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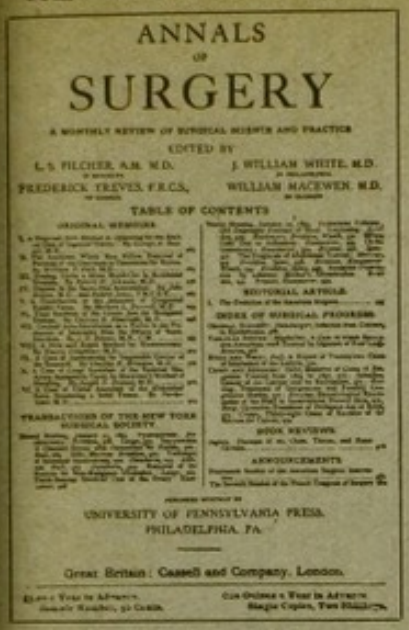
ANNALS
OF
SURGERY

A MONTHLY REVIEW OF SURGICAL SCIENCE AND PRACTICE

EDITED BY

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PARTIAL ENTEROCELE.

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PARTIAL ENTEROCELE.[1]

By RUSSELL S. FOWLER, M.D.,

OF NEW YORK,

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In the year 1598 Fabricius Hildanus had for a patient a lady of sixty-three years of age, who for seventeen years had suffered from a hernia in the groin. This had suddenly become strangulated and had apparently been reduced *en masse*. Gangrene supervened and an abscess formed, which eventually burst externally, discharging fæces. This fæcal discharge continued for some two months, at the end of which time the fistula spontaneously closed. Hildanus at no time saw the intestine, yet, from the insufficient evidence related, he drew the conclusion that a part only of the circumference of the intestine was constricted, one of his chief reasons being the happy ending of the case.

For nearly a hundred years the subject was undiscussed. In 1700 Littré published his now world-famous article, "Observation sur une nouvelle espèce de Hernie." This treatise contained the histories and pathologic findings in three hernia cases which the author had met with in 1699. In conclusion it also contained deductions made from these cases. The first case occurred in a male, forty-eight years of age, who died with a hernia of the left groin. In the sac of this hernia was found a curiously shaped appendix having a large base or pouch below, and being narrower at its upper part where it communicated with the lowest part of the ileum. From Littré's description, and from the illustration which accompanies it, it is evident that this, Littré's first case, was

[1] Read before the Brooklyn Surgical Society, March 2, 1899.

one of a diverticulum (first accurately described by Joannes Meckel in 1815–1820) of the ileum. Not by any possibility could it have been a partial enterocele. The second case was that of a man of thirty-four years, who died of a fever. There was found at the necropsy a hernia of an appendix of the ileum, which was engaged in the ring. It is specifically stated that this hernia was not strangulated. From the description it is somewhat difficult to determine just what variety of diverticulum was present in this case. There is abundant evidence that there was a diverticulum present, but the question is, Was it a congenital diverticulum; was it a diverticulum formed by continued traction on part of the wall of the small intestine in a hernial sac of long standing, or was it a diverticulum such as is sometimes formed by a rupture of a small portion of the muscular coat of the intestine, and a consequent pouching of the mucous and serous coats from causes working from within? It might have been any one of these chronic forms, but it could not possibly have been an acute partial enterocele. Whether it was a partial enterocele or a congenital diverticulum it is impossible to definitely say. The consensus of opinion seems to be that there was present a chronic hernia of a pouching of the ileum wall, congenital or acquired. Littré's third case was that of a man who had a tumor in the groin, of which he died in five days. Decomposition had advanced too far to permit of any anatomical study of the parts; so this case is worthless. In 1701 Mery reported a case of hernia, which appears to have consisted of an abnormal diverticulum of the ileum, the same which we to-day designate as Meckel's diverticulum. Previous to both Mery and Littré, however, J. H. Lavater had written ambiguously of the possibility of partial enterocele. In 1714, Littré again wrote about a case of hernia of a rare type ("Sur une Hernie rare"). This case was, beyond doubt, a hernia of part of the wall of the colon. Between that time and 1800 some eight writers referred in one way or another to this form of hernia. The most important of these was Augustus Gottlob Richter, who in 1778–1785 pub-

