Movable kidney, in the genesis of bile duct disease / by A. Ernest Gallant.

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MOVABLE KIDNEY IN THE GENESIS OF BILE DUCT DISEASE.*

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Obstruction, from any cause, to the free outflow of the product of any one of the secreting or excreting organs of the animal body will result in retention and stasis, favoring bacterial development, followed by absorption of toxines, precipitation of solids, overdistention, ulceration, perforation, peritonitis, surgical puncture, and occasionally death.

The urologist is most frequently confronted by this sort of thing as the result of ureteral kinks and inflammatory bands, due to kidney dislocation, involving the urinary tract in ways with which we are all thoroughly familiar. Can the same be said of the relation between the urinary and biliary tracts and the part played by the kidney in the inception of jaundice, gallstones, etc.? The liver has oft-times been accused of dislodging the kidney, what may be said of the kidney in distending the liver?

Case I.—My attention was first directed to the coincidence of movable kidney and the gallbladder by a patient referred by Dr. William Neer, of Paterson, N. J., Mrs. E. T., aged thirty-three, multipara. Patient stated on January 24, 1893, that two weeks ago she had suffered from pain in the back below the right shoulder blade, and in the region of the gallbladder. Examination showed the right kidney palpable three centimetres below the chondral border, enlarged and tender, but replaceable. The gallbladder was not palpable; nor was any jaundice present. She was fitted with a corset, and had no further attacks up to November 7, 1898, when she was found to be pregnant, and was "lost to sight," though, as the first to direct my

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attention to this phase of the subject, she is still to "memory dear."

During the following year several cases were seen in which jaundice was associated with prolapsed kidney, and relieved by wearing a corset; but it was not until November, 1900, that the writer was brought to realize how serious a jaundice could be induced by traction or pressure of a movable kidney on the bile ducts, as recorded in the *American Journal of Obstetrics*, ii, p. 86, 1901, a case of recurrent jaundice, diagnosticated by Dr. Delafield and Dr. Bull as gallstones; jaundice was too severe to warrant operation at that time; but patient was later cured by posture and the wearing of a corset, with but one slight attack during the past seven years. Several cases of the same type have been cured by the same means, and this paper is for the purpose of directing your attention to dislocated kidney as the primary cause of biliary obstruction and the inception of cholecystectasia, cholecystitis, cholangeitis, and their unwelcome sequelæ. It does not require a long stretch of imagination to understand how adhesions may constrict the biliary passages; how a neoplasm by pressure or growth within the ducts may interfere with the bile current; or a calculus within the cystic or common ducts or the ampulla of Vater obstruct the outflow of bile; but, in the language of Moynahan, "much has been written and but little known as to the *first cause* of the *first stage* in the development of duct disease of the biliary tract."

In the absence of a more reasonable explanation of the inception of cholecystitis, etc., and in view of the experience of the past seven years in the treatment of these cases, we have been led to attribute the *genesis* of this disease to traction by a more or less movable kidney on the cystic or common ducts, and in substantiation thereof would offer for your consideration the following data:

The Class of Cases.—Cholecystitis, with or without jaundice, is most commonly met with among the same types of women as those in whom we most frequently find dislocated kidney.

The Attacks.—The onset of the trouble is usually in the form of a so called " bilious " attack, characterized by sick headache, indigestion, epigastric pain, bloating, nausea, vomiting, making the patient feel wretchedly enough to be glad to lie down and in a short time go to sleep. The horizontal posture allows the kidney to recede enough to relieve the tension on the ducts, puts an end to the biliary obstruction, and for the time being to the attack.

The Course of the Disease.—Subsequently these attacks recur, but with increasing severity, longer duration, greater frequency—usually designated Dietl's crises. With all these features, and in addition, there is added severe pain extending from the epigastrium or hypochondrium through to the tip of the right scapula, of a boring character, frequently severe enough to require liberal doses of morphine to afford relief, which is rarely secured until the patient lies down and falls asleep. The next morning she may be able to get about, or on sitting up or semireclining the same symptoms may be repeated, sometimes day after day for weeks, or at infrequent intervals, but each one progressively worse, as the bile tract becomes more seriously involved.

