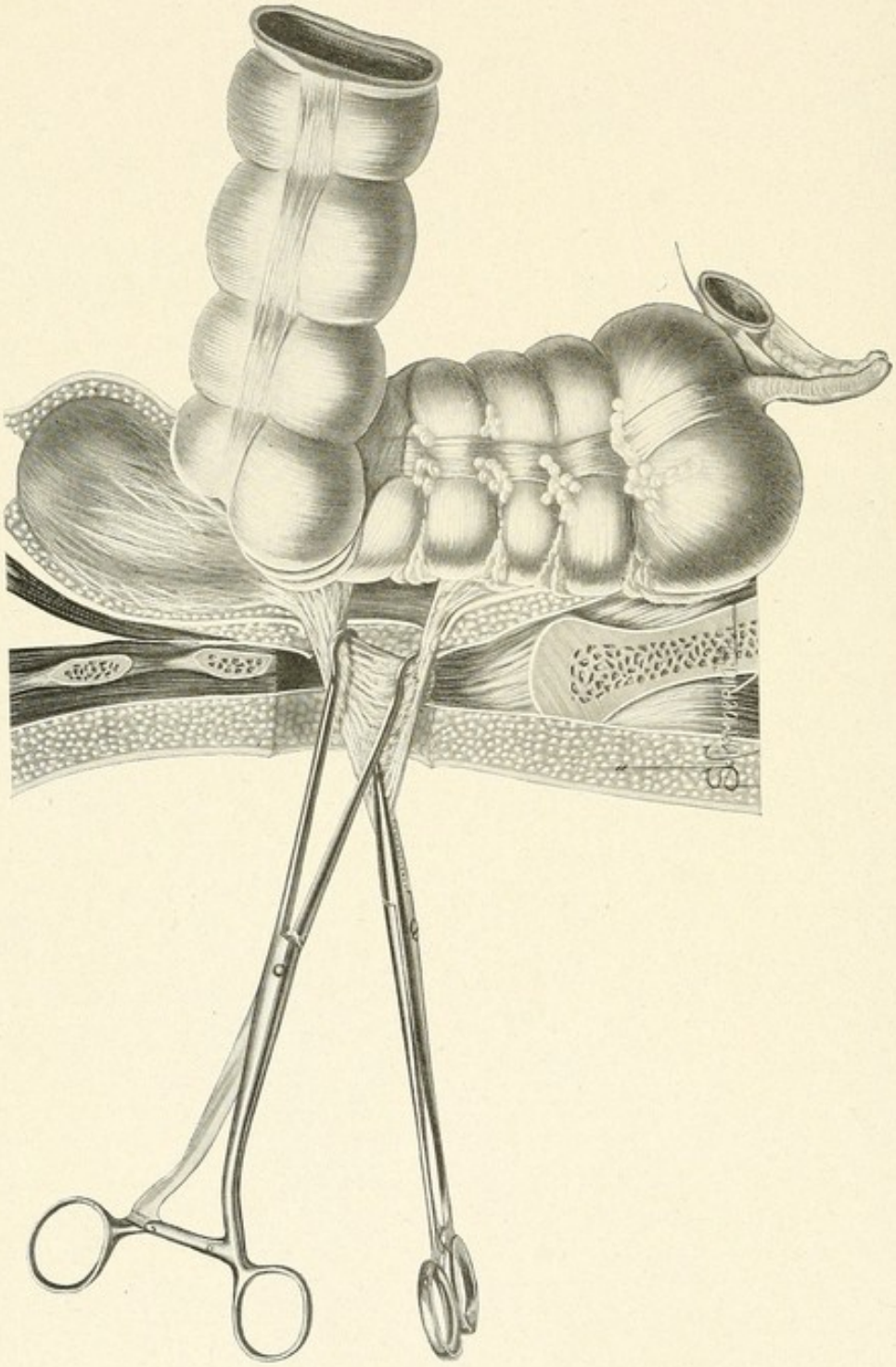


Fig. 38. Author's operation of nephrocolopexy, showing the method of forming a loop of the nephrocolic ligament by opening the forceps-hook after the entire ligament has been secured.

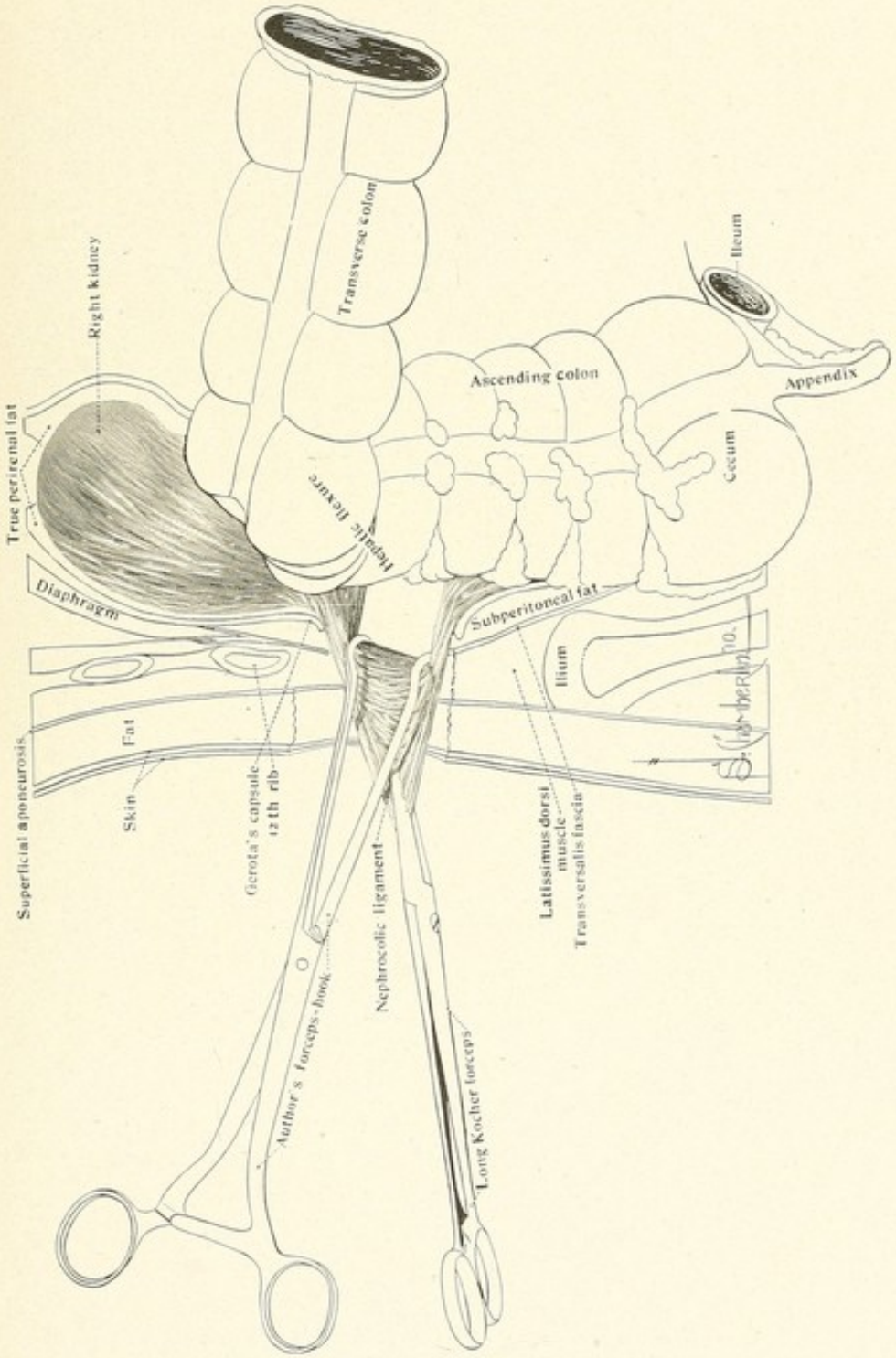


Fig. 39. Skeleton reference to Fig. 38.

after which the silver wire mattress suture is passed with the handled needle through the transversalis fascia from side to side, broadly, under the loop of ligament and fas-

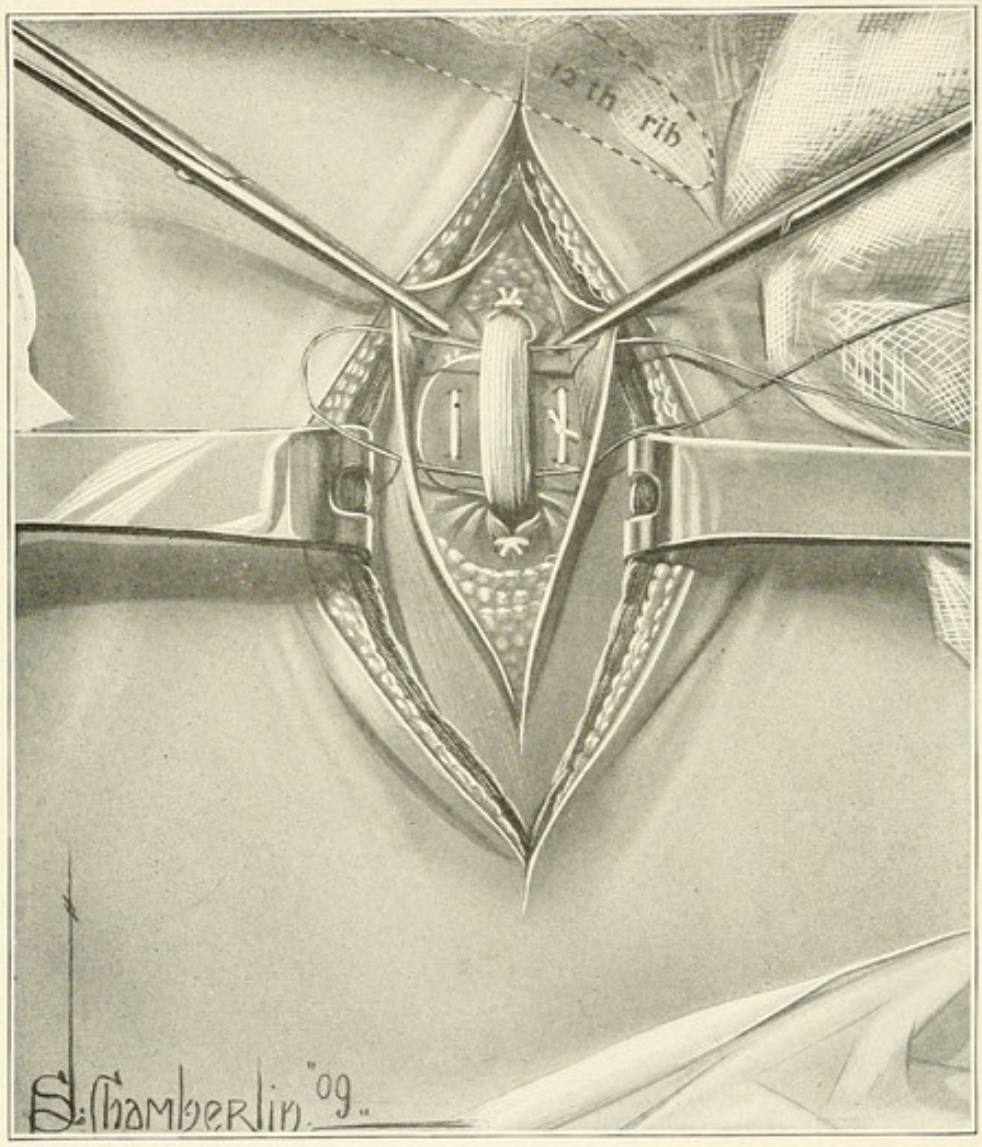


Fig. 40. Front view. Author's operation of nephrocolopexy, showing Gerota's capsule overlapped and sutured under the loop of the nephrocolic ligament, and the silver wire mattress suture passed through the transversalis fascia and under the loop of ligament.

tened, thus bringing the margins of the fascia under and firmly against the tissue of the ligament. (Figs. 42, 43.) The wire is made fast by twisting the ends, and a small perforated silver shot run over the ends down to the

shoulder and crushed with the shot-crushing forceps. The ends of the wire are cut flush with the shot, which leaves the suture in a condition free from any possibility of causing irritation to the tissues. No post-operative trouble is had with this buried suture made with this size of wire, protected by the silver shot. Farther clos-

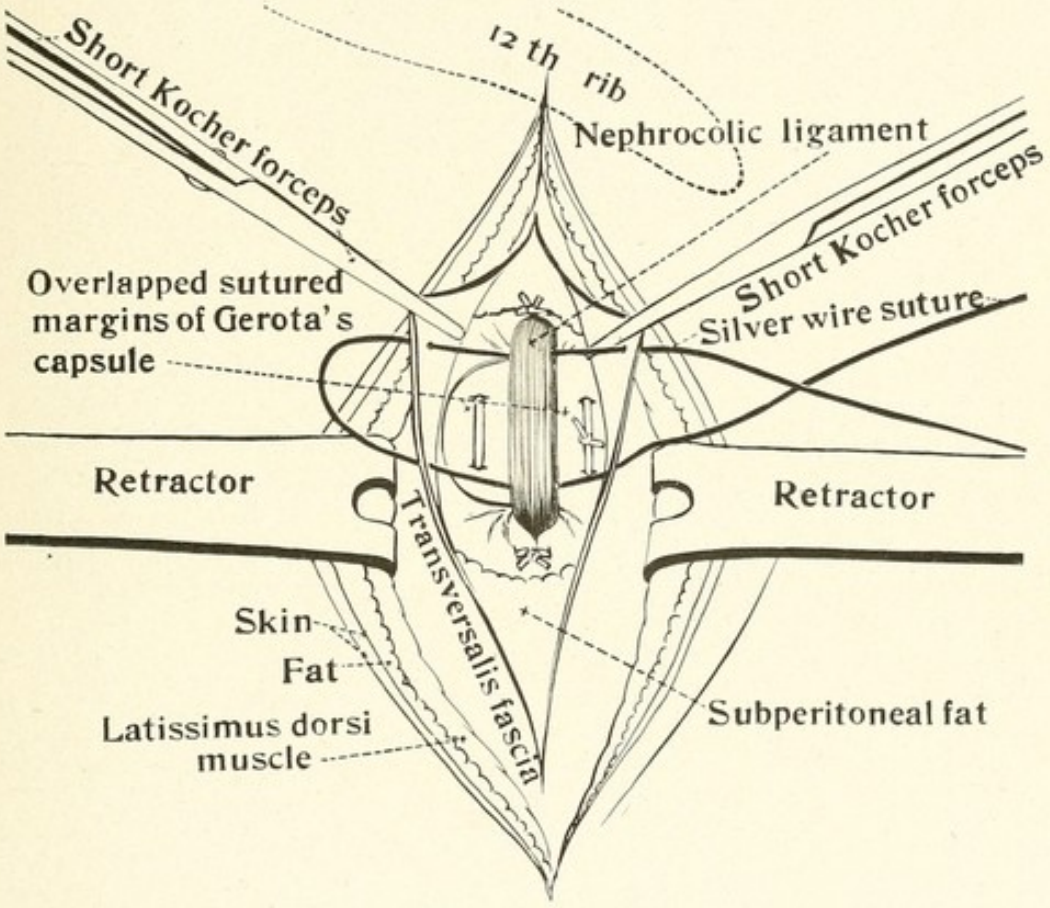


Fig. 41. Skeleton reference to Fig. 40.

ure of the transversalis fascia is made with interrupted catgut sutures.

The long Kocher forceps are removed from the ligament, which is now covered over by the closure of the muscle and superficial fascia by interrupted sutures, care being taken here—as, in fact, during the entire operation—to leave no dead spaces or bleeding points. The operation is finished by closure of the skin incision

(Figs. 44, 45) with a subcutaneous suture of catgut, which is entirely buried. If the skin margins are not exactly coapted, they are brought together by narrow strips of aseptic adhesive plaster. The scheme of the completed

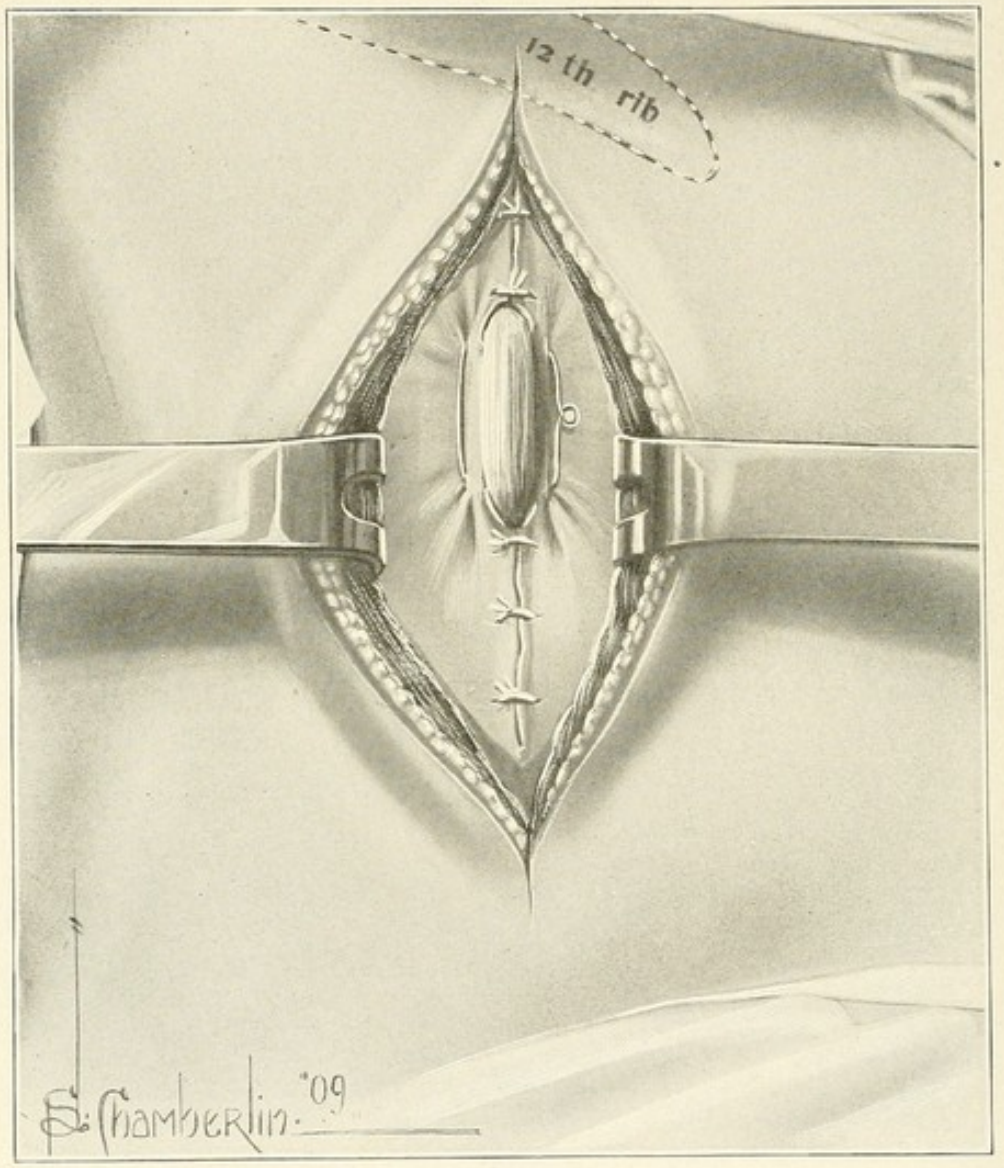


Fig. 42. Front view. Author's operation of nephrocolopexy, showing the transversalis fascia closed and the method of using the silver wire mattress suture.

operation is seen in Figs. 46, 47, and the result of the operation on the displaced kidney and compressed ureter is illustrated in Fig. 48.

The wound is dressed by dusting with aristol, covered

with a small gauze pad, which is held and surrounded by adhesive plaster, and loosely with a large pad of cotton, reaching entirely across the width of the back, the latter being held by adhesive plaster and a loosely applied binder. The patient is then turned on the back,

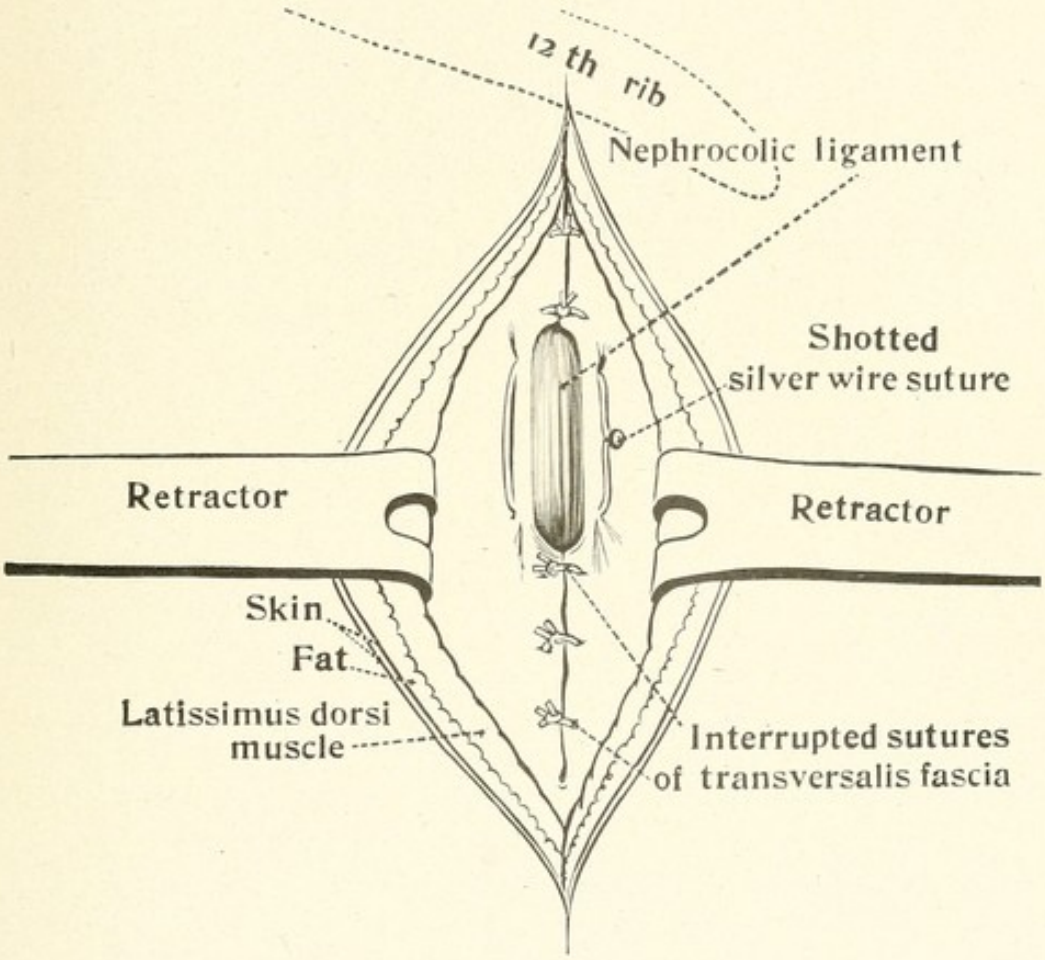


Fig. 43. Skeleton reference to Fig. 42.

and the large abdominal pad applied. (Fig. 49.) (See Mechanical Treatment.) This pad should be thickest in the middle, and of sufficient size to fill the abdominal space below the navel, and yet not extend beyond so as to cause pressure on ileum or pubis. It must be worn constantly during convalescence, and held securely at all times by the adhesive plaster and a binder in addition. In cases of severe post-operative vomiting this pad is a

valuable safeguard against the threatened tearing away of the newly sutured tissues by the violent muscular activity incident to the emesis; it acts further as a constant support to bowel and kidney during the healing

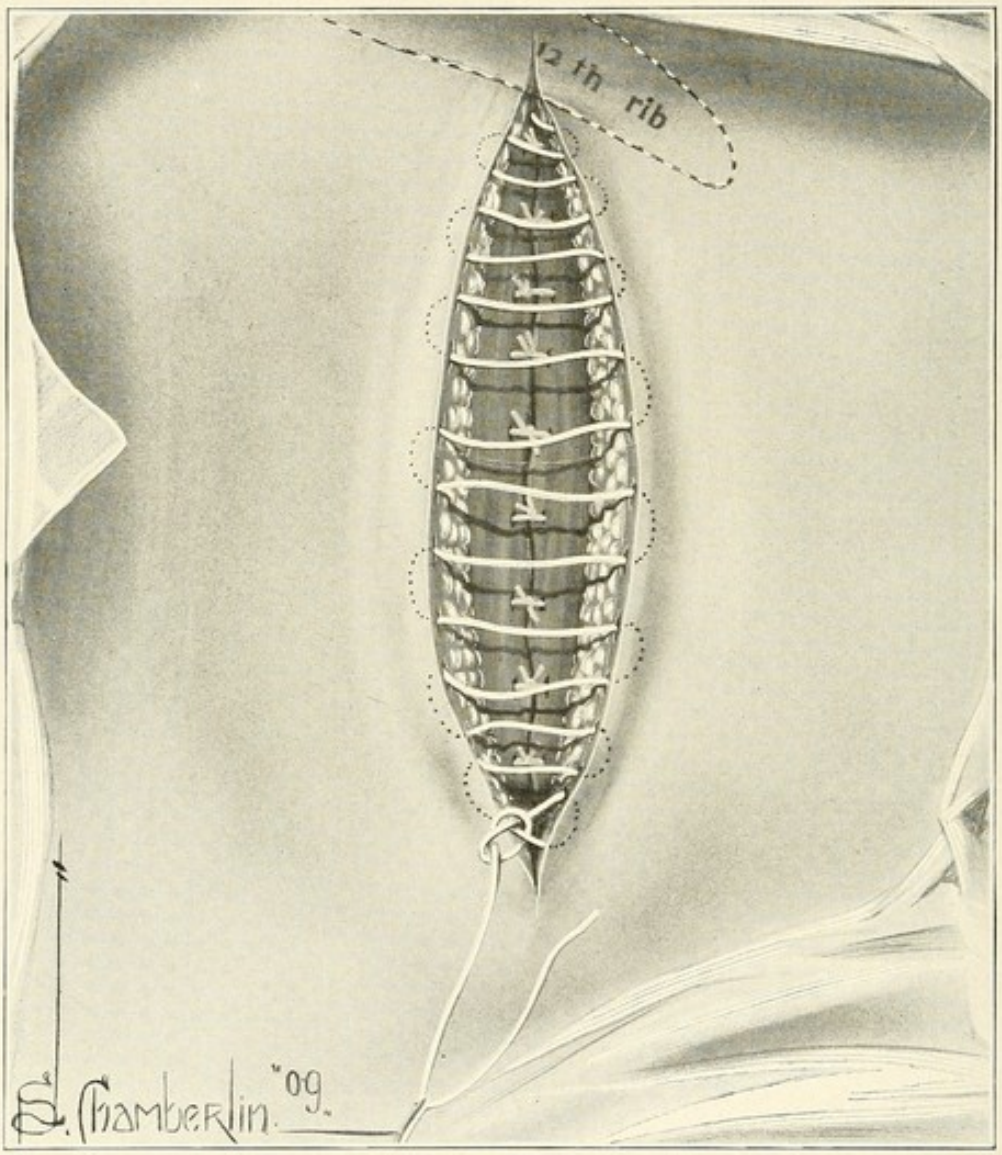


Fig. 44. Front view. Author's operation of nephrocolopexy, showing muscle and superficial fascia closed over loop of ligament with interrupted sutures and the continuous, subcutaneous, buried suture placed and ready to draw tight and tie.

process, thus removing much of the strain on the sutured parts.