lished a work entitled "Abhandlung von den Brüchen." This work was translated into French by J. C. Rougemont in 1788. In it Richter devotes an entire chapter to partial enterocele, but limits it to small hernias between the ensiform and umbilicus. This chapter, though the best article written up to that time, was not very good. In the same year (1788) Adolphus Murray wrote "Animadvers in hernias incompletas casu singulari illust.," which was, as is seen from the title, a treatise on incomplete hernia. The next article throwing light upon this form of hernia appeared in 1809, when Antonio Scarpa, of Milan, published a series of experiments, showing that when over two-thirds of the circumference of the gut was constricted so as to shut off two-thirds of the lumen, a complete obstruction existed due to the kinking of the remaining third of the gut; but, on the other hand, if only one-third of the lumen was shut off fluid could still pass through the remaining open portion. It was in 1815–1820 that Joannes Meckel, in a work entitled "Handbuch der menschlichen Anatomie," published at Halle, first definitely described the diverticulum which bears his name. Such men as Sir Astley Cooper and Velpeau mentioned the occurrence of small herniæ between this time, 1820 and 1841, when C. F. Riecke published his "Ueber Darmanhangsbrüche (Hernia Littrica),"—that is, "Partial intestinal wall Herniæ." This was the best work published up to date, and showed evidence of great care in its preparation. Some dozen writers referred to this form of hernia between 1841 and 1868, when Wallenstein produced his book "Ueber die Hernia Littrica (Darmanhangsbruch)." Gross in 1872 devotes half a page to Littré's hernia, but throws no new light upon it. In 1879 both Loviot and Defaut produced theses, the one upon "Du Pincement herniaire de l'Intestin," the other "Du Pincement latéral de l'Intestin." In 1883 Adolph Lorenz published in Vienna "Ueber die Darmwandsbrüche." Hager wrote a book on the subject in 1884. Keetley, Sebenkow, and Morgan reported cases about this time. One of the most instructive cases was published by Dent in 1882. In 1887 Treves

wrote his paper upon "Richter's Hernia or Partial Enterocele." This is most valuable for statistical purposes. Since that time Stahl read a paper—"Acute Partial Enterocele"—before the American Medical Association; in addition some few cases have been reported up to January 1, 1899. A full bibliography will be found printed at the conclusion of this paper. It has been my endeavor to verify, combine, and sift the reported cases in such manner as, combined with my own cases, to present as typical a clinical picture of this form of hernia as possible.

As seen from the nature of the bibliography partial enterocele is comparatively rare, though not rare enough to form a surgical curiosity. It is only by the reporting of every case with a full history that we can ever hope to increase our knowledge of diagnosis, and by this means lower the alarming death-rate.

Many different terms have been used in describing Littré's hernia. French: Pincement herniaire de l'intestin; pincement latéral; hernie partialle. Italy: closely follows French. German: Darmwandbruch; lateral bruch; partial bruch. English: Partial enterocele; parietal enterocele; small hernia (Cooper); incomplete hernia (Gross).

Concerning the anatomy of the form of hernia now occupying our attention, there is this to be said, and, so far as I know, it has never been stated in exactly this way, yet every one of these statements is supported by incontrovertible cases. Littré's hernia may occur at any of the hernial sites, or it may be ventral, or occur in the supernumerary sac of an interstitial hernia; it may be composed of jejunum (Dent), ileum, or colon, with which may or may not be associated more or less omentum (generally no omentum, five cases, two inguinal, three femoral, over two years); the amount of intestinal wall included is never the complete circumference; the intestinal wall may or may not be adherent to the sac; this is also true of the omentum when present; the included intestine may be a congenital diverticulum, a congenital pouching, an acquired diverticulum, an acquired pouching,

or an acute constriction of a theretofore normal portion of the circumference of the gut; if a congenital diverticulum or pouch, it is the result of an error in development, as in the case of Meckel's diverticulum; if an acquired diverticulum or pouching, it is due to change in some portion of the intestinal wall, by which the muscular coat is weakened or ruptures, permitting the mucous and serous membrane to pouch, they being less able to stand the pressure of gases from within than the neighboring healthy intestinal wall; this may be presumably caused by traumatism to the wall of the gut involving loss of blood-supply, nerve disturbance, or to unequal changes as age draws on; this acquired diverticulum or pouching may also be due to the adhesion of a portion of the intestinal wall to the peritoneum over a natural or acquired hernial opening, and thus, propelled along by the ever varying intra-abdominal pressure, in time becomes a thinned-out funnel-shaped diverticulum or pouch, or it may be that a loop adherent in this way is present in a hernial sac of some duration or one that that very loop has been instrumental in forming, and that the varying pressure conditions at work within the peritoneal cavity and within the bowel (peristalsis, etc.) cause this loop to be pulled upon, and so in time produce a diverticulum or pouch. An acute constriction may be produced in two ways: a portion of the gut circumference may be caught while entering the sac or while withdrawing from it, or some strain may result in the formation of both sac and hernia simultaneously, and only a portion of the bowel circumference be caught; partial enterocele may be acute with the simultaneous formation of a sac, may be acute into an old hernial sac, may be chronic in an old hernial sac; the condition of the bowel may be normal, or reach any stage from simple congestion to gangrene with perforation; adhesions may or may not be present, rarely in the acute form, commonly in the chronic form; the chronic form may at any time become acute; the constricting agent may be either the neck of the sac or the various hernial openings; there may be complications, hydroceles, and adenitis.