The Examination.—Examination in the semireclining or standing posture shows a considerable mass at the right chondral border, which may be the lower inch or two of an enlarged kidney, adherent, or partially replaceable; or in front may be the distended gallbladder, which can be emptied by gradual, firm pressure (almost pathognomonic); or the elongated edge of the liver may project in front of and over the kidney and obscure its contour. The kidney is usually very tender, the rec-

tus rigid; the conjunctiva of a bilious hue, the skin may be tinged or deeply stained, and bile pigment can be found in the urine. If the attack has lasted several days the stools will be light or clay colored, but transient attacks do not discolor the fæces. The gallbladder may or may not be palpable (distended); hydronephrosis is but rarely present.

Operative Findings.—Lilienthal, in 1896, called attention to "the important fact that a swollen gallbladder may exist without liver or gallbladder disease, and emphasizes the necessity for guarded diagnosis even in cases which may look plain at first sight." Richardson in fifty-nine operations on the gallbladder reports ten cases of acute cholecystitis without any known reason, and with no gallstones present. Johnston, Fenwick, Treves, Holmes, Delaney, and others found that the pressure or traction of the kidney on the bile ducts was the only assignable reason for recurrent attacks of typical "gallstone" disease, which did not recur after the kidney had been sutured. The cystic duct has frequently been found occluded by stone and enormously distended, yet intermittent jaundice prevailed without any evidence of common duct obstruction by a supposed stone which was thought to have escaped into the bowel and was but rarely found in the stools. Lilienthal admits that it has seemed to him far from rare to hear of pain, in some instances quite severe, after almost any operation for gallstones; and in two instances colic and jaundice (Cases XXIII and XXVIII, *Annals of Surgery,* July 1904, pp. 62 and 67) followed after complete removal of the gallbladder, no stones being found in the stools.

It is of interest to note that in all cases, so far recorded, which have been operated on for the removal of biliary calculi, without gallstones being found, and the jaundice attributed to mobile kidney, have occurred in female patients.

Post Mortem Observations.—Byron Robinson (*Abdominal Brain,* p. 594, 1906) tells us that the perirenal areolar tissue binds the kidney to the diaphragm and at the upper renal pole it fuses with the meshepaticon on the right side, while on the left side the perirenal tissue fuses with the suspensory ligament of the spleen and coronary ligament. . . . The kidney may be extended distal (down) to the liver, when its peritoneal and subperitoneal tissue connections may produce traction on the biliary passages, flexing and obstructing them. In one subject Robinson found a peritoneal band extending from the kidney to the ductus choledochus communis. These findings substantiate in part at least the statements of Weixner, Linder, and Landau, that traction of the displaced kidney on the hepatorenal ligament can and does cause obstruction of the bile ducts, and frequently jaundice.

To this view J. Hutchinson, Jr. (*Practitioner,* xv, pp. 186-194, London, 1902), takes exception and offers the following factors to explain the occurrence of obstructive jaundice with floating kidney: (1) Downward displacement of the third part of the duodenum, with stretching of the common bile duct; (2) displacement of the gallbladder and sharp kinking of the cystic duct; (3) torsion of the third part of the duodenum and perhaps of even the bile duct; and yet he admits "that floating kidney by itself and without intervention of gallstones may produce severe cholecystitis, and obliteration of the gallbladder is a fact proved by one of the cases to be (by him) narrated, and it is, I think, a fact which is not generally admitted by physicians. . . . At any rate, the connection between floating and misplaced kidney with biliary obstruction is an important one, and in order that treatment may be properly directed it deserves to be borne in mind." The "probability" of Mayo Robson must ere long become a certainty; and the importance

of recognizing this condition, before stasis and stone formation has begun must be appreciated.