After-treatment.—The patient remains quietly in bed for from seventeen to twenty days, this length of time

being considered necessary to insure the firm union of the mixed tissues involved. The position for right nephrocolopexy may be dorsal or right lateral, but lying on the left side is strictly prohibited during convalescence.

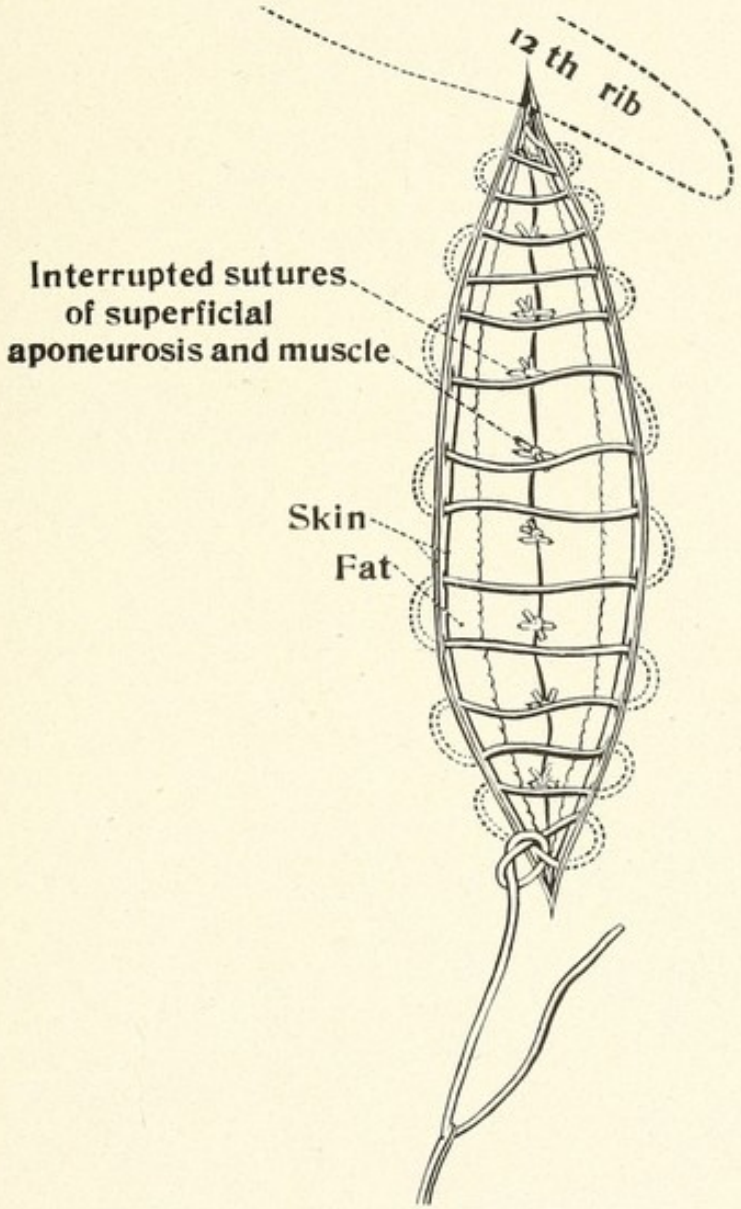


Fig. 45. Skeleton reference to Fig. 44.

In the bilateral operation the dorsal position only should be allowed.

The diet is of a fluid character (not including milk) for three days, then light soft diet for seven days, and mixed diet afterward. The bowels are moved by a low

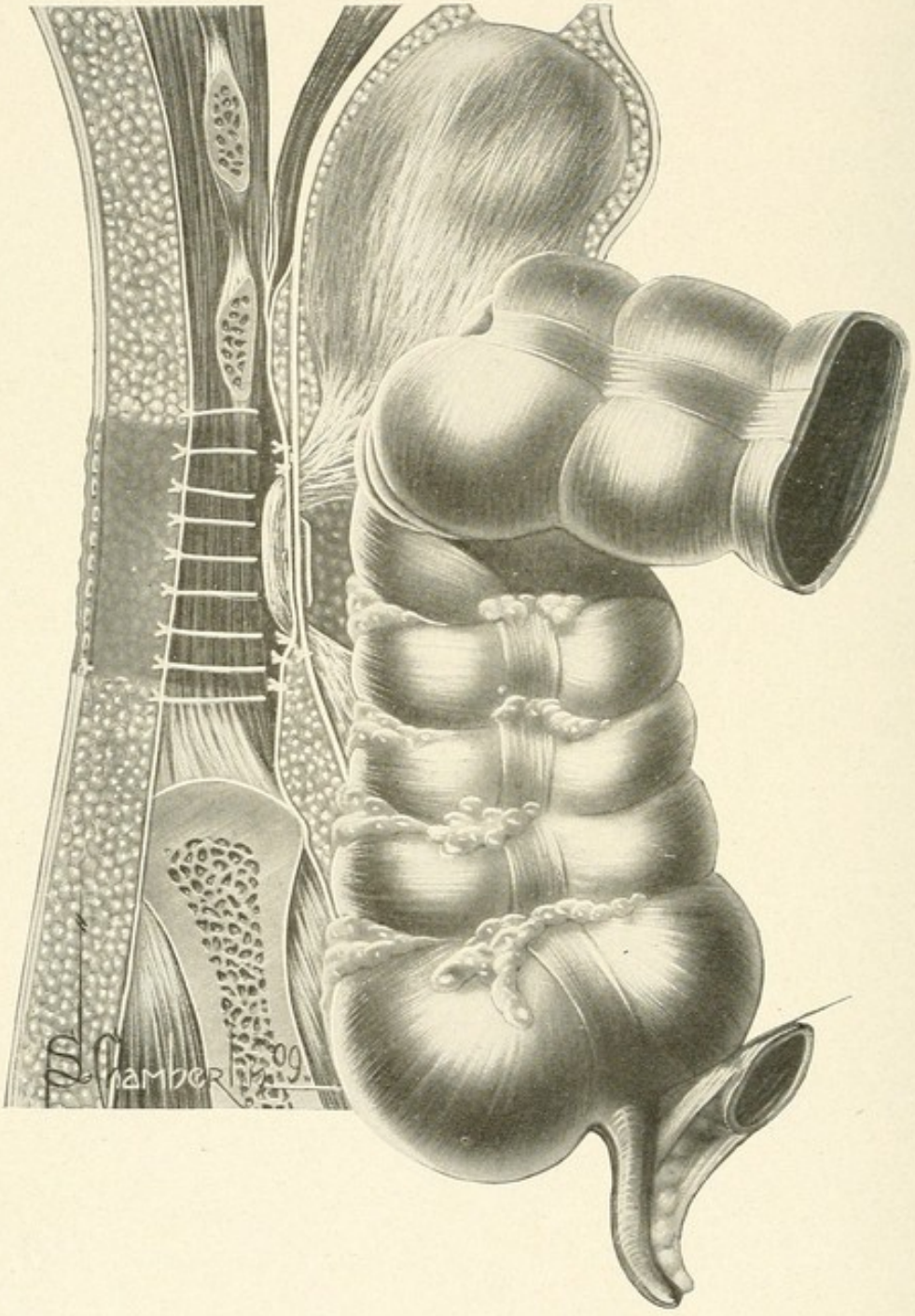


Fig. 46. Author's operation of nephrocolopexy, showing completed operation and method by which both bowel and kidney are supported by fixation of the nephrocolic ligament by the use of Gerota's capsule and the transversalis fascia.

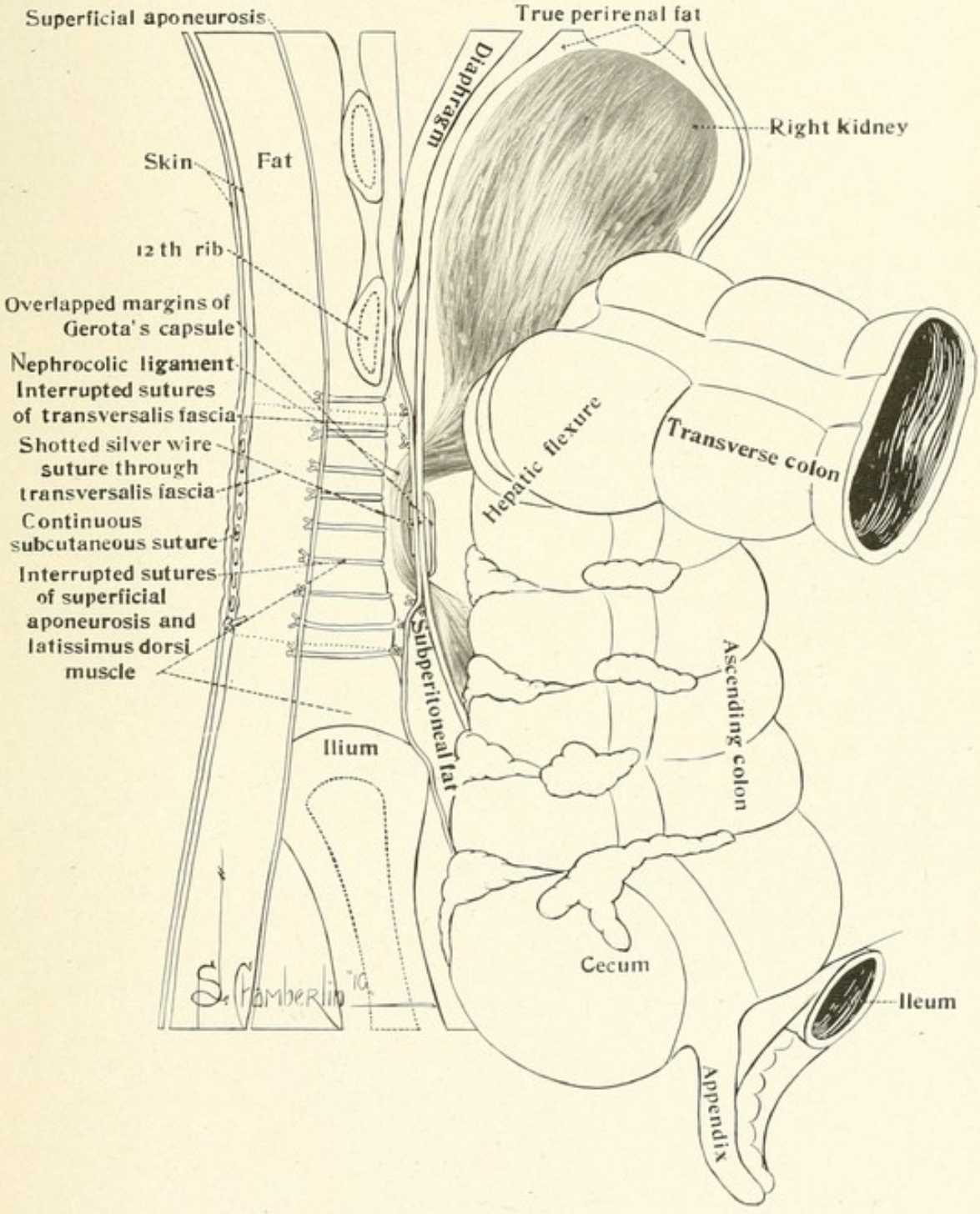
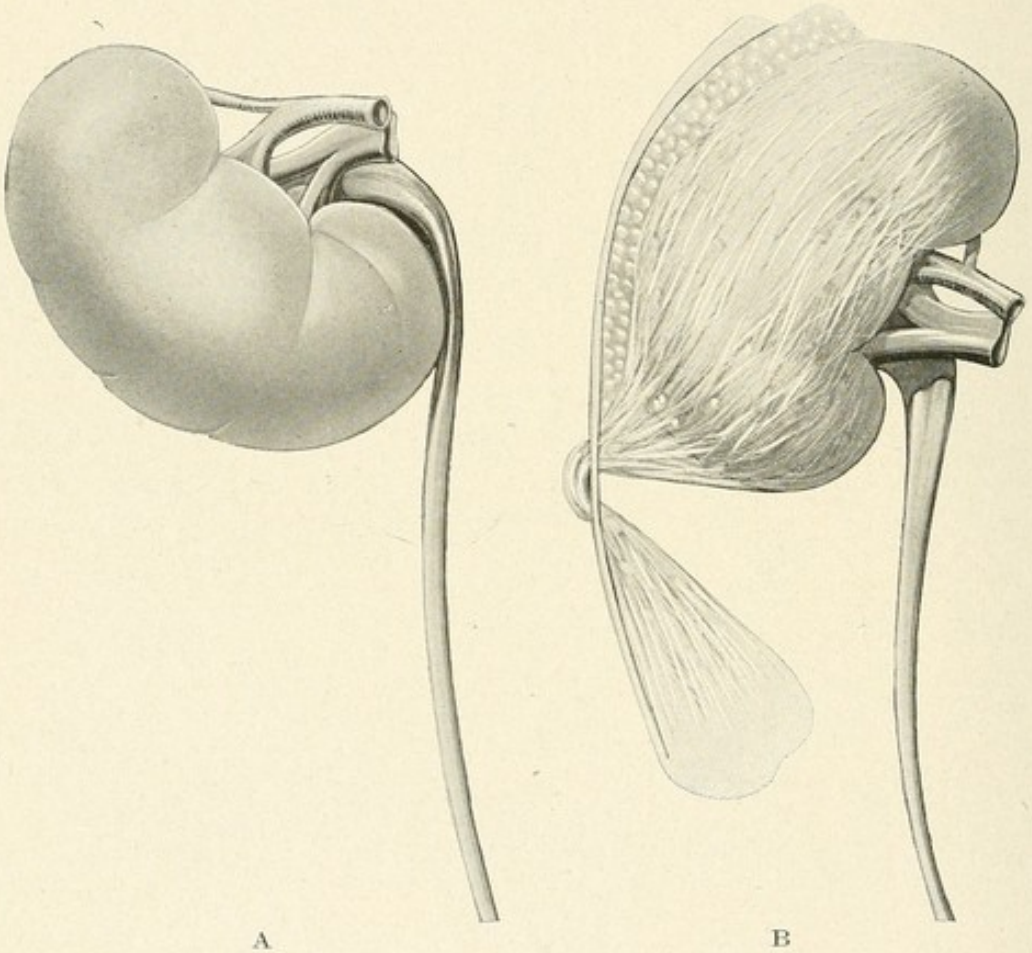


Fig. 47. Skeleton reference to Fig. 46.

glycerine enema (glycerine ℥j, water ℥v) on the third day, or before if tympanites be troublesome. A low enema of normal saline solution is used, to overflow, on the evening of each day thereafter when a satisfactory movement has not been had during the day. The administration of petrolatum oil (℥ss), afternoon and bedtime, is begun on the fourth day and continued until the bowels



A B

Fig. 48. A, position of prolapsed kidney, showing compression of the ureter. B, position of the kidney when replaced by fixation of the nephrocolic ligament.

become regulated without the use of the enema, when it may be gradually discontinued, as indicated. It is sometimes necessary to continue the use of the oil for some time after convalescence, or to use it from time to time as the colonic function demands.

A mild saline laxative is often necessary on the second or third day to clear up the after-effects of the anesthetic, when Husband's magnesia (℥ij), well stirred in a glass of water, will be found useful and easy in its action. The glycerine enema is frequently needed to start the movement, and may be given if the bowels do not act within six or seven hours.

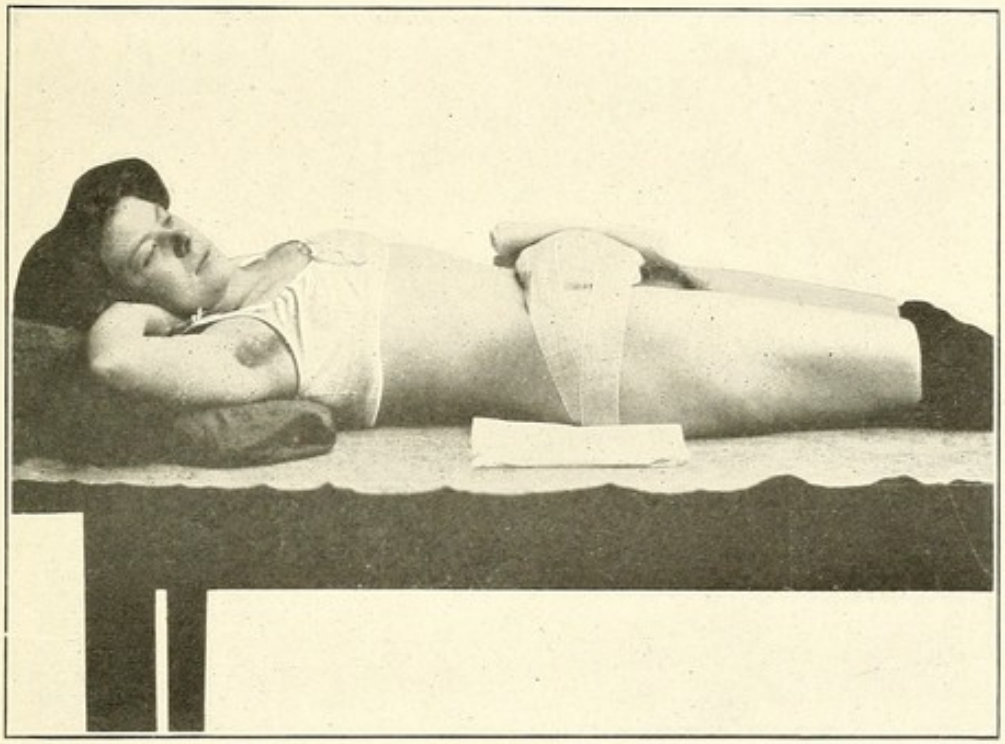


Fig. 49. Showing method of applying post-operative abdominal pad in the operation of nephrocolopexy. The pad is held in place by adhesive plaster and the binder laid on ready to apply.

The wound is dressed on the fourth or fifth day by removing dressings, washing with alcohol, and reapplying the same as before if the condition of the wound is good. On the tenth day the dressings are all removed, except the large pad, which is allowed to remain as a protection to the wound from injury.

The majority of these patients—either from the effects of the long-continued toxemia to which they have been subjected, or from constitutional causes—exhibit a tend-

ency to the formation of uric acid and oxalate of lime in the urine, and demand treatment accordingly during convalescence. For this purpose nothing has been found that equals in effectiveness the use of acid. nitro-mur. dilut. Mv in half a glass of water every three hours.

For several weeks after the operation some patients complain of discomfort in the region of the ascending colon, caused, no doubt, by the unusual strain on the nephrocolic ligament. This subsides in due time, and no harm ever eventuates from it.

Getting up and about should be slow and exercise taken gradually, but special care need be observed only against any accident or overdoing that would cause sudden or severe strain.

The abdominal truss-band, or supporter, is put on when the patient gets up, and is worn thereafter, when not in bed, until the accumulation of an intra-abdominal pad of fat may make its further use unnecessary. For a month after getting up the patient is directed to wear at night a large abdominal pad, applied with a binder.

The patient should be under observation for several months after operation, as the old bad habits of bowel, nerve, and muscle frequently persist to a certain extent, the symptoms not all disappearing at once. In fact, the betterment comes gradually, and the patient must be told that this will be so, and that some period of time must elapse before great betterment can be expected.

In cases previously attended by severe neurasthenia, great tenderness of the abdomen, gastric irritation, etc., much benefit has been derived by some patients from a course of post-operative sanitarium treatment, in which artificial rest and feeding, freedom from care, abdominal fomentations, and other hydrotherapy seemed to be the principal restorative agents. In fact, the conditions pre-

senting in most of these patients demand, for their best welfare, the utmost that they can obtain from the surgeon, gastro-enterologist, neurologist, psychiatrist, and hygienist. When this principle is generally acted on, and these specialists act in harmony—each doing his very important share, and giving to the patient the best in his field—then will the greatest gain be made in their treatment and enteroptic cases will cease to be a reproach to medicine.

CHAPTER VI.

REPORTS OF CASES.

The following reports of cases on which I performed my operation of nephrocolopexy have been compiled from the records as concisely as possible consistent with their intelligent presentation, the aim being to teach by them the principles already laid down in the text and drawings, and to emphasize the important points of pathology, diagnosis, and treatment, as well as to record results.

To accomplish this has necessitated the omission of much of the record of detail treatment, which, while often of much interest to the student in showing the process by which the patient passes from one form of treatment to another, and at last to the surgeon who effects the cure, the epitomizing is demanded for brevity and clearness.

Every case has been reported, where possible, up to date of publication, and effort has been made, by correspondence with patients and their physicians, to obtain the histories of cases since operation, and especially to learn the permanency of results.

The first of the series of operative cases in which my present technic of nephrocolopexy is followed is one of the most interesting and instructive of the entire number, as the trials and vicissitudes of the enteroptic suffering from the results of erroneous diagnoses and treatment are most graphically illustrated, and, as it teaches so much that may be useful in the study of the obscure diagnostic points in these cases, it is presented rather fully.

Case 1.

Female; aged 26; small figure; thin habit; one child 1 year old. First consulted me in 1900, complaining of abdominal pain, especially in the right lower quadrant. Tenderness at McBurney's point and an enlarged right ovary led to an abdominal section and the removal of a nearly normal appendix and a cystic ovary on October 1, 1900, at the Woman's Hospital. Recovery was uneventful, and the patient went to her home in the interior of the state. Reports from her continued to be unsatisfactory, and she returned to me in May, 1901, complaining of headache, constipation, insomnia, backache, occasional sharp pains in the right side of the abdomen (as before operation), dyspepsia, and loss of flesh and strength.

At this time an easily palpable floating kidney on the right side was found, and also a retroversion of the uterus of second degree was diagnosticated. An abdominal band, with a pad placed under the loose kidney, was applied, and the uterus replaced and a Thomas Hodge pessary inserted. The kidney pad and band proved a failure (as this one-time-much-recommended appliance always has done, and always will do, as the idea of its use is based on erroneous principles, as before described in this book). The pessary behaved better, and afforded some comfort by changing it from time to time, the size necessary for sustaining the uterus in its normal position gradually increasing.

After five years more of semi-invalidism, resulting, as I now know, principally from the nephrocoloptosis, she again came to me through the courtesy of Dr. Florence Huson, at which time the displacements of both kidney and uterus were found much more extreme and the symp-

toms correspondingly aggravated. Previous to this time, especially for the last two years, she had consulted a number of physicians and experienced a variety of treatment, including two periods of three months each of forced rest and feeding. The latter benefited her greatly, but the improvement ceased in both instances as soon as she began to get about, and soon afterward she was as bad as ever. Previous to consulting Dr. Huson, a reputable surgeon proposed to remove the remaining ovary and make a ventrofixation of the uterus.

At this time I first saw her with Dr. Huson in December, 1905, at the Woman's Hospital, where a period of three weeks of rest treatment, with hot fomentations, etc., was necessary to prepare her for operation because of the abdominal tenderness and other evidences of extreme colonic irritability.

On January 8, 1906, assisted by Dr. Huson, the operations of nephrocolopexy, Alexander's operation, and trachelorrhaphy were performed. This was the first case in which I utilized the tissue of Gerota's capsule as I do now to assist in fixing the nephrocolic ligament.

Recovery was uneventful, and the patient was discharged in about four weeks after the operation. Dr. Huson reports, November 17, 1909: "Patient very well since operation in 1906, and has demanded treatment since only for some symptoms of gastric indigestion. Gave birth to a child one year ago at the Woman's Hospital. Uterus and kidney both in normal position. Has had no return of the old pain in the right side since the operation, and the bowels move regularly."

The relief of the pain in the region of McBurney's point was no doubt due to the immobilization of the cecum and ascending colon, giving the gut a fixed point, by which its muscular activities were facilitated and made efficient

in results. This result following the nephrocolopexy so positively, and no benefit in this respect having been obtained from the previous operation of appendectomy and oöphorectomy, justifies the conclusion. It also leads to the opinion that the appendectomy was unnecessary—as my observation leads me to believe is true in similar cases occurring constantly—and that a riper experience with the enteroptic by all concerned in her treatment would have saved this patient much distress, health, time, and money.

The following two cases are of especial interest because of their family history respecting the condition of prolapse.

Case 2.

Female; aged 26; single; good figure; student. Sister, mother, and grandmother had floating kidney. Consulted me May 22, 1905, for a nearly constant, dull pain in the right side of the abdomen, which she had had for over a year; fatigue caused by walking; alternating constipation and diarrhea; mucus in stools; loss of flesh; dysmenorrhea. Examination in the dorsal position showed the right kidney down entirely below the costal margin. Applied elastic abdominal band, with large pad below umbilicus.

June 8, 1905. Reports that she can walk with much less fatigue since wearing the band, and feels much better in every way, excepting for the alternating constipation and diarrhea, which shows but little improvement. Intestinal antiseptics prescribed December 20, 1905. The bowel symptoms continuing, and the pain in the side returning at times, operation was advised.

January 13, 1906. Operation at Harper Hospital. Nephrocolopexy; dilatation of os uteri. Recovery uneventful.

November 26, 1906. Reports that the result of the operation has been of the best; bowels regular; strength and endurance good; walked miles every day during her summer outing without fatigue or ill effect; gained ten pounds in weight; kidney not palpable.

November 10, 1909. Is in good health, the kidney in normal position, and bowels regular. While away from the city, two years ago, had an attack of appendicitis and was successfully operated on by another surgeon.

Case 3.

Traumatic post-operative displacement of kidney, leaving bowel fixation intact, does not prevent symptomatic recovery.

Female; aged 27; married; mother of one child 5 months old, which is not at the breast. Sister, mother, and grandmother had floating kidney. (Sister of case 2.)

Diagnosis of right nephroptosis made by me a year before marriage, and an abdominal elastic band, with pad below umbilicus, prescribed. Patient sent to me by Dr. B. R. Shurly, January 26, 1906. Was wearing the abdominal belt, as she felt uncomfortable without it. Complains of nervousness; depression; pain in the right side of abdomen; general weakness and exhaustion on slight exertion; backache; flatulence; constipation of bowels, requiring constant use of laxatives; hemorrhoids, which bleed frequently; leucorrhea.

Examination showed the right kidney entirely below the costal margin, dorsal position, without inspiratory effort. Some tenderness at McBurney's point was apparently caused by a distended cecum, which could be easily palpated through the abdominal walls, which were thin. Pelvic examination showed rupture of perineum

of second degree and a hemorrhoidal mass which nearly encircled the anus.

February 15, 1906. Operation at Harper Hospital. Nephrocolopexy; perineorrhaphy by the split flap, buried suture method; Whitehead operation on the anus. Recovery ideal, excepting slight superficial stitch abscess. Petrolatum oil prescribed. Abdominal band to be worn until twenty pounds of flesh is gained.

April 4, 1906. Condition good; gaining flesh, and feels well.

April 14, 1906. Met with an accident, having a severe fall, after which severe pain was felt in the region of the kidney, which was found to be palpable and sensitive to touch. About half of the organ felt below the costal margin. Patient was kept quiet in bed most of the time for two weeks, when the tenderness had gone and only the lower pole of the kidney could be felt on deep inspiration.

January 15, 1907. Kidney not loose enough to be entirely palpable, but lower pole easily felt on deep inspiration. Bowels regular by use of the oil only.

February 1, 1909. Is very well; bowels regular without medication and kidney gives no trouble. Has gained fifteen pounds. The loosening of the kidney by the accident was probably due to the fact that it tore its way through the fatty capsule, thus becoming partially displaced only, and leaving the bowel fixation intact; the latter condition doubtless caused the marked subsequent improvement of the patient, and is evidence of the correctness of my theory regarding the role played by the displaced bowel in these cases. Does not wear the abdominal supporter.

