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WITH A REPORT OF A CASE OF STRANGLATED FATTY HERNIA ENVELOPING AN EMPTY FEMORAL SAC

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Before describing this case, I wish to take up the subject in a general way in order to draw the attention of surgeons to this rare or rather, perhaps, neglected field.

After reviewing the literature of the subject which contain only a few, but fortunately most excellent papers; I am inclined to think that the condition is not so rare as would seem.

With the exception of Dr. Joseph Ransohoff’s paper (1913) all of the work has been done previous to 1870–1877 and each author has been able to report one or more personal cases. One would naturally conclude, if the subject of fatty hernias had been so thoroughly worked out during a period when, compared with the present, there was very little surgery done, that certainly the modern surgeons have overlooked the subject as evidenced by the paucity of the literature since 1877. It seems rather strange that the attention of the various authors has been drawn to the subject by either encountering a case or being directed to it by a friend.

The author of this paper, after having operated one of these cases, was personally referred by Dr. Joseph Ransohoff, in the Cincinnati Hospital Library, to his excellent paper on fatty hernias; otherwise I may have never known that there was such a subject.

That wonderful surgeon, Ambroise Paré, who has done so much for surgery, was perhaps the first to describe a case of fatty hernia, and in the report we gain an insight into the cause of his greatness, because it shows his unquenchable thirst for knowledge and his ability to make others profit by his labor.

Every abdominal surgeon is well acquainted with the subperitoneal fatty layer. In some patients it is quite thick while in others it is absent in certain areas. A study of cross sections of the above region will give one a better idea of the subperitoneal fatty layer than pages describing it.

If from violence or some other cause the fibres of the fascia composing the linea alba become separated, the intra-abdominal pressure will force first, the underlying fatty layer through the defect and eventually perhaps a peritoneal sac may be drawn through with the fat. The fat may increase into a well defined tumor, which usually has an artery passing into it. Because of the artery it is thought that the rent in the fascia occurs at a point where the former passes through the fascial layer. However, the majority of these fatty hernias occur at the location of and usually, but not necessarily, with inguinal or femoral hernias.

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So few cases have been reported, that a classical text book description of the symptoms is out of the question. Therefore, I will make a brief extract of some of the cases that I have been able to find.

CASE I (AMBROSE PARE).—"It is a priest of St. Andrew, named Jean Moret, who on Sundays sang to the epistles in the church. He had a large complete intestinal hernia, which he showed me, demanding relief, because he felt severe pain in it, particularly while singing. Seeing his suffering I told him that truly he should put someone in his place. This he did, praying the curate to substitute someone else and bewailing his own weakness. When this was accorded him, he placed himself in my hands and I prescribed several remedies suitable to his sickness, also making him a bandage which he wore during the period of five or six years. One day, asking him how his trouble was, he replied that he did not know that he had any and that he was cured. That, I would not have believed had I not seen it. Therefore, took him to my lodging and saw his genital parts without any trace of a hernia, and I was greatly astounded how he could have been cured in view of his age. About six months after I thus saw him, he died of pleurisy, and being advised of his death, I went to the house of the curate where the said Moret had lived, and prayed that I be permitted to open the dead body, to the end that I might learn what buttress nature had placed in the canal through which the intestines had descended. I protest before God that I found all around the groove of the peritoneum a fatty substance of the size of a small egg and attached so firmly to its surroundings that I had great difficulty in detaching it without breaking or tearing the adjacent parts, and this was the way in which a cure had followed."

CASE II (REPORTED BY THOMAS ANNANDALE. Read before the Medico-Chirurgical Society of Edinburgh, January 5, 1870).—Dr. Annandale's attention was first directed to the subject by Professor Turner, 1860, in the dissecting room. He had made careful notes and drawings of the dissection and loaned them to Annandale. I think it is advisable to give Annandale's full report of the first case because it gives practically all of the anatomical features of a typical femoral fatty hernia.