Littré's hernia is a partial enterocele,—that is, an occlusion or strangulation of a portion of the circumference of the bowel, four-fifths, two-thirds, one-half, or less of the circumference, as the case may be, probably in the majority of the cases less than half of the circumference, the result being that only a portion of the lumen of the gut is occluded; hence the passage of gas and fæcal matter is not altogether interfered with, at least, not until the bowel wall is paralyzed by the neighboring strangulation. In fact *gas* may be passed throughout, and in three cases of the fifty-three collected by Treves and including all reported cases up to 1886, there was persistent diarrhœa. In these cases about one-third varied in symptoms in no way from ordinary strangulated hernia. In the remaining two-thirds the symptoms were of a much less severe character than those encountered in ordinary strangulated cases. In one-tenth of these latter there were *movements of the bowels* on the first or second day of strangulation. In other cases the bowels continued to act from time to time. Some moved daily without medicine, others moved when medicine looking to that effect was given. In others the bowels moved unaided on the third, fourth, fifth, or sixth day. As previously indicated, the more the lumen of the gut is occluded, or the tighter the strangulation, the nearer do these cases approach in symptoms the ordinary forms of strangulated hernia.

This form of hernia is more common in females than in males, and appears to be limited to adults. It is more frequent upon the right side than upon the left. Naturally it may occur through any of the hernial openings, but is confined almost exclusively to the femoral and inguinal region; more frequent in femoral than in inguinal. Anderson, of Nottingham, in the *Lancet* for April 2, 1892, reported a case of ordinary strangulated femoral hernia in which operation failed to relieve the symptoms. Subsequently an abdominal section was done. It was then found that part of the circumference of a knuckle of small intestine had been nipped in the left obturator foramen. On withdrawing this rupture oc-

curred. A resection with Lembert's suture was done. Unfortunately the patient died in a few hours. Littré's hernia occurs in old herniæ, rarely in those of recent date, and I should say almost exclusively in reducible rather than in irreducible herniæ. The *size of the tumor* varies, but is always small, except in those cases in which rupture into the hernial sac has occurred with its consequent distention. The size is also dependent upon the presence or absence of fluid in the hernial sac. It is, however, never larger than a hen's egg, except in cases of rupture or when complicated by hydrocele of the cord. E. Owen, of Manchester, reported a case complicated by hydrocele (*Medical Press and Circular*, London, November 25, 1891). This case recovered.

The ileum is the portion of intestine most commonly affected; the constricting agent being in the case of femoral hernia, the crural ring; in inguinal hernia, the neck of the sac. Cases involving the jejunum (three) and colon (three) have been reported.

As regards the pathologic appearance of the gut, in those cases operated upon before rupture is imminent or has taken place, there is a well-marked circle to be seen upon that portion of the gut farthest from the mesentery; in cases that rupture at the time of operation or previous to it, the intestine presents a fairly clean-cut circular opening in the same location. Adhesions do not seem to be noted in many cases. In the unruptured case the included bowel wall presents at the crural or internal inguinal ring, as the case may be, as a small, balloon-like tumor varying in size from the tip of the little finger to the size of a walnut, and of a color varying in proportion to the duration and intensity of the constriction.

Vomiting is not uniformly present, according to Treves. Probably, in the majority of cases, the vomiting is less frequent and less severe than in ordinary strangulated herniæ. It may be present from the start or may begin on the second day, and may even become less urgent as time progresses. In several of the cases collected by Treves the vomiting did not occur more than three times a day, and only in rare cases

did it become fæcal (six cases). In these six cases, the fæcal vomiting appeared in one case on the fourth day and latest on the eighth day. Some cases passed bloody mucus after a purge.

Hiccough is a rare symptom, and when present is of late occurrence.

Distention is never marked.