February 2, 1910. Gained twenty-one pounds since operation; bowels regular without aid of any kind; per-

fectly well, excepting for the presence of pain and soreness in the right side, which is of recent occurrence and followed an attack of acute bronchitis. Examination in the dorsal position was negative, but in the left lateral position half of the right kidney could be palpated and was sensitive to touch. Otherwise abdomen not sensitive. Abdominal supporter to be worn until relieved of pain and sensitiveness.

Case 4.

Severe infection resulting from improper surroundings causes failure of operation.

Female; aged 34; single; a teacher and convent resident. Had suffered for years with pain in the region of the right kidney, apparently a mild Dietl's crisis; abdominal pain; constipation; gradual loss of flesh.

March 10, 1906. Examination showed the right kidney entirely below the costal margin with patient in the dorsal position and without deep inspiration.

March 12, 1906. Operation of nephrocolopexy at the convent, assisted by Dr. Cadieux, the convent physician. The surroundings were not ideal for surgical work, and every aseptic precaution possible was taken, but without avail, as a very violent septic condition supervened and the wound suppurated freely, necessitating opening and drainage. I believe, even with this suppuration, the fixation would have been successful if the silver wire had been used to support the transversalis fascia, as it would have kept the parts in position until the cessation of the infective process would have allowed the healing to take place. But the buried catgut was depended on exclusively, and of course the natural result happened—the sutures gave way, allowing the parts to slip back to their

old positions of prolapse, and a failure had to be recorded. I wished to reoperate, but the opportunity has not thus far presented.

Case 5.

Female; aged 28; single. Patient of Dr. G. E. Potter, who had made the diagnosis of floating kidney and asked me to operate.

March 10, 1906. Examination showed the right kidney about two-thirds below the costal margin with the patient in the left lateral position and during deep inspiration.

March 13, 1906. Operation at Harper Hospital, assisted by Dr. Potter. Recovery without incident.

November 15, 1908. Dr. Potter reports the kidney in normal position; slight increase in weight; less nervous; less pain.

Case 6.

Female; aged 29. In the clinic of Dr. Repp at St. Mary's Hospital.

March 17, 1906. Operation at St. Mary's Hospital, assisted by Dr. Repp. Recovery good.

April 1, 1908. Dr. Repp reports the operation a success, both anatomically and symptomatically.

Case 7.

Type of common class of cases, often diagnosed as nervous exhaustion and intestinal dyspepsia, cured by operation after years of "tinkering."

Female; aged 31; mother of one child 7 years old. Cervix was lacerated at the time of the birth of the child, and this was repaired by another surgeon, four months before coming to me.

Patient sent to me by Dr. David Inglis, December 3, 1903, to whom she had gone for relief of symptoms of an obscure nervous character. Complains of attacks of pain of a bearing-down character, which commence in the back, pass around in front and down into the vagina and vulva, causing great nervousness and frequent micturition. Bowels very constipated. Has lost flesh gradually, about fifteen pounds during the last two years. Heart normal; urine normal.

Abdominal examination showed the right kidney one-half below the costal margin while in the dorsal position. Besides the slight nephroptosis, the cervix uteri was found to be cystic, and the cervical canal very narrow and tortuous (result of careless surgery in its repair). Treatment was instituted for the latter condition, and the position of the kidney ignored, as a "movable" kidney was not supposed to give symptoms, and the accompanying coloptosis not recognized. Only slight relief followed the treatment, and the patient passed from my care until January 2, 1906, when she returned, presenting the following history of symptoms and conditions: menstruation irregular during the last year, and none for nearly two months; diarrhea more or less for a year, with much mucus in stools; frequent attacks of pain in abdomen, especially in the right side; frequent micturition.

Abdominal examination showed the right kidney entirely below the costal margin, and in the left lateral position it could be palpated in the region of the navel. The cervix was no longer cystic, but the os was closed completely. The true significance of the nephroptosis was now recognized, and a diagnosis of "nephrocoloptosis" made, with recommendations for immediate operation.

June 2, 1906. Operation at Harper Hospital. Nephrocolopexy; incision; dilatation of the os uteri. Recovery without incident. My abdominal band applied, and discharged from hospital June 25, 1906.

July 11, 1906. Reported feeling much better; frequent micturition ceased. Lower pole of kidney felt below costal margin, but could not bring it lower by effort. Os admits sound easily.

October 15, 1906. Kidney symptoms disappeared; bowels regular and no diarrhea; no return of abdominal pain or frequent micturition.

March 25, 1909. Reports she has gained fifteen pounds since operation; bowels are regular; feels well, excepting for occasional dyspeptic symptoms; kidney in normal position.

Case 8.

Malnutrition and intractable constipation cured by operation.

Female; aged 54; mother of ten children, youngest 11 years old. Still menstruating, though irregularly and scantily. Patient of Dr. F. L. Newmann, sent to me May 22, 1906. Complains of weakness, loss of flesh, and nervousness, and says her bowels are so constipated that she has an action but once or twice a week.

Examination showed a variety of pathology, including a right nephroptosis—kidney passing freely into the abdomen on deep inspiration while in the left lateral position; large varicosities of left labium majus, thigh, and leg; ruptured perineum of second degree; lateral laceration of cervix uteri, with cysts and erosion. Recommended operation on all the diseased conditions.

June 6, 1906. Operation at Harper Hospital. Nephrocolopexy; perineorrhaphy; trachelorrhaphy; curettage;

dissection and ablation of the varicosities of vulva, thigh, and leg. Recovery was slow, owing to imperfect healing of the incisions on the thigh and leg; otherwise incisions healed by first intention. Nutrition had been bad for so long that her strength returned slowly. Petrolatum oil, half an ounce afternoon and bedtime, was prescribed after the third day, to be continued until bowels became regular. My abdominal band, with large pad, was applied before she left the hospital, which was on July 4, 1906.

October 29, 1906. Reports feeling better in every way, has more endurance, and bowels are regular. Examination shows kidney in good position; though the lower pole can be palpated on deep inspiration, it can not be forced further down and returns to its normal position.

July 1, 1909. Reports bowels regular; has gained ten pounds. Kidney can be felt half below costal margin on deep inspiration, but causes no further trouble and is not sensitive to touch. Has discarded the abdominal band.

Case 9.

Severe constipation cured, nervous breakdown arrested, and normal nutrition induced by operation.

Female; aged 27; single; stenographer. Patient of Dr. E. S. Sherrill.

Examination June 6, 1906. Had severe anemia three years ago, and dates present illness from that time. Is very nervous and debilitated. Has lost flesh gradually for the last two years, and for the last six months has had, almost constantly, a dull pain in the back of the head and neck, slight nausea, but no vomiting; a feeling of fullness and throbbing across the abdomen; bowels

very constipated, requiring daily attention; menstruation very painful and too frequent.

Abdominal examination showed the right kidney entirely below the costal margin while in the dorsal position without effort; was easily replaced manually, and quite sensitive to touch. Vaginal examination negative, excepting showing endometritis. Operation advised.

July 6, 1906. Operation at Harper Hospital. Nephrocolopexy; dilatation; curettage. Recovery without incident.

July 23. Discharged from hospital, wearing abdominal band and taking petrolatum oil.

September 24, 1906. Reports first menstruation painless, and second somewhat painful and scanty. Bowels perfectly regular since operation. Has had some pains in cecal region, apparently due to distention with gas (a common symptom for several weeks after this operation, which passes away when the bowel regains its tone). Examination showed the lower pole of the kidney palpable, but it could not be brought farther below the costal margin.

November 21, 1906. Feels very well; menstruation painless; bowels continue regular; has gained ten and one-half pounds since the operation. Has taken off band, and since doing so notices some return of the pain in the cecum. Advised reapplication of the band.

December 28, 1909. Dr. Sherrill reports the patient in good condition in every way; weighs one hundred and twenty-two pounds (a gain of about twelve pounds since operation); has no symptoms, as before operation, connected with the kidney, which retains its normal position; bowels slightly constipated.

Case 10.

A case for the neurologist.

Female; aged 29; married three years; never pregnant. Patient of Dr. Jones, of Pittsford, Mich.

September 15, 1906. Examined at St. Mary's Hospital. Was wearing an adhesive plaster abdominal band, which patient said had been applied two weeks before by a gastro-enterologist for floating kidney. The band had not benefited her, and was causing a good deal of irritation of the skin, as is usual with adhesive plaster when left on longer than a week or ten days. Has had daily attacks of severe nausea and emesis, attended with great nervous disturbance, for over a year, and dates the beginning of the symptoms from an attack of acute nephritis, from which she completely recovered. Six months ago had the uterus and adnexa removed by a surgeon in the interior of the state, but with no benefit.

Abdominal examination showed right nephroptosis of moderate degree in left lateral position, and a sensitive area in the epigastrium. Urine normal. Operation was advised, although the neurotic element in the case made the outcome problematic, and the husband was so informed, with the understanding that an exploratory abdominal section should be made to determine the condition of the pylorus and gall-bladder.

September 19, 1906. Operation of nephrocolopexy and exploratory abdominal section (negative result) at St. Mary's Hospital before the class of the Detroit Post-Graduate Medical School. Recovery was uneventful, and for the following two weeks the pain, nausea, and other symptoms were decidedly better. After this time they began to gradually recur, nausea occurring very early in

the morning; these attacks gradually increased in severity after leaving the hospital.

May 24, 1907. Patient reported in person. The kidney was in normal position, and the bowels regular, but all other symptoms were much worse, and, as the neurotic element now seemed to be most decidedly the dominant factor, I sent her to my friend, Dr. David Inglis, who reports that he treated the patient from June 11, 1907, to September 9, 1907; that treatment at first was based on the supposition that a uric acid diathesis was the causative factor in the pathology, but later concluded the attacks were purely hysteric in origin, and advised certain disciplinary measures. An abstract from a letter written by her husband in December, 1907, gives a very encouraging report of the results of the last advised form of treatment.

Case 11.

The following is the case on which the original observation was made that led to the discovery of the nephrocolic ligament. It is also my first case of operation for the relief of symptoms caused by coloptosis alone, without nephroptosis. Obstinate constipation completely cured.

Female, aged 16; single. Patient of Dr. Hugh Cary, of Delray, Mich.

December 10, 1903. Saw patient in consultation with Dr. Cary, when she complained of a pain, often of a griping character, in the right side of the abdomen, which she had had for about a year. During this time she had gradually lost flesh, and the bowels had become more and more constipated. Menstrual history normal. Examination was negative, excepting for a marked tenderness on pressure at McBurney's point. The kidneys

were carefully examined for ptosis, with negative results. The sensitive area at McBurney's point and the history of the pain in the same region led to the diagnosis of appendiceal disease of some kind—probably adhesions—and appendectomy was advised.

December 17, 1903. The operation of appendectomy was made at Solvay Hospital, when the organ was found bound by adhesions to the cecum in sharp angulation. As the cecum was found in the bottom of the pelvis—and, as a matter of course, the appendix with it—I marveled at the time at the pain and tenderness at McBurney's point previously experienced by the patient. I know now that the pain was not in the appendix at all, but was in the cecum and ascending colon, and was due to the coloptosis. It was during this operation that I discovered that the right kidney could be pulled down by making traction on the cecum, as described on pages 9, 10. The patient made a good recovery, and was discharged from the hospital with expectation of complete relief. But this result did not occur, as the pain not only continued the same, but the constipation became so bad as to cause almost an intestinal obstruction at times, requiring more and more evacuants, and, when these failed, larger and larger enemas to cause the discharge of the fecal contents of the colon. This condition was somewhat relieved by the use of an abdominal supporter, but the constipation continued as bad as ever, so that, with my later acquired knowledge of the action of the prolapsed colon and the utility of the newly discovered nephrocolic ligament, I advised the operation of nephrocolopexy for the sole purpose of relieving the torpidity of the bowel. At this time the patient complained of frequent sick headaches, had become very thin, her complexion was sallow, skin rough and pimply, and expres-

sion apathetic, besides complaining of severe dysmenorrhea for six months.

September 28, 1906. At the Solvay Hospital, Delray, I performed the operation of nephrocolopexy and dilated the cervix uteri, and removed a small mucous polyp from the endometrium. Recovery was ideal in every way.

October 7, 1907. Reports bowels perfectly regular without medication, and have been so since the operation of over a year ago. Has gained fifteen pounds.

October 17, 1908. Bowels regular. Feels well, excepting for occasional pain in the cecum, apparently due to gas.

Case 12.

Case of "chronic diarrhea"—a neurasthenic invalid—cured by nephrocolopexy. A gain of twenty-two pounds in weight.

Female; aged 42; married; no children. Patient of Dr. R. W. Alton, of Portland, Mich.

For several years had suffered with neurasthenia; daily abdominal pains; alternating constipation and diarrhea, with much mucus in stools; flatulence; occasional attacks of pain and tenderness in the right side of the abdomen; during the last two years lost a great deal in weight and became very nervous, and is in consequence a chronic invalid; exceedingly thin; weighs ninety-four pounds.

October 4, 1906. Examination in the dorsal decubitus showed the right kidney entirely prolapsed without bringing it down by the inspiratory effort. It was easily replaced manually, and remained in normal position while the patient was recumbent, but immediately dropped out of place on assuming the erect position.

October 5, 1906. Operation of nephrocolopexy at

Harper Hospital. Recovery ideal. Patient in bed two weeks. Abdominal supporter applied and petrolatum oil prescribed. Discharged October 30, 1906.

December 7, 1909. Dr. Alton, in answer to my request for a report on this case, sends me a long letter from the patient, dated Idaho Falls, Idaho, December 1, 1909, from which I make the following quotations: "Yes, I am sure the kidney is in place. I still have to use enemas occasionally, but the bowels are so much better than before the operation that I am sure they will get entirely well. When we left for the West I weighed one hundred and four pounds (a gain of ten pounds), and I now weigh over one hundred and sixteen pounds (total gain of twenty-two pounds), and am in horror of growing old and fat! My general health is certainly much better, and you can judge about my endurance when I tell you I am doing all the hard work for a family of six, and on a ranch at that, and I get nervous only when I get overtired. I am so much better than before my operation that I hardly know myself."

Case 13.

Perfect anatomic result of operation. Case having persistent uric acid diathesis and severe neurasthenia.

Female; aged 32; married; mother of three children, the youngest 2 years old. Patient of Dr. F. W. Mann, of Detroit, Mich. Her history was exceedingly stormy and eventful from a pathologic and operative standpoint, and presented a doubtful proposition for the further exploitation of surgery. She had had about a dozen operations, including four for tubercular glands, two for repair of lacerations incident to parturition, several for hemorrhoids, and one for post-partum infection.

August 30, 1906. Gave the following history in addition to the above: lost a good deal of weight during the last year; very nervous and despondent; nearly constant pain in back of hips and right side of abdomen, the latter tender to touch; frequent attacks of severe pain, attended with nausea and retching, without vomiting, requiring hypodermics of morphia to relieve; bowels very constipated, requiring constant attention; menstruation too frequent, is frequently clotted and often lasts ten to fourteen days. Was in bed six weeks a year ago for neurasthenia.

External examination showed general abdominal tenderness, which was especially acute on the right side in the region of McBurney's point; the right kidney was entirely below the costal margin without effort; freely movable and easily replaced, although sensitive to touch.

Pelvic examination showed a laceration of the cervix uteri on the right side; uterus and cervix large and hyperplastic; adnexa normal and organs in normal position.

Urine, specific gravity, 1,028; acid reaction; highly colored; slightly turbid. No albumin or sugar. Microscopic examination showed a few leucocytes, squamous epithelium, and large crystals of uric acid.

A diagnosis was made of nephrocoloptosis, laceration of cervix, and endometritis, and operation advised. The character of the attacks of pain in the region of the pylorus and gall ducts, as I had not seen the patient in one, were something of a problem, but, as the tenderness was in the kidney and not in the region indicated, I concluded the attacks were probably due to some form of Dietl's crisis, or were produced by a sharp kink in the common bile duct arising from the traction of the kidney on the duodenum. (Figs. 4, 6.)

October 18, 1906. Operation at Harper Hospital. Nephrocolopexy; trachelorrhaphy; curettage. The wounds healed perfectly. Patient was kept in bed eighteen days, and made an unexpectedly smooth recovery while in bed, but convalescence, after being up a few days, began to be stormy, and continued so for about six weeks, the symptoms being of a nervous and dietetic character, and apparently due to faulty metabolism. The urine during this time was usually of low specific gravity, containing free urates and occasionally uric acid crystals. An occasional attack of the old epigastric pain was averted each time by a hypodermic of hyoscin hydrobromate gr. 1/200, as were also other attacks of a purely hysteric character. She was discharged from the hospital November 10, 1906, but did not leave her room at home until December 30, 1906. After this time a muscular rheumatism of the right side and shoulder developed, which was successfully treated at a sanitarium.

April 29, 1907. Patient reported in person. Gained some in flesh, digestion improved, bowels regular (takes the oil); has had but two slight attacks of the epigastric pain in four months. The kidney was in normal position, only the lower pole being palpable on deep inspiration in left lateral position.

Have not been able to see this patient since the last date, as she lives at a distance. She writes that she has not gained much in flesh, and that her nervous symptoms are still in evidence.

The case is apparently one which demands constant supervision of diet and general habits of life to combat the effects of the uric acid diathesis, which seems to be the basic element in the present pathology.

Case 14.

Perfect anatomic and symptomatic results of operation. Apparent wounding of cortex of kidney, resulting in profuse leakage. Perfect recovery.

Female; aged 40; married; one child 8 years old. Abdominal section and bilateral salpingo-oöphorectomy for hydrosalpinx and cystic ovaries by me in 1900.

September 10, 1906. Has had abdominal pains of a griping character for over a year, mostly in right side; lost weight steadily for two years; bowels very constipated, and movements often attended with abdominal pains; is nervous and sleeps badly; menstruates regularly and normally; has some leucorrhea.

Examination in the dorsal decubitus showed general abdominal tenderness, and right kidney entirely below the costal margin and freely movable. Vaginal examination showed a cystic cervix and hyperplastic uterus. Applied abdominal band, and prescribed petrolatum oil —one tablespoonful afternoon and bedtime, and warm olive oil—three ounces by rectum at bedtime; scarified cervix.

October 8, 1906. No improvement. Advised fixing the colon and kidney, and curetting the uterus.

October 20, 1906. Operation at Harper Hospital. Nephrocolopexy; curettage. Buried sutures used of twenty-day catgut only. The external continuous suture of silkwormgut was removed on the sixth day (October 26), when union was good and wound appeared normal, and a normal recovery indicated, with no pain or rise of temperature.

October 31. Pain in the scar, which was found to be distended and bulging, and, on incision, quite a quantity of thin, clear, odorless fluid spurted out. A drainage

tube was inserted, and this clear fluid dripped constantly from it to the extent of from thirty to forty ounces daily. A specimen was sent to the Detroit Clinical Laboratory on November 3, and the following report made: "This fluid is almost colorless, with a slight yellow tinge, is cloudy, neutral in reaction, and has a specific gravity of 1,003. The fluid gives a test with sodium hypobromate for urea, the urameter showing 0.3 percent. Microscopically numerous leucocytes are seen. While it can not be positively stated that the fluid consists only of urine, the evidence points to the presence of urine in it."

At the time this fluid first appeared, the patient's temperature was 100.5°, but subsided to normal shortly after the evacuation, and remained so during her further convalescence. The wound closed closely around the rubber drainage tube, allowing of little leakage, so that the daily quantity was readily collected and measured, which amounted to from thirty to forty ounces. This decreased gradually until January 14, 1907, when she left the hospital in good condition, with the wound closed and retracted.

January 25. The scar was found slightly bulging, and was incised, letting out about an ounce of clear, odorless fluid. After this the scar remained closed and retracted, and gave no further trouble. During the time of the discharge of the fluid, and since its cessation, the kidney gave no symptoms.

March 21, 1909. Patient reports that she is enjoying good health; that the bowels are regular, requiring occasionally—for a week or so at a time—the use of the petrolatum oil; the abdominal pains have disappeared; she has gained twenty pounds in weight. Kidney is in normal position.

Case 15.

Case having Dietl's crisis; obstinate constipation and malnutrition cured by operation.

Female; aged 42; single; saleswoman. Patient of Dr. R. E. Loucks.

March 23, 1907. Saw her in consultation. Has had griping pains in abdomen for several years; lost weight steadily for three years; bowels very constipated, requiring much medication, and movements filled with

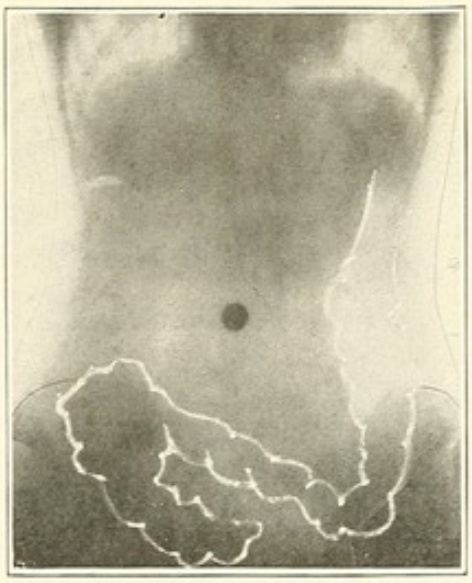


Fig. 50. Case 15.

mucus; had attack of severe pain and swelling in right side of abdomen and loin three weeks before, which confined her in bed for two weeks; menstruation normal.

Examination showed a very tender and somewhat enlarged right kidney, entirely below the costal margin; also much sensitiveness over entire right side of abdomen.

Vaginal examination showed normal introitus; small cervix pointing forward; fundus fixed in retroversion of third degree; two small nodules anteriorly and to right

on fundus, all fixed and immovable, and very sensitive; heart normal; urine normal.

April 1, 1907. A radiograph (Fig. 50) showed the cecum lying in the bottom of the pelvis, with its lower end in the region of the bladder and uterus, the first half of the transverse colon lying across the pelvis nearly in juxtaposition with it, and the second half in a vertical position, lying close to the left parietes, and apparently directly in front of the descending colon. This position of the second section of the transverse colon would necessitate the formation of a very acute angle at its junction with the descending colon at the splenic flexure—similar to a rubber tube hung over a peg—and at a glance showed the difficulty the bowel must labor under in forcing material from the transverse colon over this angle into the descending colon. The suggestiveness of this point revealed by this, my first successful radiograph of the colon, was immediately apparent as an index to much of the symptomatology in not only this case, but in others of a similar nature.

The acute irritation of the kidney having subsided, operation was advised on both the kidney and the pelvic organs.

April 3, 1907. Operation at Harper Hospital. Nephrocolopexy; abdominal section, with enucleation of two walnut-size fibroids from the uterus; breaking up adhesions; appendectomy, the organ being adherent to the parietal peritoneum in front of the bladder; Alexander's operation by the blunt hook method. (Kellogg.)

Recovery good and afebrile; in bed sixteen days; had pleuritic pains in right side, lasting three days, during the middle of convalescence. Abdominal supporter applied and petrolatum oil prescribed on discharge from the hospital.

September 24, 1907. Gained ten pounds and looks well; bowels still need the oil, and occasionally the evening enema; some soreness in the kidney, the lower pole of which can be palpated below the costal margin on deep inspiration. Olive oil per rectum prescribed.

From this time on for a year gained constantly in flesh and looked well, but complained more or less of soreness in the region of the cecum and kidney, and a pulling sensation in the round ligament fixations.

May 3, 1909. Kidney in good condition, gives no trouble in any way, and is free from sensitiveness. Bowels in better condition, but require the use of the petrolatum oil, and the olive oil per rectum occasionally. Had pneumonia six months ago, and since recovery from that has gained flesh and is now back to normal weight.

Case 16.

A case of nephroptosis, with unrecognized coloptosis, of long standing.

Female; aged 41; married; mother of one child, now 25 years old. Patient of Dr. Sidney I. Small, of Saginaw, Mich. Saw her first April 23, 1903, when she gave the following history: menstruation normal; bowels very constipated for years, and lately movements attended with abdominal pain and much mucus seen in the stools; pain in back and hips for six months, and for years has had pain at times in the left side of the upper abdomen; fatigues easily and can walk but little; riding "jars," and causes abdominal pain and headache. Had operation for lacerations incident to parturition seventeen years ago, and had an attack of "inflammation of the bowels" a year afterward. Has had no return of the inflammatory trouble since. Pulse and temperature normal.

Abdominal examination in the dorsal decubitus showed the right kidney entirely below the costal margin without effort, and a fullness and sensitiveness over the entire left side. Pelvic examination showed a normal perineum; large cystic cervix, lacerated on the right side; uterus normal.

Diagnosis showed floating kidney, lacerated cystic cervix, and colonic catarrh (the fact that coloptosis is always present with nephroptosis not then known to me). A silk elastic abdominal band, with pad, below the navel was applied, flushing of the colon with normal salt solution prescribed, and the cervix scarified. This treatment was continued until June 24, 1903, when the operation of trachelorrhaphy and curettage was done at the patient's residence. Recovery from this was slow, though the cervix healed well and there were no local symptoms. Patient's nutrition continued inadequate; she lost weight gradually, and became nervous and despondent; the bowel symptoms continued as before. Various kinds of treatment, by myself and others, were used, with no satisfactory results until April 2, 1907, when I was called to see her in consultation with Dr. F. E. McClure, who had treated her for some weeks without benefit. I found her confined to bed and suffering with the old colonic symptoms intensified, and also from severe attacks of pain in the pelvis and back. She was in a state of extreme neurasthenia, could take little nourishment because of gastric irritability, and had frequent attacks of tachycardia.

Examination showed the nephroptosis as before, but a change had taken place in the pelvic organs, the fundus uteri being nodular and a cystic tumor present on each side of it.

After trying some other forms of treatment, a further

consultation was held, Dr. C. G. Jennings at this time assisting in the disposition of the trying case. Notwithstanding her enfeebled condition, operation was decided on, and the family so advised.

April 16, 1907. Operation at Harper Hospital, assisted by Dr. McClure. Nephrocolopexy; abdominal section; myomectomy of one small fibroid; double salpingo-oöphorectomy (hydrosalpinx and cystic ovaries); appendectomy. Both wounds healed perfectly and there were no unusual temperature conditions, but the convalescence was stormy in the extreme because of the persistent atony of the bowels and the enfeebled condition of the patient. These conditions were, however, successfully met and the patient was out of danger in ten days after the operation. In bed three weeks. Owing to symptoms of a nervous character, due largely to the menopause, precipitated to some extent by the operation, the convalescence, after leaving the hospital, was slow.

June 10, 1907. Has gained ten pounds; bowels regular by the use of the oil; passages contain no more mucus; still has some colonic pain, which is steadily diminishing; appetite and digestion about normal. Examination shows kidney in normal position.

July 2, 1908. Has gained eighteen pounds; bowels regular by occasional use of the oil; no more mucus; only occasional abdominal pain.

Case 17.

Nephrocoloptosis, complicated by infective cholelithiasis.

Female; aged 56; widow; three children, the youngest 22 years old. Patient of Dr. R. E. Loucks.

May 12, 1907. Saw her in consultation, when she gave

a history of numerous attacks of gallstone colic, constipation, loss of flesh, and neurasthenia. Menopause passed for several years. Suffering with pain in the epigastrium and right side, close under the costal margin.

Examination showed great sensitiveness and fullness in the region of the gall-bladder and between McBurney's point and the costal margin, and without effort a loose right kidney completely below the costal margin. Heart normal, 100; temperature 100.5°. A diagnosis of biliary calculus in the cystic duct and nephrocoloptosis was made, and operation advised. Examination of the urine on the following day showed it to be normal.

May 14, 1907. Operation at Harper Hospital. Nephrocolopexy; cholecystotomy; removal of stones; drainage. Drainage tube removed on tenth day. Recovery without incident. In bed sixteen days. Abdominal band applied and petrolatum oil prescribed, and patient discharged June 8, 1907.