"Subject, female, eighty-six years old. A large fatty mass was found projecting through the left saphenous opening. It was one and three-fourths inches long and one inch broad at its widest part. It was situated on the pubic portion of the fascia lata, somewhat constricted at the spot where it projected through the saphenous opening, being closely embraced on its outer surface by the superior cornu of that aperture. When the fascia lata was removed and the crural sheath exposed, and the different compartments cut into, the internal or crural canal was found to contain a considerable quantity of fat, which was continuous with the fatty mass projecting through the saphenous opening. In its descent, the mass had projected before it that part of the femoral sheath which forms the wall of the canal. This investment had a thin transparent shining appearance which might at first sight be mistaken for the sac of the hernia. When this investing structure was cut through, the fatty contents were found to be distinctly lobular and vascular; the vessels being continuous with the vessels of the abdominal wall. A funnel-shaped peritoneal sac was situated in the middle of the fatty mass extending for about half an inch downward. The fat was evidently nothing more than a hypertrophy of the subperitoneal fat of the wall of the abdomen with which it was continuous, superiorly through the crural canal. The peritoneal sac was smooth and transparent. The sac was empty, and its upper narrow end communicated with the general cavity of the peritoneum. The fatty mass was slightly adherent to the exterior of the sac." He describes another fatty tumor size of an almond in same subject which consisted of subperitoneal fat. It had passed through the
split fibre of the conjoined tendon and had as coverings the transversalis fascia and spermatic fascia. It emerged from the external abdominal ring but contained no sac.

**CASE III (ANNANDALE).—**Female subject, dissected 1860, had projecting through the left saphenous opening a mass of fat the size of a small orange and was covered by the femoral sheath. Within the mass was a femoral sac containing adherent omentum. On right side was a fatty mass the size of an almond, within which was a small empty peritoneal sac. It had the same anatomical relations.

**CASE IV (ANNANDALE).—**"Female subject dissected July, 1860. A lump of fat the size of an olive was found in the left crural canal and continuous with subperitoneal fat and crural ring. Within the mass was found an empty cul-de-sac of thickened peritoneum which was closed at the femoral ring by a distinct cicatrix."

**CASE V (ANNANDALE).—**Female subject dissected July, 1861. A mass of fat one inch long protruded through the left saphenous opening and was derived from the subperitoneal fat, it contained an empty peritoneal sac.

**CASE VI (ANNANDALE).—**Dr. Annandale dissected a middle-aged male subject in March, 1864. On the right side, a fatty mass, the size of a pigeon's egg, and on the left a mass a little smaller were discovered; each had pierced the fibre of the conjoined tendon and had carried down a peritoneal sac that communicated with the general peritoneal cavity.

**CASE VII (ANNANDALE).—**A male subject dissected December, 1869, was shown to Dr. Annandale by Dr. Chiene. On the right side was a large oblique inguinal hernia which had filled the scrotum. In the position of a direct inguinal hernia, on the right side was a lobulated mass of fat that contained a peritoneal sac which was closed where it joined the parietal peritoneum as evidenced by a distinct cicatrix. There was a similar mass of lobulated fat in the right crural region which was continuous with subperitoneal fat, but contained no peritoneal sac. There was a crural rupture on left that had some fat connected with the sac.

**CASE VIII.—**Sir A. Cooper saw a case in which a "Steatomatous" tumor in a woman was located in the situation of a crural hernia. It appears that a crural hernia had been gradually obliterated by the growth of a fatty tumor of considerable size.

**CASE IX.—**Fardean (Sédillot's *Journal de Médecine*, vol. xxiii, 1812) saw a case in a man aged sixty-five, who had three fatty herniae, as follows: One near the ensiform cartilage, one at the umbilicus, and the last one associated with the left spermatic cord.

Annandale states that "Morgagni, Pelletan and Cloquet observed cases of this kind, in some of which there was a small empty peritoneal sac."