Diagnosis is between partial enterocele, diverticular hernia (Meckel's), small incarcerated omental hernia, and inflammation in a hernial sac. It may be further complicated by enlarged glands. Generally only a single gland which may serve to obscure the hernia.

Prognosis is bad, but the high mortality seems to depend rather upon the failure to make a diagnosis than upon the necessarily mortal nature of the hernia, when operated upon *early*. In nearly 50 per cent. of the reported cases the trouble was not recognized, and all these cases died. The amount of obstruction to the passage of gas and fæces has nothing to do with the prognosis. All those cases not operated upon die. It is conceivable, however, that strangulation might exist for a short time and be relieved without operation; but such cases have not been reported, and if they were reported, from the very anatomical nature of the affection would be impossible of proof. Aside from the difficulty of diagnosis, the reduction by taxis is so difficult that several cases of reduction *en masse* have been reported. *Taxis* has been tried in the majority of reported cases, four of these were reduced *en masse*,—three femoral and one inguinal; and two femoral cases that were successfully reduced died from acute peritonitis. Taxis, except to a moderate degree, and in exceptional cases,—cases seen in their incipiency,—should never be indulged in. Gangrene occurs in the femoral more frequently than in the inguinal variety; again, there is more difficult diagnosis to blame. It has occurred as early as the third day. Treves says that herniotomy in these cases reaches the highest figure (62.2 per cent.). Again, we can blame the difficulty of early diagnosis. Briefly, we may say that cases not operated

upon die; that cases in which the diagnosis is made late die; that the only cases which recover are those recognized early and operated upon at once; that temporizing methods are necessarily fatal.

Treves's cases were four in number, and as they are exceptionally interesting I will give a brief *résumé* of the history in each case. Three of these cases died and one recovered. All were operated upon.

Case I.—July 24, 1883; female, aged sixty-two years. Small, right-sided, femoral hernia. Three days before admission she had experienced sudden pain in the region of the femoral canal with loss of appetite and prostration. On the second day she had vomited, had had some distention, and some colicky pain. She refused operation, so an ice-bag was applied. Five days from the onset, as there was no improvement, she submitted to operation. A partial enterocele of one-third of the circumference of the ileum was found. This was gangrenous. Two inches of the gut were excised. Death occurred two days later. There was constipation throughout. The specimen is to be found in the Museum of the Royal College of Surgeons.

Case II.—August, 1884; female, aged forty-eight years. She had had a right femoral hernia for twelve years, which had always been reducible. Had never worn a truss. This had become strangulated. She had pain, and twelve hours afterwards an attack of vomiting. Her bowels moved on the first day. Operation was performed on the third day. A partial enterocele of the ileum was found without any gangrene. The vomiting continued. There was free purgation on the fifth day. Death occurred on the sixth day following operation from a low grade of peritonitis. No autopsy.

Case III.—March 3, 1885; male, aged sixty years. Small, right-sided, femoral hernia for eighteen years. Patient very thin. No truss. No previous trouble. Three days before admission patient coughed. There was pain at hernial site and tumor. Taxis was tried and failed. A poultice was applied. Bowels moved on evening of first day. On second day there was vomiting, pain increased, and there was hiccough. On the fourth day he was operated upon. Partial enterocele of ileum. There was omentum in the sac. Death occurred on the sixth day. He had

had absolute constipation after the first day. Autopsy showed a perforation at the site of the constriction. The specimen is in the Museum of the College of Surgeons.

CASE IV.—August 6, 1885; male, aged forty-four years. For two years had had a right oblique inguinal hernia; was of size of walnut, and had always been reducible. Had worn a truss irregularly. Three days before admission had undergone severe exertion; had pain in hernia, which had become irreducible. He had colic and in two hours slight vomiting. In three hours had a movement of the bowels. Next day bowels moved copiously, after that constipation. On second day hernia was reduced after thirty minutes' violent taxis. He vomited seven times on that day and three times next day. On admission to hospital his condition was good. On operation the hernial sac and contents were found reduced *en masse*. The sac contained a little omentum and a part of the circumference of the ileum, the size of a cherry, which was of deep purple color. The lumen of the intestine was free near the mesentery. The case made a good recovery.

Dent's case (*Clinical Society's Transactions*, Vol. xv, p. 16, 1882) is so interesting that I may be pardoned giving an abstract of it.

CASE V.—Male, aged thirty-seven years. Operation. Partial enterocele. Died sixth day of "enteritis." Sac was old and just admitted little finger. Autopsy showed a gangrenous spot on the jejunum at the site of the hernia. There was present a diverticulum one inch in length corresponding to Riecke's diverticulum acquisitum.