December 7, 1909. Dr. Loucks reports no pain in the region of the kidney, which is in normal position; nutrition very much improved, as shown by a large increase in weight—about twenty pounds.

Case 18.

Colonic symptoms completely cured by operation.

Female (colored); aged 26; married; no children; clinical patient. Had complete hysterectomy in 1905.

May 14, 1907. Gave the following history: has had pains in the abdomen, of a griping character, for over a year; has lost flesh considerably, but does not know how much; bowels very constipated, and takes all sorts of medicines to act on them; sleeps badly, and is so weak

that she is unable to do work. Examination in dorsal decubitus showed the right kidney only slightly (lower half) below the costal margin, but on putting her in the left lateral position, with deep inspiration, the whole kidney could be palpated in the region of the navel.

May 17, 1907. Radiograph showed the cecum and first half of the transverse colon in the pelvis.

May 18, 1907. Operation at Harper Hospital. Right nephrocolopexy. The wound healed perfectly, and recovery was normal and afebrile until the eleventh day, when pain in the left groin was complained of and a mild phlebitis developed, which subsided in ten days without leaving any untoward result. Because of that the patient was kept in bed for twenty-five days.

June 24, 1907. Discharged, wearing an elastic abdominal band and taking the petrolatum oil.

June 12, 1908. Patient reported at the office. Bowels regular; no more abdominal pain. Examination showed kidney in normal position. Has gained eight pounds.

Case 19.

Neurasthenia and malnutrition. Gain of twenty-six pounds after operation.

Female; aged 41; single; seamstress. Patient of Dr. R. E. Loucks.

May 17, 1907. Seeks relief for backache; menorrhagia; leucorrhea; pain in the right side of abdomen; neurasthenia; loss of flesh; dyspepsia. Menstruation is irregular, and often is of ten days' duration. All symptoms of three years' standing, and commenced with an attack of nervous prostration, lasting several months. Weighs one hundred and fourteen pounds; looks thin and anemic, and badly nourished.

Abdominal examination in the dorsal decubitus showed the right kidney entirely below the costal margin, brought down by deep inspiratory act, and readily replaced manually.

Pelvic examination showed a retroverted uterus of second degree, which was apparently deviated backward by a walnut-sized myoma situated anteriorly just above the bladder.

Diagnosis made of nephrocoloptosis, uterine subserous myoma, and granular endometritis. Operation recommended.

May 20, 1907. Operation at Harper Hospital. Right nephrocolopexy; curettage; abdominal section; myomectomy. Recovery without incident. Left the hospital wearing the abdominal band, but not taking the petrolatum oil, as the bowels were regular.

October 8, 1907. Gained twelve pounds; no backache or pain in abdomen and side; has menstruated but once in the three months, and that very little. Examination in left lateral position shows lower pole of kidney palpable below costal margin, but can be brought no further down.

October 2, 1908. Weighs one hundred and forty pounds, has good endurance and nerve tone, and feels well.

July 27, 1909. Says she has had no pain in side, abdomen, or back since operation. Weighs one hundred and thirty-five pounds. Examination in dorsal decubitus shows kidney in normal position; left lateral decubitus allows palpation of lower pole below costal margin.

Case 20.

A case in which probable mutilative surgery could have been avoided if the surgeon had had a knowledge

of colonic pathology. Completely cured by nephrocolopexy.

Female; aged 28; single; teacher. Had left ovary removed in 1900 to cure a pain in the left side of the abdomen, and two years after had the appendix and right ovary removed for pain in the right side of the abdomen. Both operations by other surgeons.

December 15, 1904. Seeks relief for the same abdominal pain as she had previous to the operations two and four years ago. Still menstruates, though irregularly and painfully; has backache and headache constantly; is steadily losing weight and strength; is constipated; sleeps badly; says she has had to give up her position as teacher because of increasing exhaustion and nervousness. Temperature and pulse normal. Urine normal, excepting for amorphous urates.

Abdominal examination in the dorsal position showed a very sensitive area at and around McBurney's point, but no descent of the kidneys. The left lateral position was therefore tried, with the result of bringing the right kidney down and imprisoning it below the costal margin with the hands. The left kidney could not be palpated in either position.

Vaginal examination showed a small, movable uterus in second degree of retroversion—otherwise negative. Urine, pale color; specific gravity, 1,012; acid; no albumin or sugar; slightly turbid with urates.

A diagnosis of nephrocoloptosis was made, and a silk elastic abdominal band, with abdominal pad, applied. Various forms of internal medication, electrical treatment, massage, etc., were used by myself and several other physicians during the following two and a half years, but without benefit, the patient constantly losing

flesh and showing continually worse conditions of the nutritive functions.

May 29, 1907. Patient returned to me, complaining of attacks of severe pain in the region of the right kidney, lasting about a week at a time; irregular, painful, and often very free and clotted menstruation; leucorrhea; constipation. Operation advised.

May 29, 1907. Operation at Grace Hospital. Nephrocolopexy; dilatation; curettage of uterus. Recovery without incident. Abdominal supporter, with the truss attachment, applied and petrolatum oil prescribed on discharge from the hospital.

Gradual improvement ensued for the first six months, with only some nervous symptoms, and the patient was lost sight of until July 14, 1909, when she reported in person. Had gained fifteen pounds since operation; bowels regular without medication; nervous system and general endurance about normal. Had not worn the abdominal supporter for several months, and, as she had occasionally a "bearing down" in the abdomen when fatigued, a new supporter was advised. Kidney in normal position.

Case 21.

Nephrocoloptosis and hematocystic ovaries. Anatomic and symptomatic recovery.

Female; aged 31; single. Patient of Dr. D. H. Burley, of Almont, Mich.

June 7, 1907. Seeks relief for menorrhagia, pain in lower abdomen and thighs, constipation, frequent and painful micturition, leucorrhea, indigestion, occasional attacks of griping pain in abdomen. Says she sleeps well if lying on the right side, but badly on the left side owing to palpitation of the heart while in the latter position

(common symptom in right nephrocoloptosis). Heart normal, 80; temperature, 98°. Urine, acid; contained nothing abnormal, excepting amorphous urates.

Examination in dorsal decubitus showed a flat abdomen, with thin walls. Abdominal sensitiveness general; right kidney entirely below costal margin. Pelvic examination showed a retroverted uterus, loosely fixed by adhesions; two large, apparently cystic, ovaries, the right being adherent to the uterus and cul-de-sac. Diagnosis of nephrocoloptosis, cystic ovaries, adhesions, uterine retroversion, and endometritis. Operation advised.

June 21, 1907. Operation at Harper Hospital. Nephrocolopexy, curettage, abdominal section; bilateral oöphorectomy; breaking up adhesions. Both ovaries large and polyhematocystic. Recovery without incident. Abdominal band applied and petrolatum oil prescribed, and patient discharged July 18, 1907.

September 21, 1907. Bowels regular; still uses the petrolatum oil, but requires no enema. Has some backache, apparently caused by low position and some retroversion of the uterus. Says she can now sleep on the left side without discomfort, and micturition is normal. Examination showed kidney in normal position.

July 11, 1908. Patient's condition good, and has gained considerably in weight. Has had extract. ovarii for "hot flushes" and some remedies for indigestion, but otherwise has needed no treatment. Still wears the abdominal band and takes the oil occasionally.

Case 22.

Perfect restoration of floating kidney by nephrocolopexy.

Female; aged 36; married; mother of one child 6 months old. Not nursing the child.

January 18, 1907. Seeks relief for pain and "bearing down" in rectum and vagina, and pain in the right side of the abdomen. Has had the pain in right side of abdomen for several years, but dates the pelvic symptoms from the birth of the child, which was instrumental, and from which slow recovery was made. Has not menstruated since, and is very anemic and debilitated.

Examination in dorsal decubitus was negative, but in the left lateral position the right kidney dropped entirely below the costal margin and could be palpated at the navel.

Pelvic examination showed a ruptured perineum of the third degree and a badly lacerated cervix—posteriorly and right laterally. Operation advised.

June 24, 1907. Operation at Woman's Hospital. Nephrocolopexy, trachelorrhaphy; perineorrhaphy. The perineal tissue was very scanty, cicatricial, and retracted; the parts were coapted with some difficulty by the split-flap, buried suture method. The wounds healed perfectly, excepting that of the perineum, which suppurated slightly, but it eventually closed so as to give a fairly good result and a very good sphincter ani.

Owing to her debility, convalescence was slow, and she was discharged from the hospital August 4, 1907, wearing the abdominal band, but not using the oil, as the bowels were regular.

October 4, 1907. Kidney in perfect position. Says that she has no more pain in that side.

September 1, 1908. Pregnant seven months.

May 4, 1909. At confinement, four months ago, had retained placenta and resultant sapremia, requiring curettage. Examination showed a cystocele. Kidney in normal position.

Case 23.

Case illustrating the common occurrence of the mistake of making the operation of appendectomy for symptoms produced by nephroptosis.

Female; aged 23; single; teacher. Patient of Dr. Vernier.

June 21, 1907. Seeks relief for pain and distention in right side of abdomen; sensation of faintness caused by the erect position; constipation; backache; distress in stomach after eating; leucorrhea; menstruation, seven days' duration, painful for three days. These symptoms commenced about eighteen months ago and have gradually increased in severity. Had operation of appendectomy one year ago for relief of the pain in the side, but without beneficial result. Heart normal, 82; temperature, 98°. Urine normal.

Abdominal examination in dorsal decubitus showed right kidney entirely below costal margin without inspiratory effort. Kidney painful to touch, and patient referred to it as the locality of her usual pain in that side. Some tenderness in left epigastrium.

Vaginal examination showed normal introitus, small cervix bathed in mucus, erosion of os, fundus retroverted to third degree (easily replaced).

Diagnosis of nephrocoloptosis, retroversion of uterus, and endometritis. Operation advised.

June 24, 1907. Operation at Grace Hospital. Nephrocolopexy; curettage; Alexander's operation by the blunt hook method. Recovery without incident. In bed fourteen days. Wearing abdominal band when discharged, but not taking the oil, as the bowels were regular.

September 24, 1907. Can stand better; bowels regular, but has been taking the oil occasionally, as there has

been some constipation at times. Backache much better. Kidney well in place, but lower pole can be palpated when in left lateral position.

October 5, 1907. Kidney in normal position. Patient died of pneumonia during the following winter.

Case 24.

Complete cure of nephritic and colonic symptoms, and restoration of the kidney by operation.

Female; aged 30; married; never pregnant. Patient of Dr. David Inglis.

June 10, 1907. Seeks relief for constipation; backache; loss of strength and weight; nervous irritability; profuse leucorrhea. Has had the leucorrhea for two years, and the other symptoms for about a year, gradually increasing.

Abdominal examination in the dorsal position was negative, excepting for a sensitive area at McBurney's point, but in the left lateral position the right kidney dropped down into the abdomen and could be palpated at the navel.

Vaginal examination showed nothing farther than erosion around the os uteri.

Diagnosis of nephrocoloptosis and endometritis. Operation advised.

July 5, 1907. Operation at Harper Hospital. Nephrocolopexy, curettage. Ideal recovery. In bed eighteen days. Abdominal band applied and petrolatum oil prescribed on discharge from hospital.

September 24, 1908. Bowels regular, gained five pounds, nervous symptoms greatly relieved. Says everything but the leucorrhea is very much improved.

February 20, 1909. Has gained eighteen pounds and

is very well, with normal endurance and very little of the old nervousness. Still troubled with the leucorrhea. Kidney not palpable in any position.

Case 25.

Disordered nutritive functions and nervous system completely restored by operation.

Female; aged 30; single; bookkeeper.

September 18, 1907. Seeks relief for pain in back of head and neck, which she has had for two years; loss of flesh and strength; pain in left side of abdomen. Bowels regular. Torso narrow.

Abdominal examination in dorsal position showed right kidney entirely below costal margin without inspiratory effort, and tenderness over McBurney's point.

Pelvic examination showed introitus normal, cervix small, os eroded, fundus uteri in third degree retroversion (easily replaced). Heart normal, 82; temperature normal. Urine normal. Weight, one hundred and twenty-eight pounds.

Diagnosis of nephrocoloptosis, retroversion of uterus, and endometritis. Operation advised.

September 20, 1907. Operation at Harper Hospital. Nephrocolopexy; curettage; Alexander's operation by the blunt hook method. Recovery ideal. Abdominal supporter applied.

November 4, 1907. Kidney and uterus in normal position. Bowels a little constipated. Still some pain in back of neck. Petrolatum oil prescribed.

April 22, 1909. Has gained fifteen pounds since operation, and now weighs one hundred and forty-three pounds. Says she feels well, and never knew what it was to feel so before. Examination showed kidney in

normal position, with lower pole barely palpable in left lateral position. Has pain only in back of head and neck when over-fatigued. Bowels regular.

Case 26.

Rapid gain of weight after operation.

Female; aged 41; married; mother of four children, the youngest 9 years of age.

September 25, 1907. Seeks relief for neurasthenia; malnutrition and loss of flesh; insomnia; constipation; catarrh of the colon, as shown by much mucus in stools; pain of both griping and constant character in the right side of the abdomen, and frequent attacks of pain and tenderness located on the right side, close under the costal margin. Had an attack of acute intestinal toxemia five years before, since which time these symptoms, which had always been in evidence for several years, became very much worse.

Abdominal examination in the dorsal position showed marked sensitiveness on both sides of the abdomen on deep pressure; right kidney entirely below the costal margin on deep inspiratory effort; left side negative.

Vaginal examination negative. Urine normal. Weight, one hundred and ten pounds.

Diagnosis of nephrocoloptosis and operation advised.

September 20, 1907. Operation at Harper Hospital. Nephrocolopexy. Convalescence was not smooth, as a mild infection of the wound was introduced by the withdrawal of the continuous silkwormgut stitch. Fearing an insecure union, the patient was kept in bed for four weeks, when, the wound being completely healed, she was allowed to get up. During the time in bed the abdominal band was especially cared for and the large pad kept

bound tightly down under the navel, so as to give the kidney every possible support through the upward pressure of the abdominal contents. On assuming the erect position, the usual abdominal supporter was applied and the routine of petrolatum oil and evening enema prescribed. The convalescence to normal after discharge from the hospital was slow, as the neurasthenia persisted to a marked degree for some weeks.

November 30, 1907. Nutrition improving, as shown by five pounds increase in weight. Bowels regular by the daily use of the oil and an occasional enema. Neurasthenia improving slowly. Still has some abdominal pain, but less of it, and none at all in the region of the kidney, which is in perfect position.

September 20, 1908. Has gained twenty pounds, has good color, and looks in perfect health. Bowels regular by the use of one daily dose of the oil. Pain occasionally, evidently caused by distention of the cecum. Sleeps much better. Kidney in normal position.

April 30, 1909. Has gained thirty-five pounds, and now weighs one hundred and forty-five pounds. Is practically well, excepting for endurance, which comes slowly. The kidney retains its normal position when examined in either position.

Case 27.

A perfect result, notwithstanding infection of wound. No doubt the silver wire stay suture in the transversalis fascia prevented failure.

Female; aged 57; married; mother of five children, the youngest 14 years old. Patient of Dr. C. G. Jennings.

July 10, 1907. Seeks relief for irregular and profuse menstruation; debility; extreme neurasthenia, approach-

ing melancholia; backache; insomnia; gradual loss of weight during last two years. Says bowels are regular. Had typhoid fever four years before. Heart and temperature normal; urine normal.

Abdominal examination in the dorsal position showed the right kidney entirely below the costal margin; otherwise negative.

Vaginal examination showed everything normal, excepting a large hyperplastic uterus in the third degree of retroversion, which was readily replaced with the patient in the knee-chest position.

An Albert Smith pessary was placed, an abdominal supporter ordered, and tonic prescribed.

October 5, 1907. As various forms of treatment up to this time had proved unsatisfactory, operation was advised.

October 12, 1909. Operation at Woman's Hospital. Nephrocolopexy; curettage; Alexander's operation by the blunt hook method.

As stitch abscesses occurred in all the wounds, the patient was kept quiet in bed for four weeks, using great care to keep the abdominal pad well bound in place to keep the kidney supported.

December 27, 1907. Kidney and uterus in perfect position.

January 31, 1908. Kidney and uterus in perfect position. Has gained twenty-five pounds; nervous system is very much improved, and bowels regular.

Case 28.

Female; aged 47; married; mother of one child 20 years old. Patient of Dr. Sarah Conner, of Port Huron, Mich.

December 30, 1907. Seeks relief for nervous exhaus-

tion of a severe type; attacks of nausea and vertigo; constipation; constant pain in the right side of the abdomen, which is more acute at times just below the ribs; pain lately in the back of head; palpitation of the heart; confusion of ideas. Had total hysterectomy by another surgeon twelve years ago for these same abdominal pains and menorrhagia. Heart normal, 106; temperature normal. Urine normal.

Abdominal examination in dorsal position showed no abdominal tenderness. On deep inspiratory effort the right kidney dropped deep into the abdomen. Operation advised.

December 31, 1907. Operation at Harper Hospital. Nephrocolopexy. Recovery without incident. In bed sixteen days. Abdominal supporter applied and petrolatum oil prescribed on discharge from the hospital. Have not seen this patient since she left the hospital. Her husband reported, May 6, 1908, that some of the most distressing symptoms had left her, but some others of a new character had appeared.

Case 29.

Ideal result in a case of long standing.

Female; aged 31; married; mother of three children, the youngest 7 months old, which was taken from the breast three weeks ago. Patient of Dr. B. H. Jenne, of Clio, Mich.

April 15, 1908. Seeks relief for pain in the right side just below the ribs, which she has had for fifteen years; cramps in the bowels for five years; frequent nausea and vomiting of bile; very intractable constipation for three years; gradual loss of flesh. Looks weak and debilitated. Had whooping-cough seven months ago and then had a

great deal of pain in the right side. Heart normal, 112; temperature normal. Urine, specific gravity, 1,026; acid; no albumin; heavy with urates.

Abdominal examination in the dorsal position showed some sensitiveness at McBurney's point, but more under the costal margin on the right side, when inspiratory effort brought down the right kidney entirely below the ribs, and with (and apparently attached to the front of it) an irregular rough-feeling mass that nearly covered it, and yet could be moved somewhat separately.

Vaginal examination showed a ruptured perineum of second degree; cervix normal; normal sized uterus in third degree of retroversion (easily replaced in knee chest position).

Sent to Harper Hospital and a blood examination made, which was negative, after which operation was advised, as farther examination of the mass on the displaced kidney led to the belief that it was probably the remains of an exudate caused by an attack of Dietl's crisis, which may have occurred at the time the patient had the whooping-cough.

April 17, 1908. Operation. Nephrocolopexy; perineorrhaphy (split flap, buried suture of No. 1 twenty-day catgut); Alexander's operation by the blunt hook (buried suture) method. At the operation the kidney was thoroughly examined when reached through the loin incision, and the organ was found to be perfectly normal in contour, the mass being entirely separate from it.

Recovery was ideal in every way, and patient left the hospital at the end of five weeks. Abdominal support applied and petrolatum oil prescribed.

September 29, 1908. Patient says: "Haven't an ache or a pain, sleep well, have gained ten pounds. Took the oil for two months, but have not needed it since, as the bowels are perfectly regular."

Examination showed the kidney in normal position; could be forced down so that only the lower pole could be palpated.

November 22, 1909. Dr. Jenne reports that she is fat, has gained fifteen pounds, and is very well in every way.

Case 30.

Ideal result in a case complicated by intra-abdominal surgery.

Female; aged 23; single; stenographer. Patient of Dr. J. H. Sanderson.

March 5, 1908. Seeks relief for nearly constant backache; "bearing down" in the abdomen; a "smarting" sensation in the lower left side of the abdomen, near the groin; increasingly severe dysmenorrhea for a year. Had curettage twice—four years ago and one year ago—with only temporary relief of the dysmenorrhea and no relief of the other symptoms. Has lost flesh steadily for two years—eleven pounds during the last six months. Normal weight, one hundred and thirty-five pounds; now weighs one hundred and sixteen pounds. Bowels regular. Heart normal, 84; temperature normal. Urine normal. Complexion muddy and skin rough.

Abdominal examination showed right kidney entirely below the costal margin on deep inspiration; left kidney in normal position; no abdominal tenderness, except just above Poupart's ligament on the left side on deep pressure.

Examination of pelvic organs obscured by fecal mass in the sigmoid and rectum. Directions were given to clear the colon by laxative and enema, and to return for further examination.

March 9, 1908. Pelvic examination showed everything

normal, excepting the left ovary, which was twice normal size; very sensitive, but not adherent.

Diagnosis of nephrocoloptosis and left cystic ovary, and operation advised.

April 28, 1908. Operation at Harper Hospital. Nephrocolopexy; abdominal section, with left oöphorectomy. Ovary large and cystic. Recovery ideal in every way. In bed eighteen days. Applied abdominal supporter on discharge from hospital.

July 8, 1909. Feels much better in every way.

October 16, 1909. Gained twenty-five pounds; dysmenorrhea better; bowels somewhat constipated, and has been using the petrolatum oil and an occasional enema.

March 29, 1909. Has kept the weight as reported in October. Bowels normal; no headache or "bearing down;" endurance very good; marked improvement in complexion and smoothness of skin. Kidney in normal position and can not be brought down by posture.

September 19, 1909. Feels perfectly well, and asks permission to discard the abdominal supporter, which was granted.

Case 31.

A good anatomic result, with failure of symptomatic cure because of conditions of apparent neurotic origin.

Female; aged 45; married; mother of two children, the youngest 22 years old. Patient of Dr. S. P. Duffield, of Dearborn.

March 30, 1908. Seeks relief for a feeling of pressure in the abdomen and of distention at the vulva; frequent abdominal pain, more frequently in the left side; general weakness and neurasthenia, with hysterical tendency; insomnia. Patient constantly talks of something having "broken" at the vulva, following a trachelor-

rhaphy by another surgeon two and a half years ago, and appears to be hypochondriacal on the subject. Menstruation regular, but profuse at times. Heart normal, 90; temperature normal. Urine normal.

Abdominal examination in the left lateral decubitus showed the right kidney entirely below the costal margin, and abdominal tenderness in left epigastrium.

Vaginal examination showed ruptured perineum of second degree and large hyperplastic uterus. Operation recommended, though the peculiar neurotic element in the case made the prognosis guarded.

May 28, 1908. Operation at Harper Hospital. Nephrocolopexy; perineorrhaphy; curettage. Recovery without incident, though strength returned slowly after getting up and mental condition was sluggish. Abdominal supporter applied on discharge from hospital.

October 6, 1908. Pain and pressure in vulva gone, but thinks now she has "broken something" in the kidney. Examination showed kidney in normal position and not sensitive. Gained in flesh, but says she sleeps badly.

February 17, 1909. Kidney in normal position; bowels regular, and patient in good appearing condition, but complains again of "something broken" in the vulva. Was sent to the hospital and various examinations made, with only negative results.

Case 32.

Operation on kidney having pathologic surroundings gives no relief of symptoms.

Female; aged 38; married; mother of one child 11 years old.

July 2, 1908. Seeks relief for frequent attacks of griping pain in abdomen, and nearly constant pain and

tenderness below the ribs on the right side; gradual loss of flesh for three years (weighs one hundred and eight pounds); extreme nervous irritability; insomnia; frequent headaches; has menstruated but twice in the last eight months (the last time slightly, in May). Torso very narrow and the lower thoracic zone contracted. Heart normal, 90; temperature normal. Urine normal.

Abdominal examination in dorsal position showed right kidney entirely below the costal margin without inspiratory effort. Impossible to replace the organ entirely back into its normal position behind the costal margin, the renal fossa being apparently filled or closed, so that the kidney could be replaced only partially, and would then drop back at once by its own weight. The whole abdomen was sensitive to touch.

Vaginal examination showed pelvic organs normal, excepting the uterus, which was very small, and apparently undergoing atrophy. Radiograph of the colon to be made.

July 4, 1908. Radiograph showed the cecum in the bottom of the pelvis, and very large. The transverse colon did not show at all. Operation advised, although the difficulty of replacing the kidney normally should have demanded treatment for a time and longer observation. The peculiar situation of the patient at the time precluded this delay, and I therefore concluded to take the chance of immediate operation.

July 7, 1908. Operation at Harper Hospital. Nephrocolopexy. The nephrocolic ligament was large, but it was impossible to draw or push the kidney up into the fossa far enough to secure it below the pole, and the mistake was made of attaching that portion of it which lay parallel with the convexity of the kidney, hoping that its good volume would serve to hold sufficiently.

Recovery was without incident, and patient left the hospital at the end of four weeks. Abdominal supporter applied and petrolatum oil prescribed.

November 7, 1908. The whole kidney can be felt lying close to the side where attached, and does not drop into the abdomen, toward the navel, as before operation. Patient's symptoms, however, she reports, are not relieved.

December 31, 1909. Weighs one hundred and twelve pounds; bowels regular; still has some pain in both sides of abdomen, though gradually decreasing; sleeps very much better; kidney still fixed, though entirely below costal margin.

Case 33.

Good result, anatomically and symptomatically, three months after operation.

Female; aged 30; married; mother of three children, youngest 2 years old. Clinical patient.

September 26, 1909. Seeks relief for backache; abdominal pain, located in both sides; frequent attacks of nausea without emesis; gradual loss of weight and strength, and resultant inability to work; constipation; nervousness; insomnia. Heart, temperature, and urine normal.

Abdominal examination showed right kidney entirely below the costal margin; sensitiveness in left epigastrium.

Vaginal examination showed everything normal, excepting a uterus of normal size in third degree retroversion, which was easily replaced, manually, with the patient in the knee-chest position.

Diagnosis of nephrocoloptosis and retroversion, and operation advised.

September 30, 1908. Operation at Harper Hospital. Nephrocolopexy; Alexander's operation by the blunt hook method. Recovery uneventful. Abdominal supporter applied and petrolatum oil prescribed on discharge from hospital.

December 25, 1908. Kidney in normal position and not palpable in any position. Bowels regular by the use of the oil once a day. Gaining in flesh and strength. Patient not seen since.

Case 34.

Extreme neurasthenia.

Female; aged 42; married; mother of two children, the youngest 6 years old. Patient of Dr. Thomas, of North Branch, Mich.

November 1, 1908. Seeks relief for neurasthenia; constant headache; progressive emaciation; almost constant pain in abdomen, back, and thighs; alternating constipation and diarrhea; frequent micturition; insomnia—can never sleep on the left side because of palpitation; says she has always had the abdominal pains. Is a chronic invalid, and unable to stand or walk but for a few minutes at a time. Had operation for cervical stenosis at 19. Was badly lacerated at childbirth, and says she has been "sewed up" three times for it. Heart normal, 100; temperature normal. Urine normal.

Abdominal examination in the dorsal position showed great sensitiveness all over, the especial points being at the right of the navel and just below it on deep pressure; the right kidney entirely below the costal margin, without effort—not very movable in further descensus, and easily replaced.

Vaginal examination showed a normal appearing perineum, which on close inspection proved to be composed

of skin only, the only muscular portion intact being a very small part of the sphincter ani; cervix uteri large, cystic, eroded, and lacerated left laterally; uterus hyperplastic, normal position; appendages normal.

November 2, 1908. Radiograph showed ptosis of the colon, as illustrated in Fig. 51. Diagnosis of right nephrocoloptosis, ruptured perineum of second degree, left laceration of cervix uteri, and endometritis. Operation advised.

Fig. 51. Case 34.