Case II.—Roosevelt Out Patient Department. Mrs. M. McK., thirty years of age, married eleven years, tertiipara; for three to four months has had pain of cramp like nature in the lower scapular region and right side. Abdomen was distended; she belched gas, suffered from indigestion, and at times from epigastric pain. Examination on March 15, 1900, showed the right kidney palpable for two inches, with much tenderness in hypochondrium. Diagnosis: Gallstone colic vs. movable kidney. Treatment: For a time she wore an abdominal binder and later was fitted with a special corset, which gave relief from all symptoms.

Case III.—Mrs. S. S., twenty-seven years of age, married four years, no children, weighing 115 pounds; referred by Dr. Roy Inglis, Jersey City, N. J. Last May her liver had been enlarged, with marked jaundice, and said to be due to gallstones. At this time (January 12, 1900) she was suffering with pain in the lower scapular and sacral region, and along the right loin; much backache; patient was very irritable and nervous; also annoyed by regurgitation of gas. Examination showed the liver somewhat enlarged; the right kidney palpable ten ctm. below the costal border, not wholly replaceable. Diagnosis: Jaundice due to kidney prolapse. Treatment: Corset.

Case IV.—Mrs. V., multipara, seen in consultation with Dr. T. F. Kelly, November 18, 1902; had been suffering from pain at the end of the scapula, and suffered from nausea and vomiting, for several days. Examination showed the right kidney, 3 by 6 inches, five inches below the chondral border, the hilum directed almost anteriorly, but could not be wholly replaced on account of its large size. The abdominal wall was moderately fat, very lax, with epigastric flattening. The lower border of the stomach was one and one half inches below the umbilicus. A heavy bandage was adjusted, the foot of the bed elevated, and in a few days the jaundice disappeared. She has worn a special corset ever since, without any more attacks.

Case V.—Mrs. E. W., twenty-two years of age, one child, five months old. Patient was seen in consultation

for Dr. S. F. Brothers. She complained of burning in her chest and right side; could not lie down, must sit up doubled on herself. She had been ill for the past four months, skin had been jaundiced one week. Examination: January 26, 1904, the right kidney was found half way below the border of the ribs; palpation caused pain at the sternal junction of the fourth rib on the right of the same nature as she experienced during an attack; lower border of the stomach was two inches below the umbilicus. Diagnosis: Jaundice due to post partum kidney prolapse. Treatment: Rose's plaster applied. February 15th, five days ago, she had had a severe attack with nausea and vomiting, and pain in the gallbladder region, so severe at 2 a. m. as to require morphine. This attack was due to loosening of the plaster, which was reapplied the next day; in spite of which she had another attack the next night, coming on very suddenly, and vomited six times, though she was in bed most of the time up to March 27th, when the corset was put on, which has been worn ever since without any more attacks (*New York Medical Journal,* April 25, 1905).

Case VI.—Mrs. A. D., tertiipara, last child three weeks old, seen in consultation for Dr. E. V. Hubbard, December 15, 1904. Since the baby was born she had experienced almost daily chills, sweats, fever, flushing of the face, a belt sensation at the waist, dragging at the navel, pain in the back and sacral, right iliac, and pelvic regions, and umbilical areas, which came and went. Patient was extremely nervous, apprehensive, and despondent. Examination: Skin and conjunctiva were found to be tinged; abdomen was distended, omental umbilical hernia, right kidney was prolapsed, and had swung toward the navel; it was replaceable; lower border of stomach was located below the umbilicus; uterus was displaced to the left; there were protruding internal hæmorrhoids; aciduria. Diagnosis: Post partum malaria, with jaundice due to prolapsed right kidney. Treatment: The mechanical part of the treatment consisted in reduction of the hernia and application of a flat pad over the opening, held in place by a rubber plaster (*International Clinics,* ii, 16 series, 1906); Rose's plaster strapping to the abdomen after

postural replacement; and appropriate drugs, diet, etc. But it was some months before she regained her health, in spite of the abdominal support of a corset which she said she could not live without.