My own cases were two in number, one male, one female; one femoral, one inguinal; both acute, one in a recently formed sac and the other in a previously existing sac. The histories are as follows:

CASE VI.—H. S., a butcher, seventy-two years of age, was admitted to the Brooklyn Hospital, service of Dr. George R. Fowler, December 13, 1898. I saw the case at 6 P.M., and ordered him prepared for operation at 7 P.M. The man's general appearance was that of profound depression; face anxious, pupils contracted from opium, pulse 112, respirations 24; tem-

perature 98⅘° F. The abdomen was slightly distended. Just previous to my visit an enema had been administered, which brought away some fæcal matter and gas. There was a tense, tender swelling in the left femoral region, extending upward over Poupart's ligament, of a pyriform shape, and the size of an egg. Percussion over this gave tympany. The history obtained from him by the ambulance surgeon, who saw him at his home, and by myself, when I saw him at the hospital, is as follows: He had never had such an attack before. He denied that he had ever had a hernia or worn a truss. He had had a severe cough for some time past. Seven days before admittance he had lifted a large piece of meat from the ice-box in his shop, and had felt a severe pain in his groin. He then noticed a lump, which gradually grew larger and was markedly tender. His bowels moved on this day and on the day following. They did not move on the third day, but gas was passed. Tumor became more and more tense and red, but patient did not go to bed. Vomiting began as early as the second or third day; was marked at first but gradually decreased; was fæcal on the seventh day, and had been so for two days. His attending physician saw him on the first or second day of his illness, and advised operation, which was refused. Two days later a consultation was held and again operation was advised and refused. On the fifth or sixth day an anæsthetic was administered and taxis tried, but this failed. Finally the ambulance was summoned from the Brooklyn Hospital and the patient conveyed there, where I saw him for the first time. Bearing this history in mind, it was comparatively easy to arrive at a diagnosis of strangulated hernia; the contents of the sac being composed of omentum alone, which would account for the symptoms, except the tympany, or composed of a portion of the circumference of the bowel,—Littré's hernia or Littré's hernia plus omentum. The second was decided on the most plausible explanation. Inasmuch as there had been strangulation more or less complete for seven days, the patient was told of the serious nature of his case and the probability of a fatal ending.

The operation, in brief, consisted of a four-inch incision over the tumor and extending beyond it, and the isolation of the sac. When the sac, which was thin, was opened there was an immediate gush of liquid fæces. This was sponged away, but no bowel

was found in the sac. There was a mass of omentum sodden with fæces. This was pulled out and ligated. The sac, gangrenous in places, was cut away, and an incision carried into the peritoneal cavity at an obtuse angle to the first. The ruptured intestine was sought for, and found to be a knuckle of ileum lying near the middle line. This had scattered fæcal matter broadcast throughout the peritoneal cavity. From the manner in which the fæces had been carried to the distant portions of the cavity this must have happened some few hours before. The ruptured loop was pulled out and examined. It was found to have in it a large aperture comprising four-fifths of the circumference of the gut. There still existed a bridge of intestine at the mesenteric border, representing the remaining fifth of the circumference. No other portion of the intestine was marked in any way. This opening was closed temporarily, and several gallons of hot saline solution were used to flush out the peritoneal cavity. To aid this my assistant, Dr. Ira Ayer, made a right-sided laparotomy at the level of the umbilicus, while I did the same upon the left side. Salt solution was poured in one of these openings, and with the aid of stick sponges the intestines were thoroughly washed, the fluid escaping by the other side and from the opening below. When this ran clear the peritoneum was sponged dry and numerous wicking drains inserted so as to drain all parts of the peritoneum. The ruptured loop was now sutured in the lower incision and the femoral incision closed. The loop was then opened, thus forming an artificial anus. Copious separate dressings were applied.

The anæsthetic was begun at 6.55 and stopped at 8.30, one hour and thirty-five minutes, during the last twenty minutes of which oxygen was administered. The operation, inclusive of scrubbing and dressing, occupied one hour and twenty minutes. Strychniæ sulphas, one-twentieth grain, and whiskey *ad libitum*, were the only stimulants used. The patient left the table in a deeply depressed state, from which he did not rally, but died some five hours later.