November 3, 1908. Operation at St. Mary's Hospital. Nephrocolopexy; perineorrhaphy (split flap method and buried No. 1 twenty-day catgut); trachelorrhaphy; curettage. The wound in the loin healed perfectly; the perineal wound suppurated slightly, but careful attention ended in a perfect result. In bed five weeks, the last two because of debility, and also a desire to benefit the nervous system by rest and forced feeding. On discharge from the hospital the abdominal supporter was applied and petrolatum oil prescribed.

July 3, 1909. Has gained thirteen pounds, and feels

better and stronger in every way. Still has some abdominal tenderness, and her nerve tone and endurance are returning slowly. Bowels regular by the use of the petrolatum oil once daily; kidney in normal position.

Case 35.

A case in point where a uric acid diathesis protracts recovery and proves an important factor in post-operative treatment. Such cases should be recognized and receive adequate treatment before operation. Case also remarkable for good anatomic result, notwithstanding post-operative infection of wound—showing value of the silver wire suture.

Female; aged 44; married; mother of one child, 9 years old.

October 27, 1908. Seeks relief for pain and burning sensation in the stomach and bowels; palpitation of the heart; sick headaches; menorrhagia and menses of foul odor; loss of flesh and strength. All symptoms came on gradually during the last year. Complexion dark and muddy and skin rough. Heart normal, 90; temperature normal. Urine, specific gravity, 1,028; acid; loaded with sediment composed of uric acid, urates, and epithelium. No albumin or sugar.

Abdominal examination in the dorsal position showed the right kidney entirely below the costal margin without effort, and well down in the abdomen, near the navel, on deep inspiration; easily replaced manually. Left kidney not palpable in any position.

Vaginal examination showed a ruptured perineum of second degree; normal uterus and cervix; the latter having a mucous polyp of about an inch in length hanging from it and passing into its attachment near the inner os. Operation advised.

November 11, 1908. Operation at Harper Hospital. Nephrocolopexy; perineorrhaphy; excision of polyp; and curettage. A stormy convalescence followed, due largely to the uric acid diathesis of the patient, and partly to a mild infection of the wound in the loin following the removal of the continuous subcutaneous silkwormgut suture (the last used by me in these cases).

There was slight febrile action lasting for three days following the infection of the wound, but after that the temperature remained practically normal, or subnormal, throughout.

A prominent symptom which continued for three weeks was pain of a severe character, occurring frequently in various parts of the body, legs, and arms. The treatment was principally eliminative in character and the use of acid. nitromur. dilut. and aspirin. In bed four weeks. Discharged December 12, 1908, in good condition and both wounds healed.

February 6, 1909. Wound in loin open and discharging slightly; on probing found silver wire suture had become untwisted (silver shot not used in this case) and was causing a mechanical irritation, and was removed. Kidney in normal position.

March 7, 1909. Kidney in normal position and not palpable. Bowels regular without medication.

October 25, 1909. Kidney in normal position and bowels regular. Has gained six pounds since operation. Troubled a good deal with rheumatic pains. Urine turbid with urates. Prescribed acid. nitromur. dilut.

January 10, 1910. Has gained ten pounds since operation; kidney in normal position.

Case 36.

Ideal anatomic and symptomatic result of fixation.

Female; aged 31; married; mother of seven children, the youngest 1 year old.

November 25, 1908. Seeks relief for constant headache; pain of both dull and griping character in the left side of abdomen; constipation, the movements being preceded by cramps; loss of flesh and strength; menorrhagia; leucorrhea. Had lacerated cervix repaired six months ago by another surgeon. Heart normal, 100; temperature normal. Urine normal.

Abdominal examination showed a broad, flat abdomen, with widely expanded lower thoracic zone; sensitive in left epigastrium; right kidney completely down in the abdomen with patient in the left lateral decubitus.

Vaginal examination showed good perineum; repaired cervix; large uterus, with soft fundus in third degree of retroversion, easily replaced in the knee-chest position.

November 6, 1908. Radiograph made, but proved a failure, owing to the rapid descent of the bismuth into the descending colon, sigmoid, and rectum because of the previous use of a cathartic.

November 28, 1908. Operation at Harper Hospital. Nephrocolopexy; curettage; Alexander's operation. Recovery without incident. In bed eighteen days. Abdominal supporter applied and petrolatum oil prescribed on discharge from hospital.

January 13, 1909. Bowels regular by use of the petrolatum oil; kidney and uterus in normal position.

February 22, 1909. Bowels regular by taking the oil once a day; no more abdominal pains; no leucorrhea; menstruates normally; kidney and uterus both in normal position.

April 15, 1909. Bowels regular, without oil, and no "cramps;" kidney in normal position, with lower pole just palpable with patient in left lateral decubitus and deep inspiratory effort; gained ten pounds.

Case 37.

Remarkable immediate improvement following operation in a typical case showing extreme neurasthenia.

Female; aged 42; married eighteen years; mother of one child 16 years old; menstrual history normal. Referred to me by Dr. T. A. McGraw.

February 27, 1909. Seeks relief for neurasthenia; general debility; malnutrition; dyspepsia; loss of memory, etc. Thinks injury in a railroad accident many years ago caused a shock to the nervous system, and that the present illness is due to it. Has lost thirty pounds in five years. Spends most of her time lying down. Constipation very troublesome, requiring daily medication or enema. Mentality much impaired, being unable to carry on a connected conversation. Has no hallucinations. Sleeps little and never on the left side. Frequent griping pain in bowels and mucus in stools. Most pain in left side of abdomen. Has been in sanitariums and health resorts for years, with no benefit, and has consulted various kinds of specialists, from the neurologist to the osteopath, without benefit. They all advised change of scene and climate after unsuccessful periods of treatment. The diagnosis was usually "neurasthenia" and "intestinal indigestion."

February 27, 1909. Examination made. Facial expression drawn and tired-looking; complexion muddy, almost to jaundice. Abdominal walls thick, flaccid, and relaxed. Deep inspiration, dorsal position, right kidney

can be felt down to the umbilicus, and does not return without manual assistance. With patient on the left side and knees drawn up, the kidney is felt well in the median line. Left kidney not displaced. Some tenderness at McBurney's point—cecum and ascending colon—not the appendix. (See Fig. 52 for position of appendix.)

Vaginal examination showed ruptured perineum of second degree, rectocele, and uterine hyperplasia.

February 28, 1909. X-ray (Fig. 52) showed the cecum in the bottom of the pelvis as far as gravity could take

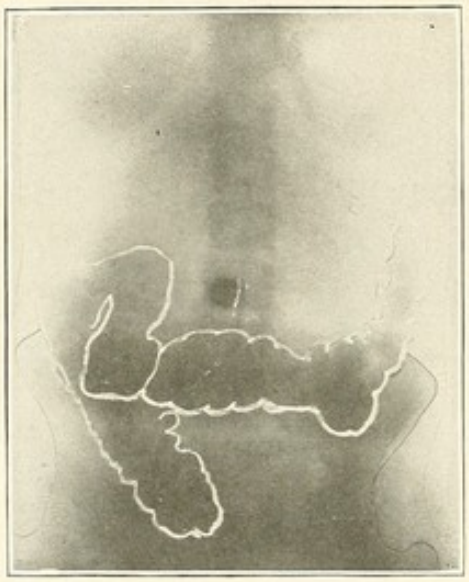


Fig. 52. Case 37.

it, and the transverse colon very low, causing sharp angulation at the splenic flexure (cause of pain in this side). Operation recommended.

March 4, 1909. Operation at Harper Hospital. Nephrocolopexy; perineorrhaphy; curettage. In bed three weeks. Recovery ideal in every way.

April 1, 1909. Discharged from hospital.

April 17, 1909. Bowels regular, without medication of any kind since operation; feels well and is gaining in flesh. Left for Atlantic City.

May 20, 1909. Returned from Atlantic City. Bowels regular and appetite good; has no abdominal pain, and has gained eighteen pounds.

July 30, 1909. Bowels regular; often walks two miles a day without fatigue; sleeps well; has gained thirty-two pounds since operation; mentality greatly improved, is sprightly and vivacious, and enjoys life. On sending her to Dr. Hickey for another x-ray, he was especially struck with the greatly improved facial expression and mental tone. Radiograph a poor one. (Dr. Hickey said I had made her too fat for a good one.)

Case 38.

A common cause of "nervous breakdown" in a young subject, caused by a right nephrocoloptosis, cured by operation.

Female; aged 25; single.

January 18, 1900. Seeks relief for neurasthenia; malnutrition; debility; headaches; dizziness; nausea; flatulence; "cramps" in the abdomen; sleeplessness; dysmenorrhea. Never can sleep on the left side, as it causes palpitation of the heart. Bowels constipated, and require constant attention by medication and enema. Heart and temperature normal. Urine normal.

Abdominal examination shows right kidney entirely below costal margin. Left lateral position, with deep inspiration, necessary to bring it down, when it remained so until replaced manually. Vaginal examination negative.

Radiograph of the colon showed a moderate coloptosis of the transverse section and a marked ptosis of the cecal end of the gut. (Fig. 53.) Operation advised.

April 13, 1909. Operation at Harper Hospital. Neph-

rocolopexy; dilatation of the cervix uteri. Weight at operation, ninety-four pounds; weight June 7, 1909, one hundred pounds; weight September 1, 1909, one hundred

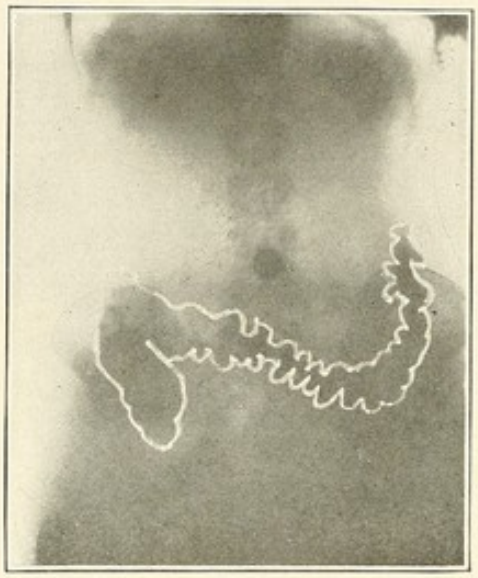


Fig. 53. Case 38.

and six pounds, when she reported bowels in perfect condition; has discontinued the petrolatum oil.

December 12, 1909. Kidney in normal position. Weight, one hundred and eight pounds.

Case 39.

A chronic invalid, having extreme neurasthenia and malnutrition, cured by operation.

Female; aged 37; married; one child.

March 2, 1909. Seeks relief for neurasthenia, approaching melancholia in spells of depression; nervous irritability; dyspepsia; diarrhea; pain over whole abdomen, but especially in left side; emaciation; muddy complexion. Has passed the greater part of the past two years in sanitariums and health resorts, and has consulted various specialists. Was treated by all of them for neurasthenia, intestinal indigestion, and toxemia, and had all kinds of

examinations of blood and secretions made. Sleeps well, which is unusual in these cases. Normal weight, one hundred and twenty pounds; present weight, one hundred and ten pounds.

Abdominal examination showed the right kidney entirely below the costal margin while in the dorsal position, without respiratory effort, and sensitiveness in left hypochondrium. Vaginal examination negative.

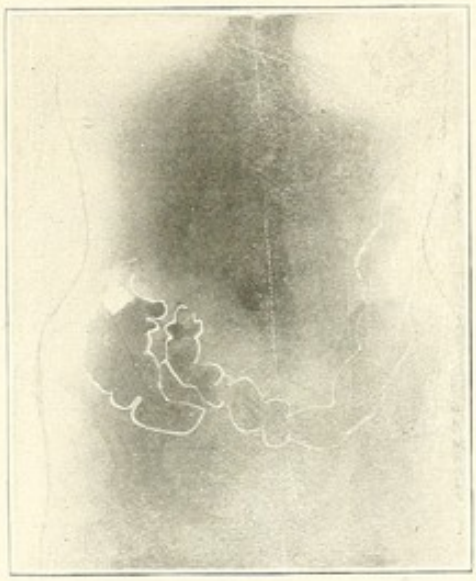


Fig. 54. Case 39.

March 5, 1909. Radiograph shows cecum and ascending colon nearly completely below McBurney's point, the first half of the transverse colon very low in the pelvis, and the distal portion in a position parallel to the descending colon. (Fig. 54.)

May 6, 1909. Operation at Harper Hospital. Nephrocolopexy. In bed eighteen days. Recovery without incident. Abdominal supporter applied and petrolatum oil prescribed on discharge from the hospital.

September 29, 1909. Reports great improvement in every way. Gained ten pounds; complexion is clear; bowel movements improving; rarely has diarrhea. Her

family reports great improvement in the nervous irritability. Rarely has pain in the left side, and only occasional attacks of indigestion.

December 20, 1909. Weighs one hundred and twenty-five pounds, and is well in every respect; bowels regular; kidney in normal position.

Case 40.

Dietl's crisis—typical case—cured by operation.

Female; aged 26; married two months. Was always thin and dyspeptic, and bowels constipated. Patient of Dr. C. G. Jennings.

Fig. 55. Case 40.

Gastroptosis diagnosticated a year before and has worn an abdominal support for it. Has had two attacks of Dietl's crisis—one three weeks before marriage and the other two weeks after that event. Had fever with both attacks, which were also attended with much swelling of the right kidney and surrounding structures, with albumin, casts, and red blood cells in the urine, which condition persisted for some time after the subsidence of the acute symptoms.

Patient sent to St. Mary's Hospital and put to bed after the second attack, and kept under treatment, with absolute rest, for four weeks, when, all indication and symptoms of local irritation having subsided and the urine cleared up, the operation of nephrocolopexy was performed on June 12, 1909. A retroverted uterus was restored by the Alexander operation at the same time. Recovery without incident. In bed four weeks. A radiograph taken the day before operation (Fig. 55) shows the result of great relaxation of the hepatocolic ligament, the cecum, ascending colon, and much of the transverse colon lying low in the pelvis.

August 20, 1909. Reported in good condition. No pain, bowels regular by using petrolatum oil, appetite good, and increasing in weight. Kidney in normal position.

November 20, 1909. Reports from abroad, where she went in September, that she is perfectly well and getting fat.

Case 41.

Ideal rapid recovery and ideal anatomic result of operation.

Female; aged 33; married, never pregnant. Patient of Dr. F. J. Langlois, of Wyandotte, Mich.

January 21, 1909. Seeks relief for frequent attacks of pain in the middle and right side of abdomen, and also in the back of head and neck; "heartburn;" severe constipation—defecation often causes the occurrence of the abdominal pain; frequent micturition, which also seems to start the pain; menstruation irregular (three to six weeks), very painful, free and clotted, and continues for ten days; loss of flesh—twenty pounds in two years; all symptoms have been gradual in commencement, and

have been present for about two years. Heart normal, 84; temperature normal; urine normal. Weight now one hundred and eighteen pounds.

Abdominal examination in dorsal decubitus shows great tenderness in all of right side, but especially in right epigastrium; on deep inspiration right kidney is forced down entirely below the costal margin. Left kidney not palpable.

Vaginal examination shows normal perineum; normal cervix uteri containing a large cyst; uterus hyperplastic, and in normal position and mobility. Operation advised.

June 23, 1909. Operation at Harper Hospital. Nephrocolopexy; curettage; removal of small intra-uterine mucous polyp; scarification of cervix.

Recovery without incident. In bed eighteen days. Abdominal supporter applied and petrolatum oil prescribed on discharge from hospital.

March 22, 1909. Defecation regular by the use of the oil only; menstruation normal; gaining in weight; kidney in normal position in any position.

April 26, 1909. Bowels regular with one dose of oil daily; weight, one hundred and thirty-two pounds, and is steadily gaining. Feels quite well, and says her endurance returns slowly, but, as she tells of walking two and a half miles the day before, whereas before operation walking any distance was impossible, the "endurance" can be put down as "very good." Has occasional pain and a pulling sensation in and around the kidney and in the scar. Rarely has pain in the back of the neck and head. Kidney not palpable in any position.

Case 42.

Patient having had Dietl's crisis, mistaken for attacks of appendicitis. Cured by operation. Rapid increase in weight.

Female; aged 26; single; stenographer.

June 3, 1909. Seeks relief for pains in back and right side of abdomen; loss of flesh—twenty-five pounds in ten months; dyspepsia; dysmenorrhea; severe constipation, relieved only by high colonic flushing; neurasthenia and loss of strength; inability to do her work. Says she had two attacks of "appendicitis," one in August last, which laid her up for six weeks, and another two months later, which lasted two weeks. In both attacks she referred the seat of pain and swelling—which she said was marked—high up in the right side, close to the costal margin. Complexion muddy and skin rough. Heart and temperature normal; urine normal, excepting for presence of amorphous urates. Weight, one hundred and ten pounds.

Examination in dorsal decubitus shows no sensitiveness at McBurney's point, but a good deal above, close to the ribs. Kidneys not palpable in this position. In the left lateral decubitus the right kidney dropped low in the abdomen on deep inspiration, and was easily replaced manually. Left kidney not palpable.

Vaginal examination showed perineum and cervix normal; uterus hyperplastic and in the third degree retroversion, and easily replaced in the knee-chest position.

The results of the examination convinced me that the previous attacks of "appendicitis" were no doubt attacks of Dietl's crisis. Operation advised.

June 29, 1909. Operation at Harper Hospital. Nephrocolopexy; curettage; Alexander's operation. Recovery

without incident. In bed eighteen days. Abdominal supporter applied and petrolatum oil prescribed on discharge from hospital.

October 15, 1909. Kidney in normal position and can not be brought down in either position. Uterus in normal position. Is gaining in weight, and the complexion is clearing.

December 15, 1909. Kidney in normal position, and stands the test of the left lateral position without appearing at all below the costal margin. Patient says all sensitiveness in the region of the kidney, which was so manifest before operation, is entirely gone. Sometimes has transient pain in the cecum, caused by gas (common symptom for several months after operation). Bowels are perfectly regular by the use of one daily dose of the petrolatum oil; enema not necessary. Sleeps and eats well. Weighs one hundred and thirty-one pounds, a gain of twenty-one pounds since operation. Complexion perfectly clear.

Case 43.

Coloptosis without nephroptosis, cured of intestinal symptoms by the operation of nephrocolopexy. (Radiographed before and after operation.)

Female; aged 42; married; three children.

June 3, 1909. Seeks relief for constant pain in the left side, above the hip, and in the loin, which she has had for six months, and can not walk or work because of it. Abdominal section one year before by myself for hematoma of both ovaries.

Abdominal examination in both dorsal and lateral positions showed both kidneys normally placed. Muscles in the left loin very rigid, and abdomen on same side distended and dull on percussion. Patient sent to the hos-

pital, a cathartic given, and high enema used; examination made under ether, which was negative in result, excepting that it showed complete relaxation and normal condition of the muscles of the loin. Patient was kept in bed under constant observation for a week without change in the pain, which was nearly constant.

June 29, 1909. Radiograph made, showing large collection of gas at splenic flexure and complete ptosis of cecum. (Fig. 56.)

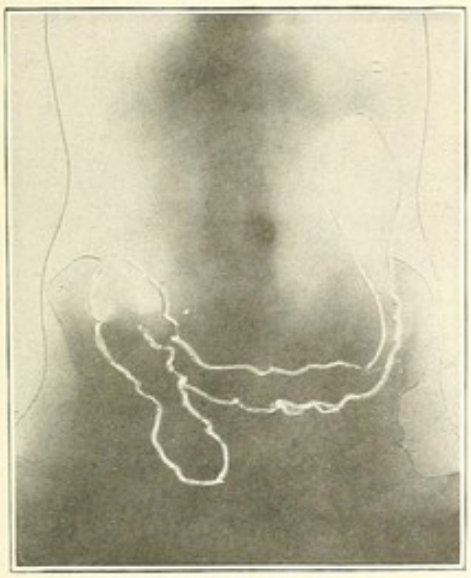


Fig. 56. Case 43.

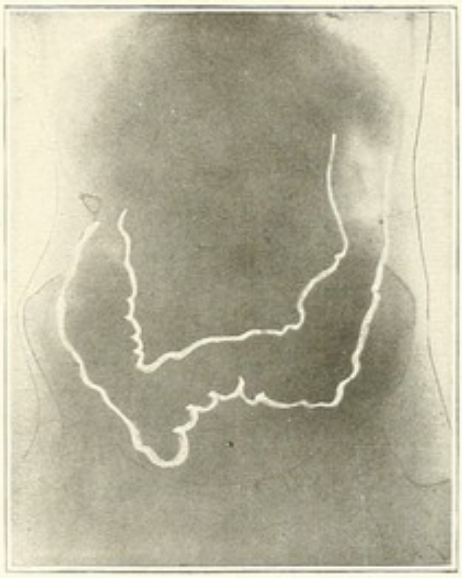


Fig. 57. Case 43.

July 1, 1909. Operation at Harper Hospital. Nephrocolopexy. Very long and loose nephrocolic ligament. No pain in the left side after the operation. After three weeks in bed and one week up, went home. Abdominal supporter applied and petrolatum oil prescribed on discharge from hospital.

July 28, 1909. Post-operative x-ray (Fig. 57) shows elevation of cecum and a tendency to the correction of the sag of the transverse colon. (See position of silver wire suture.)

October 3, 1909. Reports no pain and is improving in every way.

November 7, 1909. Reports by letter that she has gained ten pounds and is free from pain.

Case 44.

Coloptosis without nephroptosis. Intestinal symptoms cured by operation.

Female; aged 30; single. Patient of Dr. C. G. Jennings.

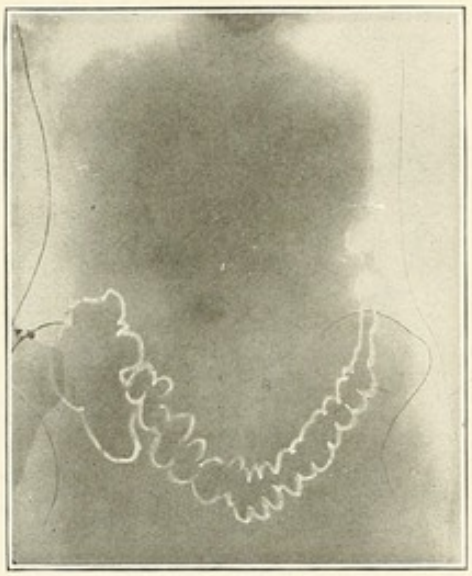


Fig. 58. Case 44.

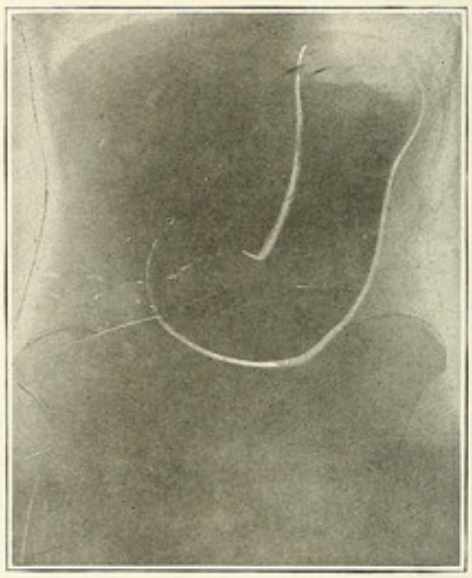


Fig. 59. Case 44.

July 7, 1909. Seeks relief for pain in stomach, coming on about five hours after eating; severe constipation, from which she has suffered nearly all her life—movements containing much mucus; frequent attacks of pain and sensitiveness in right side of abdomen; pain passing from the navel to the rectum; neurasthenia and loss of flesh, although she was never very strong or robust. Gastroptosis diagnosticated by Dr. Jennings. Heart normal, 105; temperature normal; urine normal. Weight, one hundred pounds.

Abdominal examination, in both dorsal and lateral positions, negative, excepting a very sensitive area around McBurney's point. (Examine radiograph to determine the viscera palpated at this point.)

Vaginal examination showed normal introitus, cervix, and uterus. Behind, and at the sides of the fundus uteri, two irregular, very sensitive masses, large as hen's eggs, were palpated.

July 11, 1909. Radiograph made (Fig. 58), which shows a complete coloptosis, both the cecal end and the proximal half of the transverse portion lying nearly as low in the pelvis as gravity can take them. Radiograph of the stomach (Fig. 59) shows dilatation and moderate ptosis. A diagnosis of coloptosis (without nephroptosis) and bilateral ovarian cystoma was made and operation advised.

July 15, 1909. Operation at Harper Hospital. Nephrocolopexy; abdominal section, with bilateral salpingo-oöphorectomy. Both ovaries contained large hemorrhagic cysts. During the operation the oozing from all incised or punctured tissues was very protracted and difficult to control. Both wounds healed perfectly, and recovery until the fourteenth day was practically afebrile and normal, excepting for rather more persistent pain than usual in the left side of the abdomen. On July 24th more pain was complained of, and there was a slight rise of temperature. Examination showed tenderness in the left groin and passing down the inside of the thigh for a few inches; and a left phlebitis developed, which was of a mild character and did not extend further downward. The treatment consisted principally of the application of lead and opium wash all the time, and the ice bag during any rise of temperature. At the end of ten days the symptoms had subsided, and patient was thinking of sit-

ting up, when the other side began to show similar symptoms and went through a little more severe course, the affected veins reaching to the popliteal space.

This made a protracted convalescence, and the patient was discharged September 11, 1909.

October 5, 1909. Has gained some in flesh and is beginning to feel stronger. Bowels regular by the use of the oil and a tablespoonful of wheat bran in a glass of hot water once a day. Kidney in normal position.

Case 45.

Colonic ptosis causes intestinal toxemia and low febrile action for years, with consequent progressive emaciation. Cured by operation.

Female; aged 28; single; stenographer.

December 29, 1904. Seeks relief for dull and constant pain in lower abdomen, which is increased by sitting at the desk, or standing or walking for more than an hour at a time; progressive weakness and nervous exhaustion; leucorrhea; loss of weight; feeling of feverishness; mucus in bowel movements, which are regular, although frequently of a diarrheal character. Heart normal, 100; temperature, 99°; lungs normal; urine normal, excepting for presence of amorphous urates.

Abdominal examination in dorsal decubitus showed sensitiveness at McBurney's point; right kidney entirely below the costal margin on deep inspiration, very movable and easily replaced manually. Left kidney was not palpable in either position.

Vaginal examination negative.

Diagnosis of nephrocoloptosis, with consequent catarrh of the colon.

Silk elastic abdominal band, with large abdominal pad,

applied, and Russell's emulsion prescribed, with directions to flush the colon with normal salt solution twice a week.

November 9, 1905. Pulse, 100; temperature, 99.2°. Has worn the abdominal supporter with a good deal of relief, and can work better and be on her feet longer with it. Still has the abdominal pain, very severe at times; is very thin, and feels exhausted all the time. Operation advised.

September 10, 1909. Married four years, and has a child two and a half years old. Says she felt perfectly well for six months before the child was born, having none of the old abdominal pains; felt strong, and gained in flesh (caused by the enlarging uterus pushing up the colon into its normal position, and thus removing the strain from the kidney and duodenum). Kidney in complete ptosis and all the old symptoms have returned, and the loss of flesh and strength is at about the limit. Patient emaciated. Pulse, 105; temperature normal; urine normal. Operation strongly advised.

September 15, 1909. Operation at Harper Hospital. Nephrocolopexy. Recovery ideal in every respect. Abdominal supporter, with the truss attachment, applied and petrolatum oil prescribed on discharge from hospital.

December 1, 1909. Has gained five pounds since operation; has good appetite and digestion; pain has entirely left the abdomen; bowels regular. Kidney in normal position.

Case 46.

Case having nephrogastrocoloptosis.

Female; aged 33; single; stenographer. Patient of Dr. C. G. Jennings.