Case VII.—Mrs. M. E., forty years, secundapara, last child nine years ago, referred by Dr. J. Hartranft, Southold, L. I. During the past four years, on an average of once every six weeks she suffered an attack of very severe pain in the right hypochondrium, extending toward the navel, was sick at the stomach, and vomited; her right side was enlarged and was very hard. After loosening her clothes and lying down the attack passed away, and the next morning she was all right again. Examination: Height, 5 feet 3 inches; weight, 171 pounds; waist, 32½ inches; hips, 45 inches; abdominal projection on level with the anterior superior spines, 4¾ inches; the greater curvature of the stomach lay chiefly in the right iliac fossa; the lower pole of the right kidney was on a level with the anterior spine. Conjunctiva was bile stained. Diagnosis: Dietl's crises, due to prolapsed kidney; gastrectasia; lacerated perinæum. A special corset was put on February 12th, and a tablespoonful of bran taken each night. All went well until April 8th, when in the afternoon she was taken with violent pain in the right back and loin of a neuralgic character, requiring morphine. The pain eased up the next day, but came back on the third day with fever 100.6° F., pulse 90. The bowels moved freely, but there were two chills during the day, temperature still 100.6° F., pulse 90, and she was feeling much better. Her skin was decidedly jaundiced, the kidney projecting half way under the chondral border, large and tender, replaceable; gallbladder was not felt. Diagnosis: Cholecystitis with gallstones, due to prolapsed kidney. Treatment: The bed was elevated at the foot, salines ordered. Her brother recently told me there had been no recurrence since, in spite of her occupation, which is that of a teacher.

Case VIII.—Mrs. F., sixty-eight years, seen with Dr. H. L. Moss, Richmond Hill, L. I., on May 2, 1906. For the past two weeks she had had trouble with her urine, which had been dark and bile stained. For four

years there had been a bad feeling in the right side, as if her liver was down, with tenderness to the right of the navel. Her skin was at this time markedly pigmented; a cystic mass the gallbladder presented just below the border of the ribs, and the kidney, enlarged and tender, could be palpated for two inches of its lower pole, was adherent and could not be replaced. Diagnosis: Cholecystectasia with gallstones induced by kidney prolapse. Treatment: Elevation of foot of the bed, a very snug abdominal binder was applied; salines and water were given every two hours. In view of the severity of the jaundice she was advised to have an operation later; but the wearing of the binder prevented any further attacks, and she had been satisfied to let well enough alone.

Case IX.—Mrs. G., quintapara; seen with Dr. C. C. Miles, Greenport, L. I. Ever since the birth of her last baby, one year ago, she had suffered from attacks of pain in the right hypochondrium, with a feeling of being puffed up and for four hour periods as if she was going to be unwell; relieved only by loosening her clothing and lying down. One attack, August 9th, another on the 14th. She was very nervous, but had never noticed any jaundice. She could not fall asleep. Examination: Transverse colon low down; caput coli displaced inward, tender appendix not palpable. Lesser curvature of the stomach was 2 inches below the xiphoid, greater curve 2 inches above the symphysis; there was succussion sound at the umbilicus. Free edge of the liver was one inch below chondral border, gallbladder projected, and was very tender; right kidney was palpable one and a half inches, and adherent. Treatment: A pattern was cut out for a "stock" binder to be worn until a corset could be made, but this had been so satisfactory that she is still wearing it (*Journal of the American Medical Association,* xlvii, p. 1357, October 6, 1906). Operation was advised if fever came on with an attack.