Case VII.—A. G., a Swede, forty years of age, married, was admitted December 15, 1898, to the Methodist Episcopal Hospital, service of Dr. George R. Fowler, where I saw her for the first time at 3 P.M. Her history in brief was as follows: She had had a small inguinal hernia for five years, but

never before had had any trouble from it. She had always enjoyed excellent health. Three days before admission she was seized with a sharp attack of pain over the site of the hernia. There was then present a very small "lump." Soon after this she began to vomit, first stomach contents, then bile; apparently no fæcal vomiting. Constipation since that time. Vomiting has been persistent. There has been a moderate amount of pain, both general abdominal and over the left inguinal region. Examination revealed an abdomen presenting the usual signs of about a six months' fœtation. Vaginal examination revealed nothing amiss with the uterus. At the site of the left inguinal canal there was moderate tenderness and a sense of fulness in the canal, more than could be accounted for by the presence of the enlarged round ligament and more than could be felt on the right side. Abdomen, except over uterus, was tympanitic. There was slight abdominal tenderness. Pulse 108, respirations 30, temperature 100° F. I felt positive of the existence of a Littre's hernia at the neck of the old hernial sac, but the woman's condition seemed so good that I felt that temporizing measures might be indulged in for a few hours. I used moderate pressure over the internal ring. This gave rise to decided pain. An enema of ox-gall, magnesium sulphate, glycerin, and water had been given her before I saw her, and had been effectual in bringing away some fæcal matter and gas. Subsequent to this she had vomited six ounces of light-green fluid, and shortly afterwards four ounces of dark-green fluid. I ordered an enema with turpentine, which brought away some gas, but no fæcal matter. I saw the case again at 4 P.M., when the temperature had risen $\frac{2}{5}$°. Respiration had come down from 30 to 24, and pulse from 108 to 99, though not of so good quality. A second ox-gall enema was ordered for 5 P.M. This brought away neither gas nor fæcal matter. At that time there was severe pain in the stomach and the vomiting of two ounces of dark-green fluid. As the case was a shade worse than on my previous visit, operation was decided upon.

Chloroform was used to initiate anæsthesia and then ether to prolong it. The duration of the anæsthesia was thirty minutes. This was followed by fifteen minutes of oxygen, given to clear the lungs of ether and prevent anæsthetic vomiting. I have made this a routine procedure and have found it effectual.

Duration of operation, twenty minutes. Briefly, the operation consisted in a two-and-one-half-inch incision, slightly curved to conform with the natural cleavage of the skin, over the course of the inguinal canal. The aponeurosis of the external oblique was incised for the full extent of the canal and for half an inch above the level of the internal ring. The sac was identified and opened. There was a very slight amount of fluid in it. This was sponged away. At the neck of the sac was seen projecting a small portion of gut, approximately the size of the tip of the little finger. This was dark red in color and was so tightly constricted that pressure from above could not displace it. The neck of the sac was incised from above the internal ring, and cutting in the direction of the canal towards the gut with the belly of the knife. Extreme care was necessary in order to do this without injury to the gut. The imprisoned gut was thus released and brought into the wound. It was found to be ileum. On its convex surface, directly opposite the mesentery, was a beautifully marked ring of constriction, of a purple color, one-quarter of an inch in width, and surrounding an area of the size of a silver quarter, and of a dark-red color. This area and ring was demonstrated to those present to view the operation, and was then subjected to a gentle massage with the forefinger and thumb. It readily approximated its normal color, though a partial congestion still remained. The enlarged round ligament was demonstrated, but not disturbed. It had no connection with the hernial sac. The gut was replaced in the peritoneal cavity. There was no pouching of the gut. The sac was now excised, particular care being taken to bring forward fresh peritoneum so as to leave no portion of the neck of the sac, which was somewhat thickened. The body of the sac was found somewhat flattened and spread out. It did not go beyond the external ring, but rather had dissected its way, and was spread out between the external oblique muscle and its aponeurosis, in the direction of the middle of Poupart's ligament, forming what has been recently described by McAdam Eccles, of London, as the first variety of interstitial hernia. The opening into the peritoneum was closed with a plain gut suture. The muscles were sutured to Poupart's ligament. The aponeurosis of the external oblique was sutured with a double over-and-over continuous suture of chromic gut. A subcuticular, reinforced by three or four interrupted silk sutures, was used for the skin.

There was no vomiting following operation and only slight abdominal pain, which quickly disappeared. Pulse, 98; temperature, 99.4° F.; respirations, 24. A small enema was given night and morning for the first two days following operation, then one enema daily. The wound was dressed on the seventh day, the skin suture removed, and a small amount of sero-pus evacuated from the superficial area. This area quickly healed. The pregnancy was in no way disturbed by the operation.

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