June 30, 1909. Seeks relief for frequent attacks of

pain in the abdomen and a constant sensation of burning in the abdomen and sides; indigestion; insomnia; can not sleep on the left side at all because it causes a sensation of tension and fullness, and palpitation; constipation; painful and irregular menstruation; loss of flesh. Had ulcer of the stomach at 14. Heart normal, 88; temperature normal; urine normal, except for a sediment of amorphous urates. Weight, eighty-seven pounds. Narrow thorax.

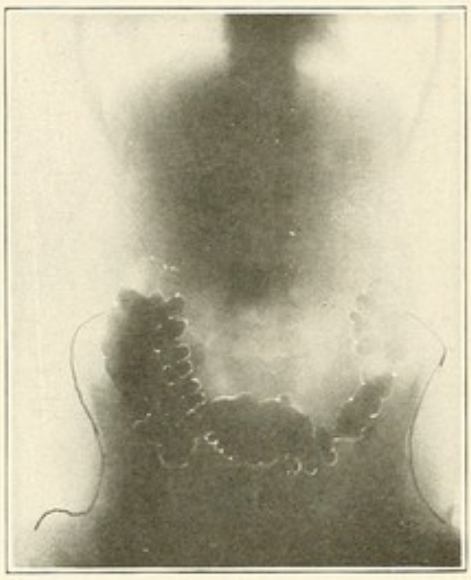


Fig. 60. Case 46.

Abdominal examination in dorsal position showed right kidney entirely below costal margin without effort, and when on the left side it dropped somewhat to the left of the navel.

Vaginal examination negative.

July 6, 1909. Radiograph made, showing entire ptosis of ascending and half of transverse colon (Fig. 60), and the stomach reaching into the pelvis also. Operation advised. Abdominal supporter applied and petrolatum oil prescribed pending time of operation, which was uncertain.

September 10, 1909. Abdominal supporter has given a good deal of relief in adding to her strength and endurance, and the oil causes better action of the bowels, but the pain and burning in the abdomen continue, and the operation is therefore decided on.

September 15, 1909. Operation at Harper Hospital. Nephrocolopexy; curettage. Recovery without incident. In bed eighteen days.

November 29, 1909. Weighs ninety-three pounds (gain of six pounds); bowels regular by use of the oil and occasionally of the enema also; no pain in the left side. Kidney in normal position.

Case 47.

A very typical case illustrative of the obscurity and vagueness of the symptomatology of a coloptosis and gastroptosis, with very little nephroptosis. After years of invalidism cured by operation.

Female; aged 31; married four and a half years; never pregnant.

September 26, 1905. Seeks relief for frequently recurring pain in right side of abdomen, often very severe; pain in the pit of the stomach after eating; chronic diarrhea—four or five movements every morning; great loss of flesh—twenty-five pounds in three years. Looks weak and anemic. Says she has "spells," which commence with chills, diarrhea, severe vomiting of bile, and high temperature—often 104°—in which she is very nervous and hysterical. Heart normal, 110; temperature, 99 1/2°; urine normal.

Examination in both dorsal and lateral positions was negative, excepting for sensitive area around McBurney's point. Neither kidney could be palpated.

Vaginal examination showed normal conditions, excepting the uterus, which was found to be in a second degree retroversion—mobile and easily replaced in the knee-chest position.

A diagnosis was made of chronic diarrhea and intestinal toxemia; retroversion of the uterus. Medicinal and dietetic treatment for the intestinal conditions were begun at once and continued for a year and a half, with varying results. I note that during this time her temperature rarely registered below 99°. She gave a better report from a medication in which arsenite of copper was used and large doses of creosote were given, and colonic flushing with normal salt solution used. I did not see her again for a period of over three years.

July 30, 1909. Has a baby two and a half years old, and says that while carrying the child she felt perfectly well, having no chills or fever or diarrhea during the time (caused by the growing uterus pushing the colon up in normal position, and thus relieving the strain on the kidney and duodenum). The old symptoms began to return when the child was six months old, and have continued to increase in severity since. Has frequent passages, tenesmus, bearing down, etc., and much mucus in the stools. Has lost thirty-two pounds in two years, and is thinner than she ever was.

Abdominal examination in the left lateral position, with respiratory effort, was successful at this time in bringing the right kidney down—only about half of the organ palpable below the costal margin. Left kidney not palpable. Sensitive area in the epigastrium and down to navel.

Vaginal examination showed a ruptured perineum of second degree; rectocele; normal cervix; uterus in third degree retroversion—easily replaced in knee-chest position.

August 2, 1909. Radiograph made, showing the stomach with the greater curvature three inches below the navel and the colon well down in the pelvis, the cecum being six inches below McBurney's point. (Figs. 61, 62.)

My abdominal supporter applied and petrolatum oil and creosote prescribed. Operation advised.

September 10, 1909. Patient reports less abdominal pain while wearing the band, and that it gives her a stronger and better feeling. Diarrhea less severe.

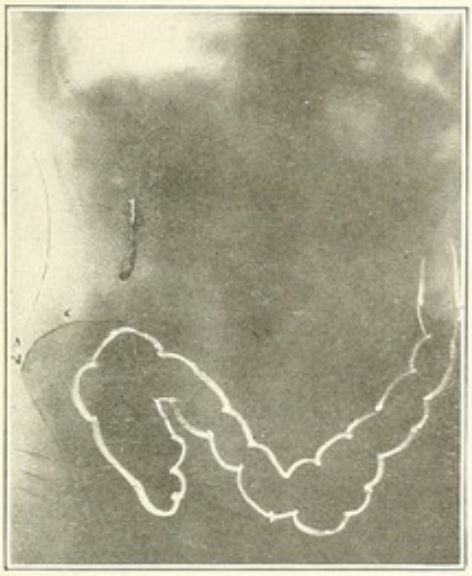


Fig. 61. Case 47.

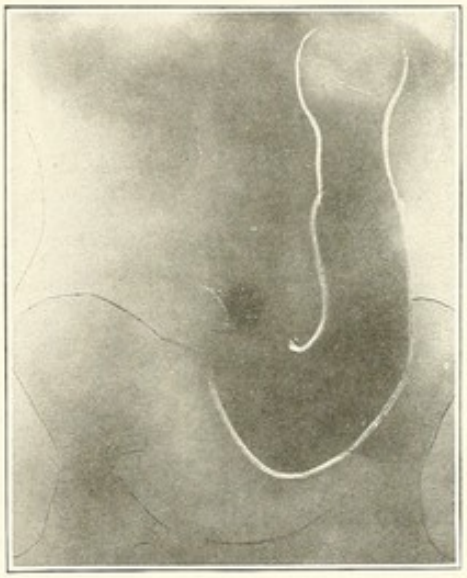


Fig. 62. Case 47.

September 25, 1909. Operation at Harper Hospital. Nephrocolopexy; perineorrhaphy; Alexander's operation. Recovery without incident until the beginning of the third week, when she had several attacks of the "spells" previously mentioned, which always occurred at night during sleep and resembled petit mal. In bed three weeks. Discharged from hospital October 27, 1909.

November 27, 1909. Has not had any diarrhea since leaving the hospital; bowels regular; takes one dose of the oil daily; gaining in flesh rapidly—about ten pounds;

good appetite and digestion; sleeps well; no more "spells."

March 10, 1910. Bowels continue normal. Has gained fifteen pounds.

Case 48.

A typical illustration of the progressive nature of the colonic ptosis in a case under observation three years, showing no colonic manifestations in its earlier history, but developing later because of increasing distention and angulation of the bowel.

Female; aged 22; married; two children, the youngest 1 year old. Patient of Dr. D. J. Jones.

September 28, 1906. Seeks relief for increasing weakness; loss of flesh and nervous exhaustion; pain in the back of head and in lower left abdomen, which she has had for several years. Is still nursing her child, but has irregular, painful periods. Defecation regular and has no mucus in stools; no leucorrhea. Heart normal, 86; temperature normal; urine normal.

Abdominal examination in dorsal position shows right kidney entirely below the costal margin without effort; left kidney not palpable; no marked abdominal tenderness.

Vaginal examination shows normal perineum; erosion and cysts of cervix and slight laceration of right side; hyperplastic uterus in normal position and mobility; appendages normal; right ovary prolapsed. Applied abdominal supporter, scarified cervix, and prescribed tonic.

October 29, 1906. Headaches no better; backache better. Sent her to oculist, who prescribed glasses for eye strain, thinking the presence of astigmatism the cause of the headache.

February 25, 1907. Headaches better.

August 2, 1909. For the past two years has been suffering more or less with the pain in the left side, which is now much worse. Is weak and anemic; has indigestion and constipation, and notices much mucus and sometimes blood in the stools. Has not worn the supporter for over a year.

On examination the right kidney was found quite loose in the abdomen, and also much sensitiveness in left side above the hip. The pelvic conditions were much the same as on the previous examination, excepting a more hyperplastic condition of the uterus. Operation advised.

September 27, 1909. Operation at Harper Hospital. Nephrocolopexy; curettage; trachelorrhaphy. Convalescence good. In bed eighteen days. Abdominal supporter applied on discharge from the hospital.

November 26. Bowels regular by the use of the oil. Fears dislodgment of kidney, as she has had a severe bronchitis and coughed much and violently. Examination showed the kidney in good position, though the lower pole could be palpated in the left lateral position.

January 10, 1910. Increasing in weight.

Case 49.

A good example of a case of coloptosis without nephroptosis, with the usual history of obscure symptoms and nondiagnosis—later diagnosis by radiography. Operation and cure.

Female; aged 29; housemaid; single.

December 4, 1908. Seeks relief for pains in back, head, hips, and abdomen, which she has had, gradually increasing, for two years; frequent attacks of palpitation, with sudden awakening at night; constant constipation, requiring use of laxatives and enemas; nervousness and tremor;

irregular painful menstruation; leucorrhea for several years. Has had a small goiter since she matured, but never had exophthalmus, and none now in evidence. Heart normal, 82; temperature normal; urine normal.

Abdominal examination in both dorsal and lateral positions negative, excepting for sensitiveness to pressure at McBurney's point and just below the navel.

Vaginal examination negative, excepting for a somewhat hyperplastic, retroverted, and flexed uterus, which

Fig. 63. Case 49.

was freely mobile and easily replaced in the knee-chest position. Operation advised.

December 8, 1908. Operation at Harper Hospital. Curettage; Alexander's operation. In bed fourteen days. Good recovery. On discharge prescribed petrolatum oil for the constipation.

February 26, 1909. Still somewhat constipated, and needs the enema occasionally to assist the oil in its action. Sleeps better, and has no palpitation. Uterus in normal position.

April 6, 1909. Heavy, bearing-down sensation in the abdomen; constipation more troublesome.

June 5, 1909. Complains of a "dragging" in the abdomen. Uterus in good position.

September 17, 1909. Pain in back and across abdomen; very constipated; oil and enema often fail to empty the bowel, showing that the fecal matter does not reach the descending colon.

September 24, 1909. Radiograph (Fig. 63) shows the cecum in the bottom of the pelvis and the transverse colon greatly prolapsed, indicating a sharp angulation at the splenic flexure. Operation advised.

October 2, 1909. Operation at Harper Hospital. Nephrocolopexy. Good recovery. In bed eighteen days. Discharged October 20, 1909. Abdominal supporter applied and the use of the oil continued as before operation. On discharge weighed one hundred and thirteen pounds.

November 30, 1909. Weighs one hundred and twenty-one pounds. Bowels regular by the use of the oil alone. Abdominal pain relieved.

February 5, 1910. Is perfectly well; has gone back to work.

Case 50.

Case of gastrocoloptosis without nephroptosis. Symptoms of an obscure character. Diagnosis made by radiograph. Operation restores normal nutrition and regulates colonic function.

Female; aged 56; single. Patient of Dr. E. T. Tappey.

Patient treated for about two years for displacements of uterus and ovaries, but since the menopause, at 50, these conditions had not demanded much attention.

April 20, 1908. Seeks relief for insomnia; loss of flesh —forty pounds in three years; progressively increasing

nervous irritability and depression; fears loss of mind (and looks it). Face drawn and distressed; complexion muddy; bowels very constipated and movements attended with pain in the abdomen. Much pain in the left side over the hip—especially at night when lying—and often has severe cramps of the muscles of the thigh of this side.

Repeated examinations in various positions showed both kidneys to be normally placed and no other ab-

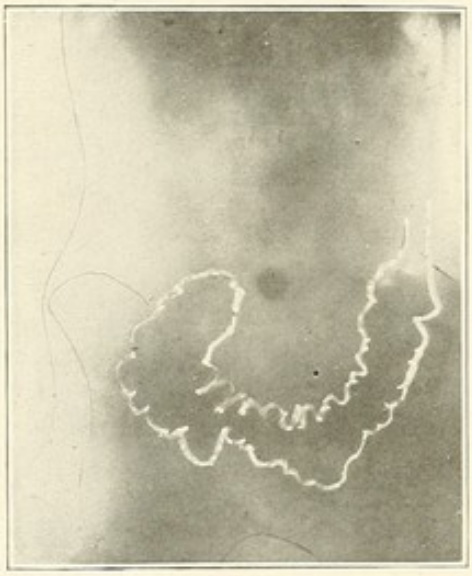


Fig. 64. Case 50.

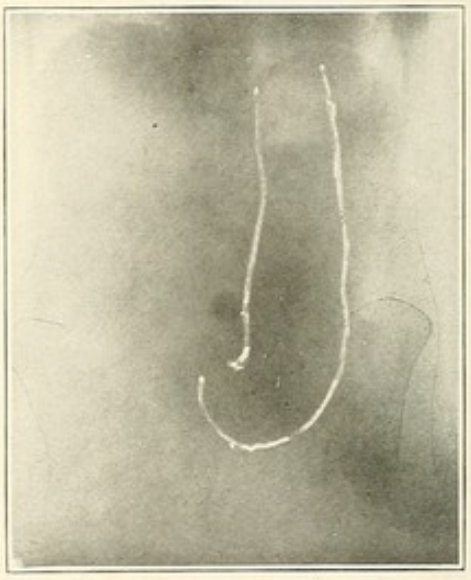


Fig. 65. Case 50.

dominal or pelvic trouble. Radiograph June 20, 1909, of stomach, and June 21 of colon (Figs. 64, 65) showed a gastrocoloptosis of exaggerated type.

July 10, 1909. Applied my abdominal band and prescribed petrolatum oil.

September 16, 1909. Reports some improvement in sleeping and bowel movements; still has abdominal pain, though less severe. Has gained three pounds since putting on the supporter, and says it gives her greater endurance. Operation advised.

October 15, 1909. Operation at Harper Hospital. Nephrocolopexy. Recovery without incident. In bed twenty-one days, and during the last fourteen days slept well, had very little abdominal pain, and not any of the muscular cramps. The usual daily enema of salt solution caused the old severe pain in the rectum, but when preceded the night before by an enema of 4 ounces of warm olive oil (retained), the action of the bowels by the enema of saline was natural and painless.

December 4, 1909. Has gained ten pounds since leaving the hospital; gaining in strength, and sleeps well. The bowels move nearly in a normal manner by the use of the petrolatum oil, but about twice a week there seems to be the same accumulation—apparently above the sigmoid—which is dislodged by the use of an enema to overflow of an alkaline starch solution (sod. bicarb. 3j to Oj). This acts very kindly on the irritable bowel, which often seems to be the active etiologic factor in the insomnia of these cases, and in this instance it proves of especial value, giving a good night after its use and leaving the bowel quiescent and free from pain.

Case 51.

Female; aged 35; single; housemaid.

October 14, 1909. Seeks relief for severe dyspepsia; catarrh of the bowel; great constipation; backache; insomnia.

Had an operation, per vaginam, for uterine adhesions by another surgeon six months ago. Operation was followed by infection and she was in bed two months with it. Heart normal, 80; temperature normal; urine normal.

Abdominal examination in the dorsal position was negative, but in the left lateral position the right kidney

dropped entirely below the costal margin. Left kidney in normal position and not palpable in either position.

Vaginal examination negative.

Operation advised.

November 9, 1909. Operation at Harper Hospital. Nephrocolopexy. Recovery without incident. In bed eighteen days. Abdominal supporter applied and petrolatum oil prescribed on discharge from the hospital.

Case not seen since discharged from the hospital.

Case 52.

Operation for coloptosis without nephroptosis. Dilatation of cecum the cause of symptomatology simulating that of appendicitis.

Female; aged 19; single; housemaid. Ward patient at Harper Hospital.

December 11, 1909. Referred to me by Dr. C. G. Jennings. Was sent to the hospital three days before by an outside physician for treatment for an attack supposedly of appendicitis. Patient said she had had three previous attacks similar to this, the first occurring four years ago, which kept her in bed for five weeks; one two years ago, and one six months afterward, the last two each of about three weeks' duration. Said she had chills and fever with them, and is certain she is feeling the same symptoms with this attack. Her record showed normal pulse and temperature, and normal urine. A blood examination had been made, which reported no leukocytosis, but a marked lymphocytosis. Has had severe constipation for four years, necessitating the habitual use of enemas and cathartics. Menstruation irregular, and of but *four hours'* duration each month. Has no history of any pelvic trouble, and no loss of flesh. Complains of

a stinging or smarting pain in the right side of the abdomen, which she has had almost constantly since the first attack of "appendicitis" four years ago. For the last five days has had severe pain in the same region, with great sensitiveness. No nausea; bowels constipated.

Examination in both dorsal and lateral positions failed to bring down either kidney, but great sensitiveness was shown on palpation at McBurney's point, and below on that side of the abdomen, which was dull on percussion.

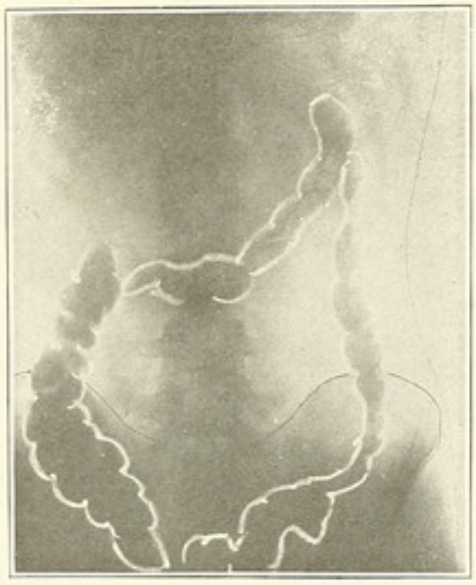


Fig. 66. Case 52.

The slightest touch caused the patient to cry out, but the board-like feel of muscular tension was absent, especially when the patient's attention was attracted away from the point.

Vaginal examination was attempted, but failed because of the complete filling of the lower pelvic cavity with fecal matter. Petrolatum oil ℥ss twice daily, and a saline enema morning and evening, were ordered, and the vaginal examination deferred for three days.

December 14, 1909. Vaginal examination was nega-

tive, excepting that it showed the presence of an infantile uterus. Abdominal examination was again made, when the sensitiveness at McBurney's point was found to have disappeared completely, and only a slightly sensitive area, low in the inguinal region, was found. Radiograph ordered.

December 15, 1909. The radiograph—an unusual one, showing the entire large intestine (Fig. 66)—revealed the trouble. A moderate relaxation of the hepatocolic ligament is shown, with descent of the cecum into the pelvis. The cecum is seen to be much elongated and dilated, which is the condition that has no doubt been causing the constant smarting pain, and when acutely distended, as a result of impaction farther along in the large intestine, gave rise to the acute symptoms which were thought to be caused by appendicitis.

Operation of nephrocolopexy was advised, and the condition explained to the patient, who insisted also on abdominal section and the examination of the appendix.

December 18, 1909. Operation. Nephrocolopexy and appendectomy. The nephrocolic ligament was long and lax, as previously noted in similar cases. The appendix was found easily, through a median incision, to be entirely normal, free from any signs of irritation or deformity, and its lumen pervious. As it was of very large size, being about six inches in length, and thus a possible menace to her future health, it was removed.

Recovery without incident. Patient not seen since discharge, January 10, 1910.

Case 53.

Complete nephrogastrocoloptosis in a male patient.

Male; aged 26; single; clerk. Patient of Dr. C. G. Jennings. Had been treated by a well-known gastro-enter-

ologist for two years and was wearing an abdominal band, which he reported had benefited him.

December 8, 1909. Seeks relief for nervousness; lack of ability to concentrate his thoughts; a severe constipation, which he has had for several years. Says he has no abdominal pain, sleeps well, and has not lost flesh. Body of thin habit, well developed; chest broad and of good capacity. Heart, temperature, and urine normal.

Abdominal examination in the dorsal position showed

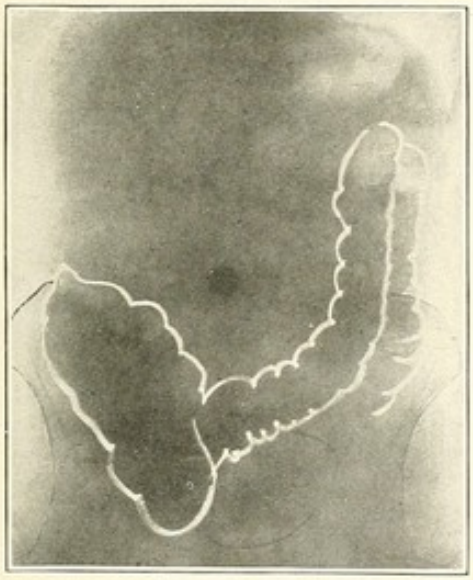


Fig. 67. Case 53.

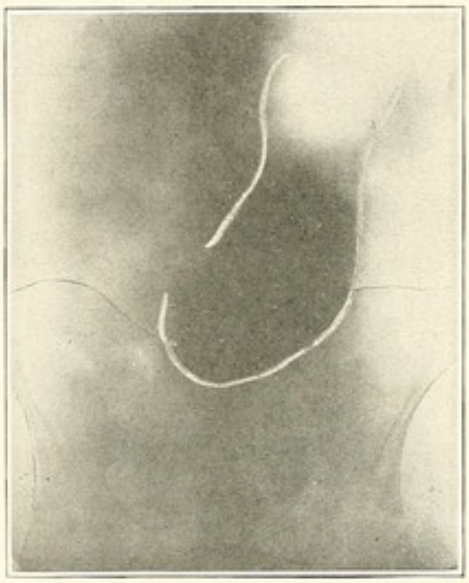


Fig. 68. Case 53.

the right kidney entirely below the costal margin without inspiratory effort. In the left lateral position the kidney could be palpated under the navel. No abdominal sensitiveness was found, excepting in the palpated dropped kidney.

Radiographs of stomach and large intestine showed extensive displacement of both organs and dilatation of cecum and stomach. (Figs. 67, 68.) The angulation of the bowel at the splenic flexure is shown unusually well, the descending colon passing down close behind the ascending portion of the transverse colon; the two light

spots indicating collections of gas at either side of the angulation. The showing would indicate complete relaxation of the hepatocolic ligament. Operation advised.

January 17, 1910. Operation at Harper Hospital. Nephrocolopexy. Ideal recovery.

Case 54.

Nephrogastrocoloptosis, in which a gastro-enterostomy was previously made because of duodenal occlusion.

Female; aged 42; married; no children.

November 9, 1909. Seeks relief for profound neurasthenia; headaches of a paroxysmal, violent character; melancholia; hysteria; flatulence; dyspepsia; pain in left hypochondrium; constipation and mucus in stools. Had the operation of gastro-enterostomy made eight years ago for gastroptosis, with partial occlusion of the pylorus, which was followed by some relief and gain in flesh. The last two years, however, she reports a steady loss of flesh and increase of nervous symptoms. Weight, eighty-nine pounds. Pulse slightly irregular, 100; heart normal; temperature 98°; urine normal.

Abdominal examination in dorsal position showed well-formed thorax, thin and relaxed abdominal walls, sensitiveness in right loin at McBurney's point. In the left lateral position the right kidney was brought completely below the costal margin on deep inspiration, and passed back into the renal fossa when released.

Vaginal examination was negative.

November 17, 1909. Radiograph of the colon was made (Fig. 69), showing complete relaxation of the hepatocolic ligament and descent of the gut into the pelvis. The sensitiveness noted, on examination, at the McBurney point is shown by the radiograph to be located in the dropped splenic flexure, or an angulation of the ascending colon—

the entire cecum and appendix being below this point in the bottom of the pelvis. With this position of the bowel, a sharp angulation at the splenic flexure would be inevitable, and the constipation and mucus stools explained. Operation of nephrocolopexy advised.

January 25, 1910. Operation at Harper Hospital. Recovery uneventful.

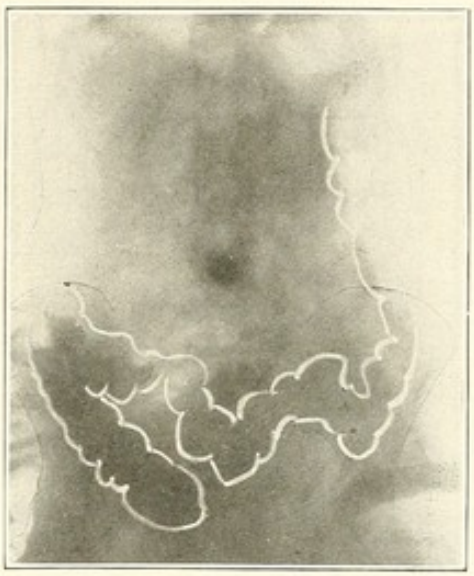


Fig. 69. Case 54.

February 22, 1910. Discharged from hospital, wearing abdominal supporter and taking petrolatum oil.

March 30, 1910. Reports from Atlantic City she has gained six pounds.

Case 55.

Frequent child-bearing causes characteristic symptoms of nephrocoloptosis to remain in abeyance. Needle wound of hilum of kidney causes temporary urinary fistula.

Female; aged 36; married; seven children in twelve years; patient of Dr. B. R. Shurly.

Seeks relief for loss of flesh—one hundred and forty pounds to one hundred and thirty pounds; frequent head-

aches; backache; leucorrhea; weakness and nervous exhaustion. Bowel movements always regular. Heart, temperature, and urine normal. Says all symptoms have increased gradually since the birth of the last child, two years ago.

Examination in the dorsal position showed thorax broad and flat; no abdominal tenderness; right kidney found at the navel without deep inspiratory effort; left kidney not displaced. Vaginal examination showed ruptured perineum of second degree; extensive bilateral laceration of cervix; endometritis. Operation advised.

February 11, 1910. Operation at Harper Hospital. Right nephrocolopexy; perineorrhaphy; trachelorrhaphy; curettage. Recovery uneventful until the twelfth day, when pain and tension in the well-healed wound in the loin was complained of. A small incision was made and a drainage tube inserted, from which urine escaped in considerable quantity for one month, when it gradually ceased, and the tube was removed.

April 7, 1910. Wound healed, and kidney in good position.

This accident was undoubtedly caused by a needle wound of the renal pelvis, which, with a very mobile kidney turned sideways to the wound, would bring it close enough to be punctured by a deep needle insertion. The occurrence should warn the operator against the unnecessarily deep insertion of sutures in this operation.

Case 56.

Appendectomy advised by several physicians because of pain at McBurney's point, caused by distention of the cecum and ascending colon—a characteristic symptom of coloptosis.

Female; aged 27; single; housemaid. Seeks relief for loss of flesh—one hundred and thirty pounds to one hun-

dred and thirteen pounds; pain in right side of abdomen, which is intensified by walking or standing. Heart, temperature, and urine normal.

Examination in the dorsal position showed sensitiveness at McBurney's point, but nothing more. In the left lateral position, deep respiratory effort brought the right kidney down very low in the abdomen, where it could be moved about at will. The left kidney could not be brought down. Vaginal examination negative. Operation of nephrocolopexy advised.

February 12, 1910. Operation at Providence Hospital. Recovery uneventful.