Case X.—Mrs. J. W., fifty-six years of age, sextapara; youngest child, twenty years old; referred by Dr. B. D. Skinner, Greenport, L. I. About three weeks after the birth of her last child she had had an attack of vomiting, some fever, and very severe pain in the

right hypochondrium, requiring morphine. These attacks came on suddenly, the abdomen swelled up, and the discomfort could only be relieved by loosening the clothing. The eating of rich food seemed to bring on an attack, and there had been on the average one or more a year. During the past five weeks she had had four attacks, coming on suddenly, with fulness and pain in the epigastrium, free vomiting of a green matter, and a cold feeling. The pain left suddenly, but during the attack she could not lie down, as it aggravated the pain. Her skin had been jaundiced during the past four weeks, and the urine was saffron color. Dr. Skinner diagnosticated gallstones thirteen years ago, but none were ever looked for in the stools. Last attack was two days ago. April 18, 1907: Examination showed the right kidney was down 3 inches, enlarged to 4½ inches, partially replaceable; the greater curvature reached 2 inches below the umbilicus. Diagnosis: Retention in the cystic duct due to kidney traction. Treatment: A special corset was put on May 7th, readjusted after some alterations on the 14th, and her son reported that she was the happiest woman on Long Island. As she was a very stout woman the quantity of fat and lax abdominal wall with the dilated stomach, which was elevated by the corset, was so great as to hang over the top of the corset.

The Corset.—This must be made to order, of fashionable design, fitting very tightly over the hips and suprapubic area, gracefully curving in at the waist and with ample room above the waist line for the accommodation of the replaced abdominal organs, especially the stomach. When about to put on the corset the lower lace must be loosened, the garment wrapped around the waist; the woman then lies down on her bed, bends her knees, raises the hips as high as possible, rubs the abdomen upward so as to massage the stomach and colon toward the diaphragm, hooks the corset in front, beginning with the lowest and working up to the top, and then, with the hips still raised, draws in the lower lace from the waist down until it is as tight as can be

made. In thin women it is necessary to cushion the inside of the corset from the anterior spines back to the middle line. A properly constructed corset does not require any straps, belts, buckles, cushions, airpads, or elastic in its construction, except the ordinary garters, which are only put on for convenience in holding up the stockings. The corset must be worn all the time except when lying down (*Therapeutic Gazette,* July, 1902).

Treatment.—Under the regular methods of treatment, with the patient half sitting up in bed, as he much prefers to do, the attack may last for a few days or weeks; while on the other hand, if the patient is made to lie flat on the bed, with the foot raised ten to twelve inches, the head only resting on a pillow, the kidney being replaced and the gallbladder emptied by careful manipulation, the abdominal wall supported by my "Stock" bandage (*Journal of the American Medical Association,* xlvii, 1357, 1906), or Rose's plaster strapping, the nausea and vomiting will cease, the pain subside, the temperature if raised will drop, and the discoloration of the skin quickly fade away under the active use of salines. In a short time the kidney becomes free, diminishes in size and returns to its normal bed, and if a properly fitting corset is worn the attacks will not recur unless the patient goes about without it.

Conclusion.—From the foregoing data we feel justified, at least tentatively, in adopting the following conclusions:

1. That the inception of disorders of the biliary tracts arise from traction or pressure on the bile ducts by a prolapsed kidney. At first there is but slight mobility, slight traction, and a slight attack, of a "bilious" nature, with or without jaundice. It is owing to the transitory nature of the attacks during its incipiency that examination is but seldom made, or the kidney cannot be palpated because

it has slipped back, as soon as the patient lies on her back, and the gallbladder empties itself as soon as the tension is released. The mobile kidney gradually increases in size and mobility, exerting greater traction, causing greater obstruction, greater bile stasis, greater colic and jaundice, with infection, precipitation, stone formation, ulceration, perforation, and sometimes cremation.

2. That these attacks can almost always be arrested and the diagnosis established by placing the patient in a bed with the foot raised 10 inches, and replacing the kidney by careful manipulation.

3. That by the early recognition of the kidney mobility as the cause, in the early stage of the disease, and the early wearing of a special corset, exacerbations can be prevented, further progress of duct disease avoided, gallstone formation eliminated, operations for its removal reduced to a minimum, and at the same time by the use of the corset we overcome the bad effects arising from ptosis of other abdominal viscera.

4. When pain, fever, and jaundice do not diminish or subside within twenty-four to forty-eight hours, or unmistakable signs of severe infection or peritoneal invasion are present, operate quickly and thoroughly.

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