Summary of the Foregoing Reports of Cases, on All of

No.	Sex	Age	Marr'd or single	Children	Diagnosis	Date of operation	Additional operations	Suture material used in nephrocolopexy
1	F	26	M	1	Right nephrocoloptosis; retroversio uteri; lacerated cervix	Jan. 8, 1906	Alexander's operation; trachelorrhaphy	20-day catgut
2	F	26	S	0	Right nephrocoloptosis; cervical stenosis	Jan. 13, 1906	Dilatation cervix	Same
3	F	27	M	1	Right nephrocoloptosis; ruptured perineum; hemorrhoids	Feb. 15, 1906	Perineorrhaphy; Whitehead's operation	Same
4	F	34	S	0	Right nephrocoloptosis	March 10, 1906	None	Same
5	F	28	S	0	Same	March 12, 1906	None	Same
6	F	29	S	0	Same	March 17, 1906	None	Same
7	F	31	M	1	Right nephrocoloptosis; cicatricial stenosis os uteri	June 2, 1906	Incision; dilatation os uteri	Same
8	F	54	M	10	Right nephrocoloptosis; varices; ruptured perineum; lacerated cervix	June 6, 1906	Perineorrhaphy; trachelorrhaphy; curettage; ablation of varices	Same
9	F	27	S	0	Right nephrocoloptosis; endometritis	July 6, 1906	Curettage	Same
10	F	29	M	0	Right nephrocoloptosis; adhesions	Sept. 19, 1906	Exploratory abdominal section	Same
11	F	19	S	0	Coloptosis (without nephroptosis); uterine polyp	Sept. 28, 1906	Curettage; extirpation of polyp	Same
12	F	42	M	0	Right nephrocoloptosis	Oct. 5, 1906	None	Same
13	F	32	M	3	Right nephrocoloptosis; lacerated cervix; endometritis	Oct. 18, 1906	Trachelorrhaphy; curettage	Same
14	F	40	M	1	Right nephrocoloptosis; endometritis	Oct. 20, 1906	Curettage	20-day catgut silkworm gut in skin
15	F	42	S	0	Right nephrocoloptosis; uterine myoma; adherent appendix; retroversion	April 3, 1907	Abdominal section; myomectomy; appendectomy; Alexander's operation	20-day catgut; silver wire; silkworm gut in skin
16	F	41	M	1	Right nephrocoloptosis; uterine myoma; hydrosalpinx; appendicitis	April 16, 1907	Abdominal section; myomectomy; salpingo-oöphorectomy; appendectomy	Same
17	F	56	M	3	Right nephrocoloptosis; cholelithiasis	May 14, 1907	Abdominal section; cholecystostomy	Same
18	F	26	M	0	Right nephrocoloptosis	May 18, 1907	None	Same
19	F	41	S	0	Right nephrocoloptosis; endometritis; uterine myoma	May 20, 1907	Abdominal section; myomectomy; curettage	Same
20	F	28	S	0	Right nephrocoloptosis; endometritis	May 29, 1907	Curettage	Same
21	F	31	S	0	Right nephrocoloptosis; hematocystic ovaries	June 21, 1907	Abdominal section; bilateral oöphorectomy; curettage	Same
22	F	36	M	1	Right nephrocoloptosis; lacerated cervix; ruptured perineum	June 24, 1907	Trachelorrhaphy; perineorrhaphy	Same
23	F	23	S	0	Right nephrocoloptosis; retroversion; endometritis	June 29, 1907	Alexander's operation; curettage	Same
24	F	30	M	0	Right nephrocoloptosis; endometritis	July 5, 1907	Curettage	Same
25	F	30	S	0	Right nephrocoloptosis; retroversion; endometritis	Sept. 20, 1907	Alexander's operation; curettage	Same
26	F	41	M	4	Right nephrocoloptosis	Sept. 23, 1907	None	Same

[1] Child born since operation; organs remain in normal position.
[2] Fall after operation caused partial displacement of kidney; did not prevent good results.
[3] Last report states "occasional constipation."
[4] Failure to improve symptoms due to neurotic tendency.
[5] First case of operation on case of coloptosis without nephroptosis: severe constipation cured.

Which the Operation of Nephrocolopexy was Performed.

No.	Bed convalescence	Late convalescence	RESULTS				
			Position of kidney	Defecation	Weight	Nervous symptoms	Abdominal pain
1	Afebrile	Good	Normal; not palpable	Normal	Increased	Much improved	Entirely relieved[1]
2	Same	Same	Same	Same	Increased 10 pounds	Same	Same
3	Same	Interrupted by accident	Two-thirds palpable below costal margin	Same	Increased 21 pounds	Same	Same[2]
4	Septic	Not good	Reported prolapsed	Not known	Not known	Not known	No report
5	Afebrile	Good	Normal; not palpable	Normal	Slight increase	Improved	Improved
6	Same	Same	Same	Same	No report	Same	Same
7	Same	Same	Lower pole barely palpable below costal margin	Same	Increased 15 pounds	Much improved	Entirely relieved
8	Slow; good as to nephrocolopexy	Slow	Same	Same	Increased 10 pounds	Improved	Same
9	Afebrile	Good	Normal; not palpable	Same	Increased 12 pounds	Much improved	Same[3]
10	Same	Slow owing to nausea	Same	Same	No increase	No improvement	Improved[4]
11	Same	Good	Was not displaced	Same	Increased 15 pounds	Much improved	Occasional pain in cecum due to gas[5]
12	Same	Same	Normal	Nearly normal	Increased 22 pounds	Same	Entirely relieved[6]
13	Same	Slow	Lower pole barely palpable below ribs	Normal	Slight increase	Slightly improved	Improved[7]
14	Good except for urinary fistula	Same	Normal; not palpable	Same	Increased 20 pounds	Much improved	Entirely disappeared[8]
15	Good except pleurisy 10th day	Good	Same	Normal; uses oil occasionally	Increased 10 pounds	Same	Same
16	Good after 10th day	Slow	Same	Same	Increased 18 pounds	Same	Only occasional pain
17	Afebrile	Good	Same	Normal	Increased 20 pounds	Same	Entirely relieved
18	Slow due to phlebitis in left leg	Same	Same	Same	Increased 8 pounds	Same	Same[9]
19	Afebrile	Same	Lower pole barely palpable in left lateral position	Same	Increased 26 pounds	Same	Same
20	Same	Same	Normal; not palpable	Same	Increased 15 pounds	Same	Same
21	Same	Same	Same	Same	Increased considerably	Same	Same
22	Slow; good as to nephrocolopexy	Same	Same	Same	No report	Much improved	Same
23	Afebrile	Same	Lower pole barely palpable	Same	No report	Improved	Same
24	Same	Same	Normal; not palpable	Same	Increased 18 pounds	Much improved	Same
25	Same	Same	Lower pole barely palpable	Same	Increased 15 pounds	Same	Same
26	Septic	Slow	Normal; not palpable	Same	Increased 35 pounds	Same	Same

[6] Had chronic diarrhea; now reports she has to use an occasional enema.
[7] Very neurotic and of a uric acid diathesis.
[8] Urinary fistula occurred in wound; entirely healed in three months.
[9] Wound healed perfectly; phlebitis only in left leg.

Summary of the Foregoing Reports of Cases, on All of

No.	Sex	Age	Marr'd or single	Children	Diagnosis	Date of operation	Additional operations	Suture material used in nephrocolopexy
27	F	57	M	5	Right nephrocoloptosis; retroversion; endometritis	Oct. 12, 1907	Alexander's operation; curettage	20-day catgut; silver wire; silkworm gut in skin
28	F	47	M	1	Right nephrocoloptosis;	Dec. 31, 1907	None	Same
29	F	31	M	3	Right nephrocoloptosis; ruptured perineum; retroversion	April 17, 1908	Perineorrhaphy; Alexander's operation	Same
30	F	23	S	0	Right nephrocoloptosis; left cystic ovary	April 28, 1908	Abdominal section; left oöphorectomy	Same
31	F	45	M	2	Right nephrocoloptosis; ruptured perineum; endometritis	May 28, 1908	Perineorrhaphy; curettage	Same
32	F	38	M	1	Right nephrocoloptosis	July 7, 1908	None	Same
33	F	30	M	3	Right nephrocoloptosis; retroversion	Sept. 30, 1908	Alexander's operation	Same
34	F	42	M	2	Right nephrocoloptosis; ruptured perineum; lacerated cervix; endometritis	Nov. 3, 1908	Perineorrhaphy; trachelorrhaphy; curettage	Same
35	F	44	M	1	Right nephrocoloptosis; ruptured perineum; uterine polyp	Nov. 11, 1908	Perineorrhaphy; excision of polyp	Same
36	F	31	M	7	Right nephrocoloptosis; retroversion; endometritis	Nov. 28, 1908	Alexander's operation; curettage	20-day catgut; silver wire; buried subcutaneous catgut
37	F	42	M	1	Right nephrocoloptosis; ruptured perineum; endometritis	March 4, 1909	Perineorrhaphy; curettage	Same
38	F	25	S	0	Right nephrocoloptosis	April 13, 1909	Dilatation cervix	Same
39	F	26	M	0	Right nephrocoloptosis; retroversion	June 12, 1909	Alexander's operation	Same
40	F	33	M	0	Right nephrocoloptosis; endometritis	June 23, 1909	Curettage	Same
41	F	26	S	0	Right nephrocoloptosis; retroversion; endometritis	June 29, 1909	Alexander's operation; curettage	Same
42	F	42	M	3	Coloptosis (without nephroptosis)	July 1, 1909	None	Same
43	F	30	S	0	Coloptosis (without nephroptosis); cystic ovaries	July 15, 1909	Abdominal section; bilaterial salpingo-oöphorectomy	Same
44	F	28	S	0	Right nephrocoloptosis	Sept. 15, 1909	None	Same
45	F	33	S	0	Right nephrogastrocoloptosis; endometritis	Sept. 15, 1909	Curettage	Same
46	F	31	M	0	Right nephrogastrocoloptosis; ruptured perineum; retroversion	Sept. 25, 1909	Perineorrhaphy; Alexander's operation	Same
47	F	22	M	2	Right nephrocoloptosis; lacerated cervix; endometritis	Sept. 27, 1909	Trachelorrhaphy; curettage	Same
48	F	37	M	1	Right nephrocoloptosis	Sept. 29, 1909	None	Same
49	F	29	S	0	Coloptosis (without nephroptosis)	Oct. 2, 1909	None	Same
50	F	56	S	0	Gastrocoloptosis (without nephroptosis)	Oct. 15, 1909	None	Same
51	F	35	S	0	Right nephrocoloptosis	Nov. 9, 1909	None	Same
52	F	19	S	0	Coloptosis (without nephroptosis)	Dec. 18, 1909	Abdominal section; appendectomy	Same
53	M	26	S	0	Right nephrogastrocoloptosis	Jan. 17, 1910	None	Same
54	F	42	M	0	Right nephrocoloptosis	Jan. 25, 1910	None	Same
55	F	36	M	7	Right nephrocoloptosis; ruptured perineum; lacerated cervix; endometritis	Feb. 11, 1910	Perineorrhaphy; trachelorrhaphy; curettage	Same
56	F	27	S	0	Right nephrocoloptosis	Feb. 12, 1910	None	Same

[10] Sleeps very much better.
[11] The last case in which the external cutaneous suture was used.

Which the Operation of Nephrocolopexy was Performed.

No.	Bed convalescence	Late convalescence	RESULTS				
			Position of kidney	Defecation	Weight	Nervous symptoms	Abdominal pain
27	Septic	Slow	Normal; not palpable	Normal	Increased 25 pounds	Much improved	Entirely relieved
28	Afebrile	Good	No report	No report	No report	Improved	No report
29	Same	Same	Lower pole barely palpable	Normal	Increased 15 pounds	Much improved	Entirely relieved
30	Same	Same	Normal; not palpable	Same	Increased 25 pounds	Same	Same
31	Same	Same	Same	Same	Increased	Little improvement	Same
32	Same	Same	Entire kidney palpable, but not movable	Same	Increased 4 pounds	Improved	Still some in both sides, but less severe[10]
33	Same	Same	Normal; not palpable	Same	Increased	Same	Relieved
34	Same	Slow	Same	Same	Increased 13 pounds	Much improved	Improving
35	Septic	Same	Same	Same	Increased 13 pounds	Improving	Same[11]
36	Afebrile	Good	Lower pole palpable	Same	Increased 10 pounds	Much improved	Entirely relieved
37	Same	Same	Normal; not palpable	Same	Increased 32 pounds	Same	Same
38	Same	Same	Same	Same	Increased 14 pounds	Same	Same
39	Same	Same	Same	Same	Much increased	Same	Same
40	Same	Same	Same	Same	Increased 14 pounds	Same	Same
41	Same	Same	Same	Same	Increased 21 pounds	Same	Same
42	Same	Same	Not displaced	Same	Increased 10 pounds	Same	Same
43	Febrile due to bilateral phlebitis	Slow	Normal; not palpable	Same	Increasing	Improving	Improving[12]
44	Afebrile	Good	Same	Same	Increased 5 pounds	Same	Same
45	Same	Same	Same	Improving by use of oil and enema occasionally	Increased 6 pounds	Same	Same
46	Same	Same	Same	Normal	Increased 10 pounds	Much improved	Entirely relieved
47	Same	Same	Lower pole palpable	Same	Increasing	Improving	Same
48	Same	Same	Normal; not palpable	Same	Increased 15 pounds	Same	Same
49	Same	Same	Not displaced	Same	Increased 8 pounds	Same	Same
50	Same	Same	Same	Improving	Increased 10 pounds	Same	Improving
51	Same	Same	No report	No report	No report	No report	No report
52	Same	Same	Not displaced	Same	Same	Same	Same[13]
53	Same	Same	Normal: not palpable	Improving by use of oil	Gaining rapidly	Improving	Relieved
54	Same	Same	Same	Normal	Increased 6 pounds	Same	Improving
55	Same	Slow	Lower pole palpable	Same	No increase	No report	No report
56	Same	Good	Normal; not palpable	Same	Increased 2 pounds	Improving	Improving

[12] Wounds healed perfectly by first intention.
[13] Appendix not diseased, but removed because of its great size.

Analysis of the Summary of Reports of Cases.

Number of cases of operation of nephrocolopexy since January 8, 1905	56
Cases in which additional operations were made	38
Mortality	None

RESULTS.

Position of the kidney:	
Normal (not palpable in any position)	36
Slightly movable (only lower pole palpable in any position)	10
Loosely fixed (not floating)	2
Entire failure of fixation (failure due to sepsis)	1
Cases of coloptosis (in which the kidney was not dislodged)	6
Not reported	1
Regulation of the movements of the bowels:	
Normal (without medication, excepting the use of petrolatum oil)	48
Improved	5
Not reported	3
Effect on nutrition as shown by body weight:	
Increase of from two to thirty-five pounds	38
Increase (amount not stated)	8
No increase	2
Not reported	8
Effect on the nervous system:	
Much improved	31
Slightly improved and improving	20
Not improved	1
Not reported	4
Effect on abdominal pain:	
Entirely relieved	35
Partially relieved and improving	16
Not reported	5

The most notable and significant immediate betterments are improved nutrition, as shown by increase of body weight—which, in some cases, is very rapid—and relief from colonic catarrh, constipation, and the general symptoms of colonic irritability, as shown by the regulation of the natural movements of the bowels.

Just what is accomplished by the fixation of the bowel that leads to the remarkable improvement in the action of the colon has been an interesting study. Until postoperative radiographs were made the author attributed the improvements entirely to the elevation of the cecum

and ascending colon, but, as the radiographs—even in the best cases of recovery—indicate too little change in this respect to be counted on as the only positive factor, he has come to the conclusion that the improvement is largely due to the **immobilization** of the gut, caused by the fixation, which acts as a substitute for the relaxed and deficient or absent hepatocolic ligament. The reverse peristalsis, alternating with the forward peristalsis, producing the **churning** action of this part of the colon, is probably facilitated by the fixation, as well as the passage of the contents of the bowel over the hepatic flexure. The benefit to nutrition is attributed to the removal of the traction on the duodenum as well as to the resumption of the normal action of the cecum. The neurasthenia disappears more slowly, but does so surely as the nutrition continues to improve.

The operation, as performed by the author, is quite a simple procedure when once the technic is mastered, and, as is seen by the foregoing report, is practically free from danger to life. It being made with a minimum dissection and mutilation of the parts consistent with the object to be attained (the fixation of the nephrocolic ligament), the shock is comparatively nil, and the pain following not of a severe character and of but a few hours' duration. Its usefulness in restoring the normal colonic function in cases of nephrocoloptosis led the author to employ it also in the cases above reported of coloptosis only. While they are of a very limited number on which to base any conclusive deductions, the beneficial results have been so immediate and positive that the outlook for its usefulness in cases of colonic ptosis attended with catarrh, constipation, or diarrhea would seem very good, and warrant its farther application in all such cases as a safe and efficient remedy.

Cases Not Yet Come to Operation.

The following report of cases which have not yet come to operation is given for the purpose of illustrating valuable points relating to the text, and especially to show the diagnostic possibilities of the radiograph, its value being strikingly illustrated in some of the cases of obscure symptomatology.

Case A.

Enormous dilatation of cecum and transverse colon, with complete nephrocoloptosis.

Female; aged 25; married one year; never pregnant. Patient of Dr. C. G. Jennings.

October 15, 1908. Seeks relief for neurasthenia; progressive loss of flesh—fifteen pounds in a year; lack of endurance; flatulence; dyspepsia; backache; leucorrhea; menorrhagia. The mother of this patient had a floating kidney all of her adult life, but otherwise the family history was good. Figure good and thorax not of the barrel-shape type. Heart normal; pulse, 100; temperature, 98°; urine normal.

Abdominal examination in the dorsal decubitus showed thin abdominal walls; sensitiveness at McBurney's point and in the right inguinal region; on deep inspiratory effort the right kidney was brought entirely below the costal margin. In the left lateral position the kidney dropped below the navel. The left kidney could not be palpated in any position.

Vaginal examination showed vagina and cervix normal, uterine body larger than normal, and continuous with it on the right side a very sensitive tumor, which apparently consisted of the fallopian tube and ovary of that side in a condition of acute congestion. The pelvic condition was

treated by local antiphlogistics and disappeared entirely in about six weeks.

November 23, 1908. A radiograph showed very extensive coloptosis (Fig. 70) and dilatation of the cecum and first half of the transverse colon. The abdominal

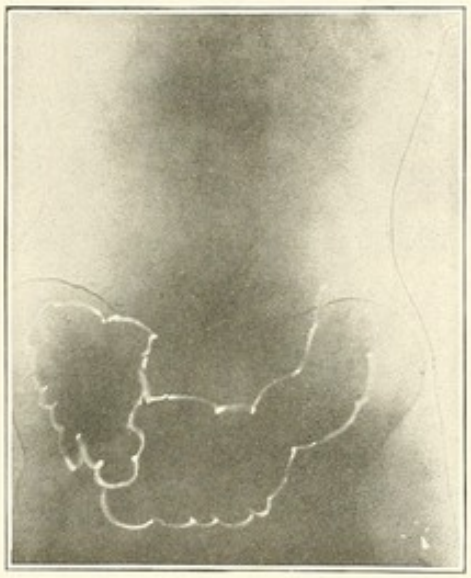


Fig. 70. Case A.

supporter was then applied and the operation of nephrocolopexy advised. Considerable relief followed the use of the supporter—so much so that the patient still defers the operation.

Case B.

Complete nephrocoloptosis.

Female; aged 32; single; teacher. Patient of Dr. P. M. Hickey.

January 23, 1909. Seeks relief for pain in left side of abdomen; flatulence; severe constipation (for five years); progressive emaciation and debility; enlarged lymphatic glands in the neck were present, which were suspected to be tuberculous. Heart normal; temperature normal; pulse, 80; urine normal. Thorax narrow and barrel-shaped.

Abdominal examination in dorsal position showed tympanitic fullness and sensitiveness in left side; sensitiveness at and below McBurney's point; the right kidney lying loose near the navel, and could be replaced manually up into the renal fossa. The left kidney could not be palpated in any position.

January 25, 1909. A radiograph of the large intestine (Fig. 71) showed the result of complete relaxation of the hepatocolic ligament in the descent of the cecum and

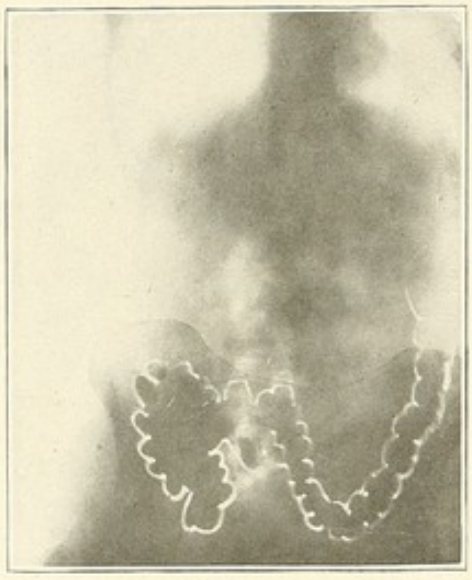


Fig. 71. Case B.

transverse colon into the pelvis as far as gravity and the firmly attached splenocolic ligament would permit. The radiograph also shows dilatation of the cecum, and illustrates well the position of the dropped transverse colon, with its sag to the left, ascending left half, and consequent formation of an acute angle at its junction with the descending colon to cause the sharp obstructive angulation at the splenic flexure. The latter condition explains the cause of the tympanites and pain complained of in the left side of the abdomen, which is a characteristic symptom in cases of complete colonic ptosis.

Operation of nephrocolopexy was advised, and arrangements made for the operation, but the date deferred from time to time because of slight activity manifested in the cervical lymphatic glands, and at last given up because of the development of pulmonary tuberculosis.

Case C.

Right nephrocoloptosis. Enormous cecum. Notable as showing no descent of hepatic flexure.

Female; aged 26; married; no children. Referred to me by Dr. L. Breisacher.

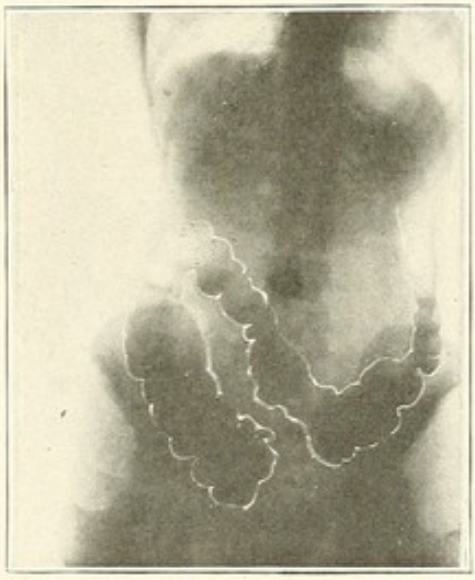


Fig. 72. Case C.

January 25, 1909. Seeks relief for excessive nervousness; emaciation; headaches; nausea; frequent attacks of itching over the entire body; constipated bowels; general debility. Can walk but little, and spends much of her time on the couch. Heart, temperature, and urine normal.

Examination in the dorsal position showed a narrow, barrel-shaped thorax, with rather full abdomen and poor

muscular development; sensitiveness over McBurney's point was marked, and a lesser sensitive point found deep in the pelvis on the left side. Neither kidney could be palpated in that position. In the left lateral position the right kidney was forced below the costal margin by the inspiratory effort, and was freely movable in the region of the navel. The left kidney could not be palpated in either position.

Vaginal examination was negative.

June 29, 1909. A radiograph (Fig. 72) showed an enormously distended and elongated cecum and a dropped transverse colon, producing the characteristic splenic acute angle. This radiograph differs from all the others here shown in that there is little, if any, dropping of the hepatic flexure indicated, and is the only case of coloptosis which I have ever met with that did not have this feature. It seems to be a case similar to those described by Lane, in which he advises complete extirpation of the colon.

The operation of nephrocolopexy was advised.

Case D.

Severe paroxysmal headaches caused by complete nephrocoloptosis.

Female; aged 30; married; two children. Patient of Dr. Belanger.

January 26, 1909. Seeks relief for almost constant headache, which at times becomes agonizing, especially caused by unusual muscular effort or mental disturbance; constant pain in the lower part of the abdomen; severe morning headache; much mucus in stools, which are regular, but often loose, and attended with pain in the abdomen; pain in the abdomen also caused by the act of mic-

turition, which is not frequent nor productive of ureteral or vesical pain; progressive loss of flesh. Heart normal; pulse, 75; temperature, 98°. Urine—specific gravity, 1,008; alkaline; turbid with urates.

Abdominal examination in dorsal decubitus showed a narrow lower thorax; flat, flaccid abdomen, sensitive across the entire lower half; otherwise negative, even the inspiratory effort failing to dislodge either kidney. In the left lateral decubitus, deep inspiration forced the

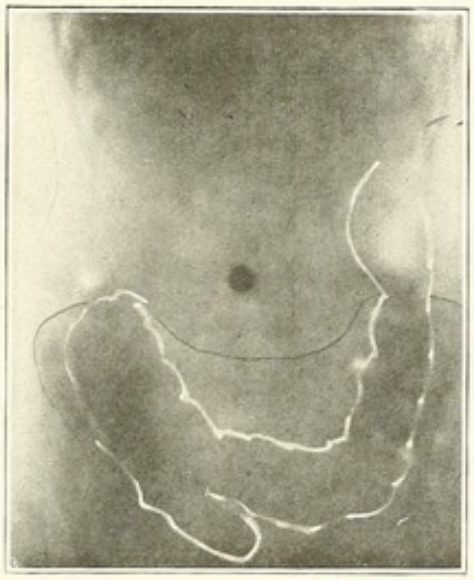


Fig. 73. Case D.

right kidney quickly and entirely below the costal margin, where it remained until replaced manually. The left kidney could not be palpated in any position.

Vaginal examination negative, excepting showing cervical endometritis.

At the conclusion of the examination the patient was seized with one of the characteristic paroxysms of pain in the head of which she had spoken, and was completely prostrated by it for half an hour, holding the head firmly in both hands and pressing the forehead against the

couch while kneeling on the floor. She did not cry out, but moaned, and seemed in great agony.

January 28, 1909. A radiograph (Fig. 73) showed complete colonic ptosis, with occlusion at the splenic flexure and dilatation of the entire gut, the condition explaining the cause of the constant pain in the lower abdomen.

Nephrocolopexy was advised, but the patient did not return, and the farther history of this interesting case is unknown to me.

Case E.

Cecal distention mistaken for appendicitis for several years.

Female; aged 50; married; never pregnant.

First treated this patient in 1893, when she gave a history of an old tubal infection, and was then having endometritis, and occasional attacks of pain in the right side of the abdomen, the latter thought to be caused by appendiceal irritation of some kind. The author treated her for these attacks, which were never attended with rise of temperature or acceleration of pulse, for ten years following, during which time appendectomy was proposed several times and refused. Each attack was supposed to be fraught with danger of a genuine appendicitis, and the patient was advised to have the appendix removed between attacks. With my present knowledge of the symptomatology of colonic ptosis and the diagnostic technic as applied to nephroptosis, this patient would not have passed all of these years, having attacks of pain at the McBurney point, without the discovery of the fact that the appendix was far from this supposed area of its location, and that the sensitive spot was really in the distended ascending colon and cecum, or possibly in the angulation caused by the dropping of the hepatic flexure.

This case is a good illustration of many similar ones having supposed mild attacks of appendicitis, operated on as such, and perfectly normal appendices removed.

The patient was lost sight of for a number of years, and returned January 27, 1909, complaining of the same old pain in the side, and giving a history of having had gastric irritability and nausea for several months.

Abdominal examination in the left lateral position,

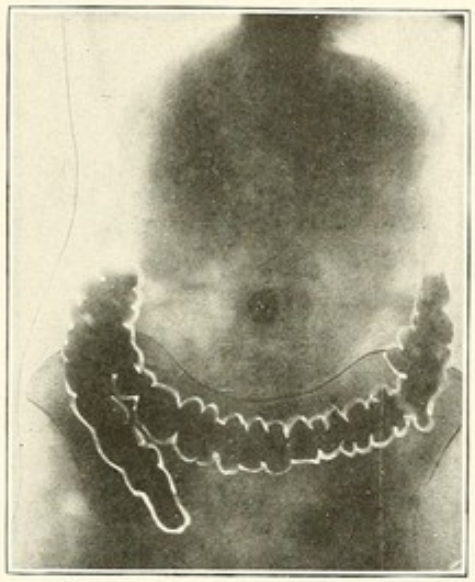


Fig. 74. Case E.

with inspiratory effort, brought the right kidney well down into the abdomen. The left kidney could not be dislodged in any position.

January 29, 1909. A radiograph (Fig. 74) showed a nearly complete coloptosis, and located the position of the appendix much nearer the uterus than at McBurney's point.

Operation was advised, but has not yet been decided on by the patient.

Case F.

Great dilatation of cecum and transverse colon, the latter at the splenic flexure.

Female; aged 37; married; mother of four children.

February 13, 1909. Seeks relief for a burning sensation over the entire abdomen; quite constant pain in the left side above the hip; dryness of the mouth; alternating constipation and diarrhea; loss of flesh and strength. Heart, temperature, and urine normal.

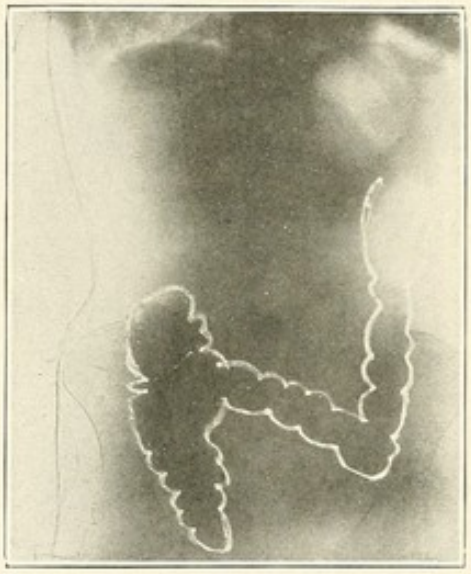


Fig. 75. Case F.

Abdominal examination in the dorsal position showed a broad, roomy lower thorax; thin, flat abdomen; sensitiveness over McBurney's point. Neither kidney palpable.

In the left lateral position the right kidney was brought down entirely below the costal margin by inspiratory effort. The left kidney could not be dislodged.

Vaginal examination was negative.

February 15, 1909. A radiograph (Fig. 75) showed a completely dropped colon; dilated cecum, with its lower

end lying in the bottom of the pelvis, indicating the position of the appendix at this point; dilated transverse colon at its partial occlusion at the splenic flexure. The angulation at the splenic flexure is doubtless the cause of the pain above the hip, and the burning sensation across the abdomen results from the process of dilatation which the gut is constantly undergoing because of its inability to force its contents normally over this angulation. Operation advised.

Case G.

A life sacrificed to a wrong diagnosis.

Female; aged 36; married; no children; factory hand.

April 21, 1909. Seeks relief for pain in the left side of the abdomen above the hips; constipation; weakness and continued loss of flesh—one hundred and thirty-six pounds to one hundred and twelve pounds in three years. Is very nervous and can work but about half the time, and often has to leave her work because of exhaustion and pain in the side. Has large frame, broad chest and abdomen. Heart and temperature normal; urine high specific gravity and full of urates.

Abdominal examination in the dorsal position showed sensitive areas in the left epigastrium and right lumbar regions. Neither kidney could be forced below the costal margin by deep inspiration while in this position, but in the left lateral position the inspiratory effort brought the right kidney entirely below, where it could be felt lying loose, and in the right lateral position the left kidney was brought partly below the costal margin in a similar manner.

Vaginal examination showed a mobile retroversion of the third degree, which was easily replaced; normal adnexa.

April 24, 1909. A radiograph (Fig. 76) showed the complete ptosis of the bowel.

Operation of bilateral nephrocolopexy and Alexander's

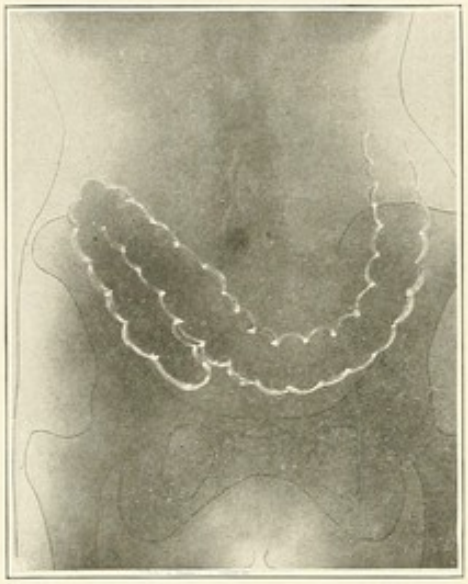


Fig. 76. Case G.

operation advised, and hospital arrangements made, but the patient sought other advice, and died of pneumonia following an abdominal section three weeks later.

Case H.

Complete gastrocoloptosis, with moderate nephroptosis.

Female; aged 29; married; mother of three children.

June 25, 1909. Seeks relief for neurasthenia; progressive emaciation; pain in the abdomen and "bearing down;" constipation; backache; dyspepsia; nausea. Besides bearing her children, during the last seven years she has had a stormy operative career—appendectomy at one time, curettage and perineorrhaphy at another, and an abdominal section for adhesions at last. A tubal infection a year ago still further complicated the pathology.

Has had a daily rise of temperature of from one-half to two degrees during the last three years. Heart normal; pulse, 110; temperature, 99.2°; urine normal.

Abdominal examination in the dorsal position showed a roomy, broad thorax; sensitiveness over the whole abdomen, but especially at McBurney's point, and in the median line below the navel. Neither kidney palpable in this position. In the left lateral position the right kid-

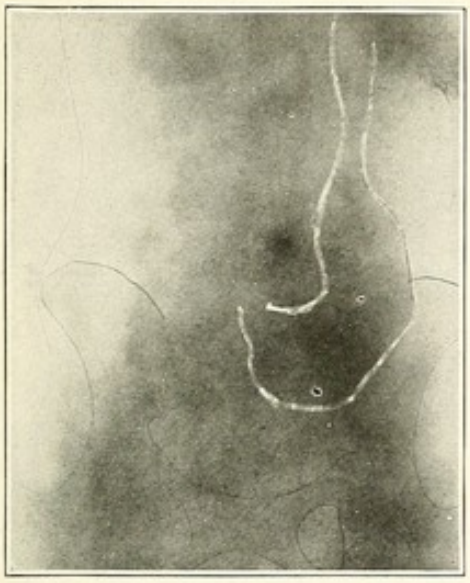


Fig. 77. Case H.

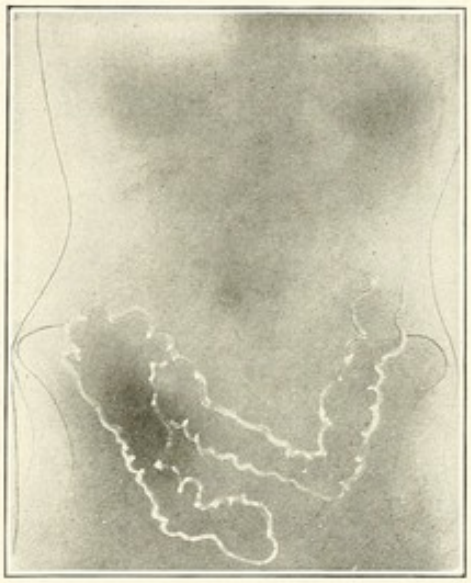


Fig. 78. Case H.

ney became entirely palpable below the costal margin, being dislodged by inspiratory effort. The left kidney could not be brought down.

Vaginal examination showed a lacerated cervix; normal uterus; slightly enlarged and adherent right fallopian tube.

January 29, 1909. Radiographs of stomach and colon (Figs. 77, 78) showed extensive displacement in both instances. A more complete prolapse of the hepatic flexure, as a result of relaxation of the hepatocolic ligament, is rarely seen. The appendix, if one were present, would

be lying in the median line, against the uterus or bladder. What value would the usual diagnostic sign of pain and tenderness at McBurney's point have in a case of this kind if attacked with appendicitis? On the other hand, how misleading is this sign when applied to these cases, almost all of which have both pain and sensitiveness in this region, caused by the distended cecal end of the gut. Note the distention in this case of the hepatic flexure, which lies at and below McBurney's point.

An abdominal supporter was applied, but it caused nausea each time that it was worn for more than an hour, so that its use was discontinued after a number of persistent trials. Adhesions are doubtless present, as a result of the tubal inflammation, and the stomach and colon probably bound fast in their present positions by adherent omentum.

The operations considered necessary in this case are trachelorrhaphy, curettage, abdominal section, with the removal of the utering appendages and breaking up of adhesions, and nephrocolopexy. The patient is now considering such a proposition.

Case I.

Enormously dilated cecum and complete gastrocoloptosis without nephroptosis.

Female; aged 33; married; mother of two children. Patient of Dr. C. G. Jennings.

February, 1906. I restored a completely retroverted uterus by the Alexander operation, and at the same time performed trachelorrhaphy and perineorrhaphy. Since that time her second child was born, the uterus and repaired parts remaining intact thereafter.

July 12, 1909. The patient returned, complaining of

frequent headaches and bilious attacks, and soreness in the right side of the abdomen; neurasthenia; dyspepsia, and loss of flesh.

Abdominal examination in both dorsal and lateral positions failed to dislodge either kidney, but, the symptoms being characteristic of colonic or gastric ptosis, a radiograph was ordered taken.

January 14, 1909. Radiographs of stomach and colon (Figs. 79, 80) showed extensive gastrocoloptosis, and in-

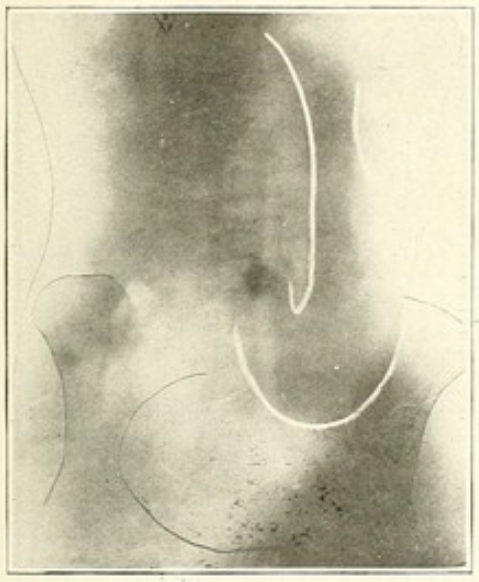


Fig. 79. Case I.

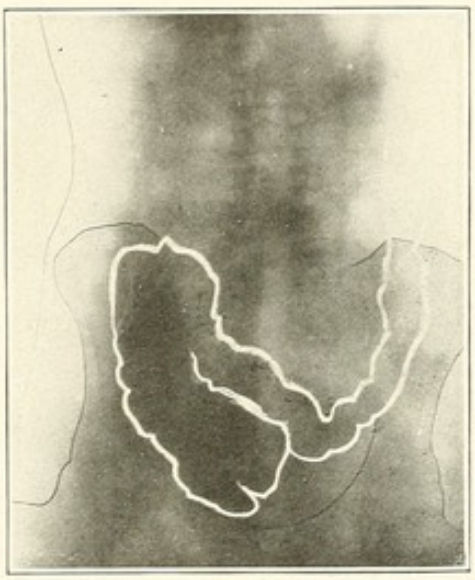


Fig. 80. Case I.

dicated clearly the cause of the symptomatology. Here was a case having a weak or relaxed hepatocolic ligament, allowing the hepatic flexure to drop to a point below the level of the navel, and having a long nephrocolic ligament, which prevented the usual renal displacements. The cecum is seen to be much enlarged, its distention being doubtless the cause of the pain in this side of the abdomen. The cecal distention is the natural sequence following the angulation at both the hepatic and splenic flexures, more especially of the latter, which is always the most acute, and, being firmly fixed in its position, the

backing up of fecal contents is usually from this point.

Operation of nephrocolopexy was advised, but has been deferred.

Case J.

Extensive coloptosis without nephroptosis, causing malnutrition and emaciation.

Female; aged 30; single. Patient of Dr. C. G. Jennings.

July 30, 1909. Seeks relief for gradually increasing debility, neurasthenia, anemia, and loss of flesh. Has lost

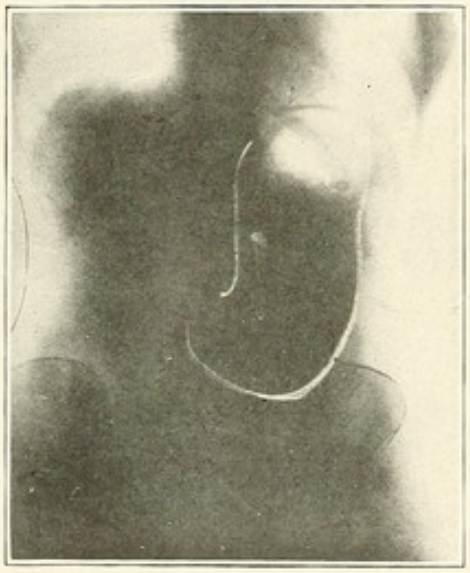


Fig. 81. Case J.

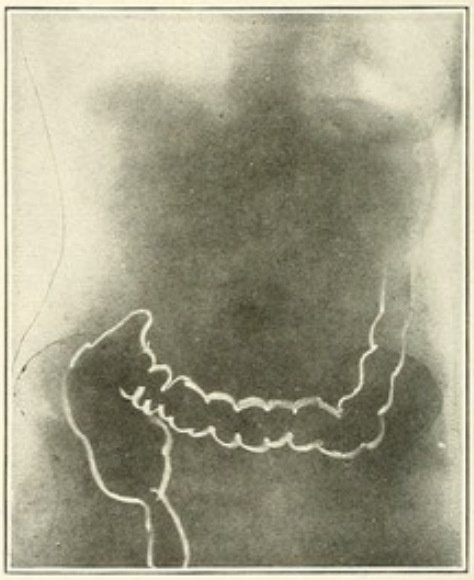


Fig. 82. Case J.

thirty pounds. Weighed one hundred and forty-five pounds at twenty years of age and now weighs one hundred and fifteen pounds. Sleeps well on either side, and complains of no indigestion or flatulence, and bowels are regular. Menstrual periods are regular, and no symptoms of pelvic disease. Good figure and broad lower thorax. Heart, temperature, and urine normal.

Abdominal examination in both positions was negative, excepting for sensitiveness at McBurney's point.

August 2, 1909. Radiographs of stomach and colon (Figs. 81, 82) showed dilatation of the stomach and extensive ptosis of the colon. The relaxation of the hepatocolic ligament is apparently complete, allowing the cecal end of the bowel to descend into the bottom of the pelvis. A long nephrocolic ligament would, no doubt, be found in this case to account for the kidney remaining in place.

Operation was advised, but, as the patient was just starting for a foreign trip, she was fitted with an abdominal supporter and the operation deferred.

February 2, 1910. Reports much relief of all symptoms, and is still wearing the supporter. Nutrition about the same.

Case K.

Nephrocoloptosis in its incipiency in a young patient, pregnant three months.

Female; aged 25; married; never before pregnant. Patient of Dr. H. E. Shaver, of Boyne City, Mich.

October 18, 1909. Seeks relief for frequent attacks of pain across the abdomen, which is worse on the left side, above the hip, where it commences, and afterward extends downward to the bladder; alternate severe constipation and diarrhea; frequent micturition, both night and day; inability to sleep, excepting on the right side (says any other position causes a choking sensation); much flatulence; loss of weight—from one hundred and twenty-two to one hundred and twelve pounds. Says these manifestations have come on gradually during the last two years, and are all increasing in severity and persistence. Menstruation always very irregular and infrequent, and frequently passes over one, two, or three periods; none since July 13 last; no nausea. Had "inflammation of the

bowels'' at 15, which confined her to bed for six weeks. Heart and temperature normal; urine slightly turbid with urates, otherwise normal.

Abdominal examination in the dorsal position showed broad and roomy lower thorax, tenderness at McBurney's point, and rather a full abdomen, with good muscular development. The inspiratory effort failed to dislodge either kidney in this position. In the left lateral position the inspiratory effort brought the right kidney down to

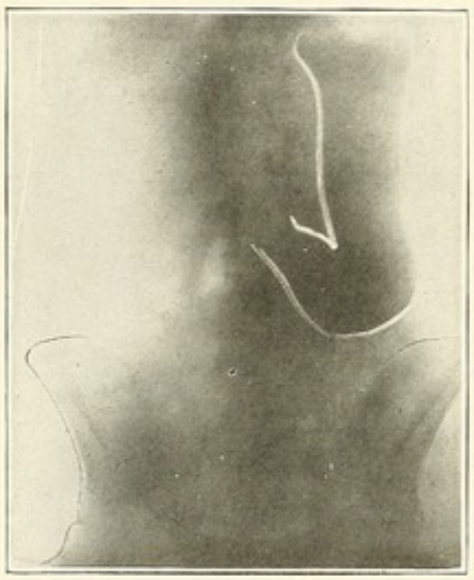


Fig. 83. Case K.

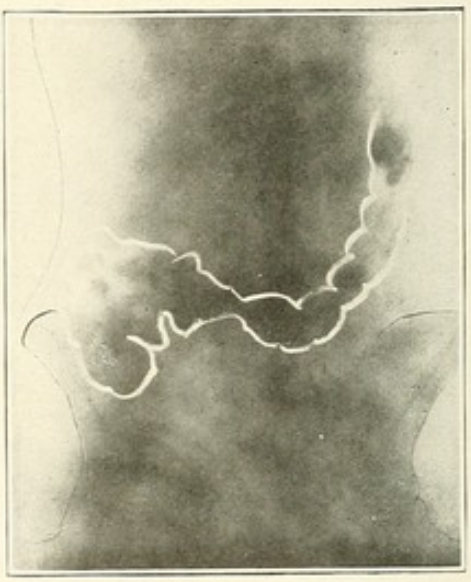


Fig. 84. Case K.

the palpating hand to the extent of two-thirds of its volume below the costal margin. The left kidney could not be palpated in either position.

Vaginal examination showed a normal introitus; soft cervix, which was purple in color; body of uterus soft and enlarged, reaching a point two inches below the navel.

The patient was, no doubt, pregnant, which would preclude any immediate surgical work, but, after conferring with Dr. Hickey regarding the possible danger of the x-ray to the conception, radiographs were made of both

stomach and colon. (Figs. 83, 84.) These show a moderate displacement of both organs. The position of the transverse colon, with its sag to the left and the sharp angle at the splenic flexure, explains the cause of the pain in the left side.

The case illustrates one of ptosis in comparative incipiency, and one in which results from operation should be of the best to be obtained in this class of cases, as the gut has not yet become chronically distended. The stomach has not become much dilated, and will, no doubt, return to its normal position after the strain on the duodenum has been relieved by raising and fixing the cecal end of the bowel.

The patient was advised to return for operation after confinement and the weaning of the baby. She was assured that the symptoms resulting from the displacements would decrease as the pregnancy progressed, as the enlarging uterus would push up the bowel, and thus remove the strain from the kidney and duodenum as well as round out the angle of the gut at the splenic flexure.

Case L.

Enormous dilatation of cecum and transverse colon due to angulation; occlusion at the splenic flexure.

Female; aged 28; factory hand.

December 28, 1908. Seeks relief for pain in right side of abdomen and back on the same side; severe headaches, which cause nausea, the attacks frequently interfering with her work; irregular and painful menstruation; gradual loss of flesh and strength; constipation and flatulence (gas has foul odor). Symptoms have been gradually increasing for ten years. Has been treated by many physicians for all kinds of digestive and nervous disorders. Heart normal; pulse, 68; temperature and urine normal.

Abdominal examination in the dorsal position showed a broad, roomy lower thorax; flat abdomen; good muscular development; right kidney palpated in the region of the umbilicus without inspiratory effort, and easily replaced up behind the costal margin; no abdominal sensitiveness.

Vaginal examination negative.

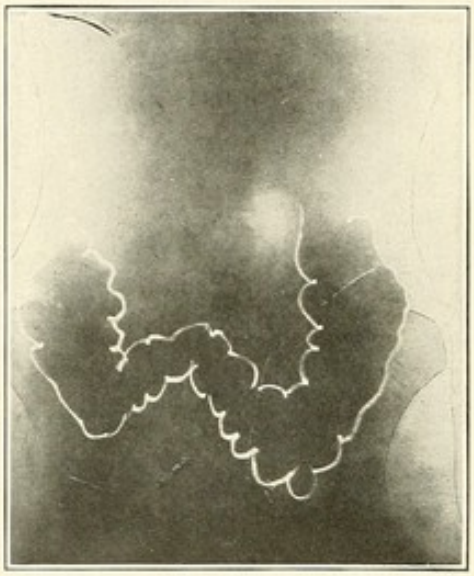


Fig. 85. Case L.

January 10, 1909. A radiograph of the colon (Fig. 85) showed moderate coloptosis and great dilatation of the gut; the latter, no doubt, due to the acute angulation at the splenic flexure, caused by the complete downward drag of the left end of the transverse colon on the phrenocolic ligament.

Abdominal supporter applied, petrolatum oil prescribed, and operation advised.

February 11, 1909. Reports partial relief of symptoms. Operation deferred.

Case M.

Dietl's crisis.

Female; aged 44; single. Patient of Dr. B. R. Shurly. (See record of the case in the chapter on symptomatology.)

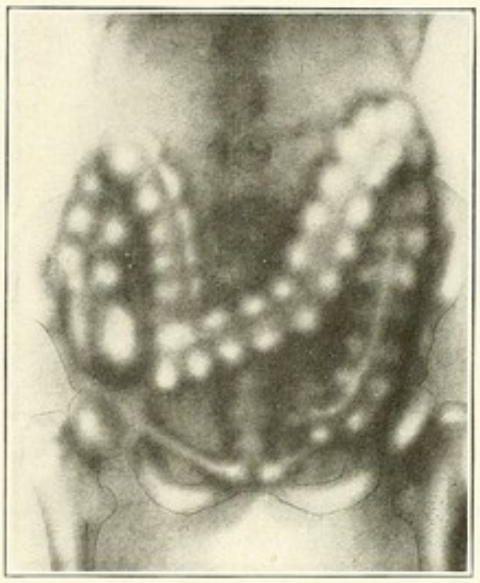


Fig. 86. Case M.
Bowel sketched by following the shadow.

The radiograph (retouched by the artist) shows a very narrow thorax of the barrel-shaped type. (Fig. 86.) Operation advised, but deferred.

Addendum.

A typical, unfavorable, anotomic, and symptomatic result following the old operation of nephropexy, confirming theory illustrated by Fig. 28.

This case, having had symptoms gradually increasing in severity after a nephropexy made three years previous, came to operation as the book was going to press. The kidney was found fixed to the muscles of the loin, about two-thirds of the organ being below the costal margin.

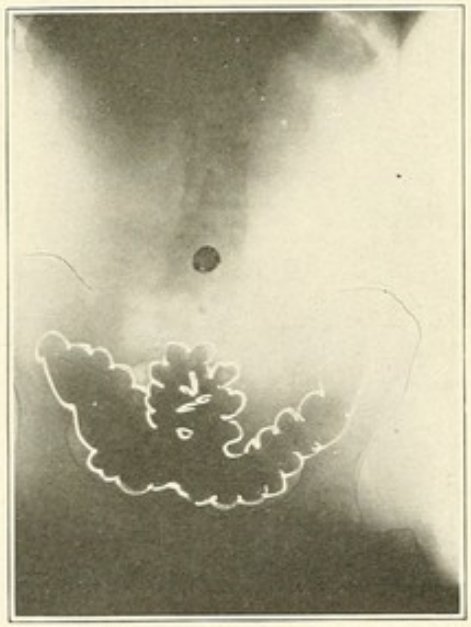


Fig. 87.

Gerota's capsule was in cicatricial union with the transversalis fascia. A portion of the fatty capsule was found below the lower pole of the kidney, to which it was attached by a few filaments, the most of it passing downward to the colon. This was raised up and sewed into the opening in the transversalis fascia, hoping thus to retain the elevation and cause the fixation of the cecum, the descent of which had resulted in increased severity of symptoms.

Fig. 87 is an x-ray giving a graphic illustration of the resultant complete coloptosis following the old operation of nephropexy, in which the fatty capsule was stripped away from the kidney, allowing the cecal end of the gut to drop completely into the pelvic cavity.

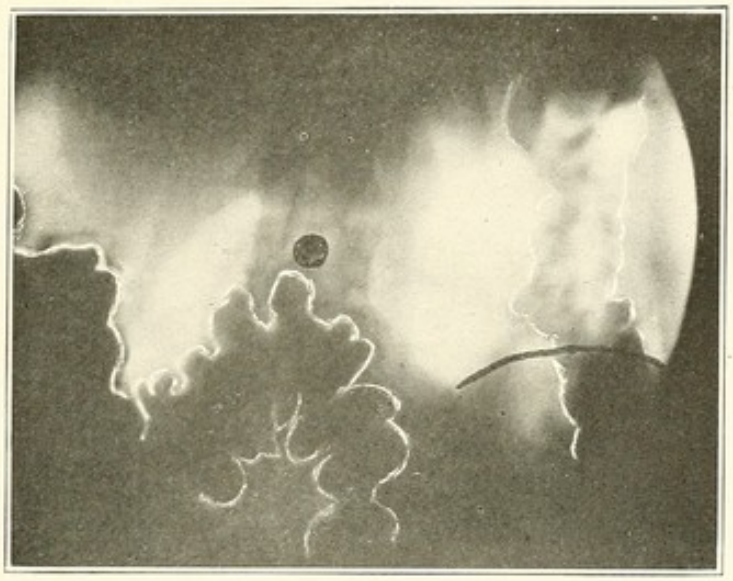


Fig. 88.

Fig. 88 is a somewhat enlarged radiograph of the same case as shown in Fig. 87, taken with the patient in the recumbent position. Note the higher position of the cecum and the separation of the lower part of the loop of the transverse colon, caused by the elevation of the cecum.

This picture shows why the patient was most comfortable while recumbent and why she had passed much of her time in bed during the last three years.

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Alton, R. W., 145
Belanger, J. A., 224
Billington, Wm., 28
Blodgett, Wm. M., 15, 82
Breisacher, L., 223
Burley, D. H., 160
Burr, C. B., 15, 55
Cadieux, H. W., 136
Cary, Hugh, 143
Conner, Sarah, 168
Duffield, S. P., 172
Gerota, 39
Glautenay, 39
Gleanard, 7, 50
Gray, 25
Hickey, P. M., 15, 72
Huson, Florence, 131
Inglis, David, 154
Jenne, B. H., 169
Jennings, C. G., 155
Jones, D. J., 200
Kelly-Noble, 25
Langlois, F. J., 187
Loucks, R. E., 157
McGraw, T. A., 181
Mann, F. W., 146
Newman, F. L., 139
Potter, G. E., 137
Reed, C. A. L., 28
Sanderson, J. H., 171
Shaver, H. E., 235
Sherrill, E. S., 140
Shurly, B. R., 60
Small, Sidney, 153
Suckling, C. W., 13, 15
Tappey, E. T., 203
Thomas, O. J., 176
Vernier, Jean A., 163
Weir-Mitchell, 9
Zuckerkandl, 39

INDEX.