**CASE X.—**Mr. Cook (*Med. Chir. Transaction*, vol. vii) reported the case of a married woman twenty-seven years old who presented symptoms of obstruction from a small tumor in the left crural region. It was very tender and irreducible and existed nine months. Operation showed it to be a hard lobule of fat that contained an empty sac.

**CASES XI AND XII (Cock).—**He also refers to two other cases which had a small tender protrusion of the linea alba which probably originated from the subperitoneal fat.

Dr. Annandale saw a case with Dr. Chiene, a woman who was suffering with a painful fatty protrusion situated at the outer edge of the rectus muscle, and was the size of a small mushroom. After some weeks it returned into the abdominal cavity.

**CASE XIII (ANNANDALE).—**Dr. Annandale in June, 1867, saw a Mr. F., aged sixty-five, who suffered with symptoms of strangulated hernia. Dr. Bum was the attending physician. The patient had a femoral hernia on each side. The one on the left had been irreducible for many years and was of thirty years' standing.
FIG. 1.—View of the umbilical region from inside.  a, skin;  b, superficial fascia;  c, fat tumor external to superficial fascia;  d, cut edge of linea alba;  e, lobule of subperitoneal fat continuous with the tumor e through an aperture in the linea alba, d; no peritoneal sac.
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The other one was reducible. Vomiting of fecal matter led Annandale to operate the left side. A transparent shining membrane (the femoral sheath) was opened and contained a mass of lobulated fat the size of a pigeon egg which seemed to extend up into the abdominal cavity. Division of Gimbernat's ligament and an attempt to reduce the mass which was supposed to be omentum caused a distinct gurgling of a portion of gut returning into the abdomen. The mass was ligated for omentum and removed. Careful examination showed it to contain a sac. Good recovery.

**Case XIV (Annandale).—** Dr. Annandale was asked by Dr. Niven to see a woman aged seventy-eight years who was suffering from strangulated hernia for three days; it followed a sudden slip. She had had a small irreducible lump in right groin for several years. The tumor was the size of a walnut and was very tender and irreducible. At operation a lump of lobulated fat was found in what was at first thought to be a true sac. The mass had a true neck passing down from the abdominal cavity and was firmly grasped at the femoral ring. Annandale thought it was omentum and was on the point of returning it after cutting Gimbernat's ligament when he remembered his former case. A sac was found in the centre of the mass which contained a congested gut. The latter could not be reduced on account of stricture at the neck of the sac. When it was cut, the bowel was easily reduced. Patient made a good recovery.

**Case XV (Dr. Fifield's Fatty Hernia, Boston Medical and Surgical Journal, vol. 97, 1877).**—Attention was first called to this subject by the writings of Cruveilhier and M. Bernutz.—Dr. Fifield reports the following case: The patient, a man, had been forcibly ejected from a house during a fight, and had been jumped upon and pounded. A tumor was noticed near to and above the umbilicus. It had been considered a ventral rupture strangulated. Dr. Fifield, however, on seeing it, at once recognized a “fatty hernia” and cutting down on the tumor showed that the diagnosis was correct.

**Case XVI.—** F. J. Lutz, M.D. (in the *St. Louis Medical Journal*, vol. lii, February, 1889) reported a case of “Fatty Tumor Complicating Femoral Hernia.” Operation showed a pedunculated fatty tumor attached to the inside of femoral sac. It was three inches in circumference and microscopic examination showed it to be composed of fat.

December 10, 1912, Dr. Joseph Ransohoff read before Southern Surgical and Gynecological Association, Old Point Comfort, Va., a most valuable paper on “Fat Hernia,” published in *Lancet Clinic*, January 4, 1913. Seven cases in all were reported from his long and extensive surgical practice, “and curiously enough only two of these were of the femoral type.”

**Case XVII (Ransohoff).—** Mrs. N., aged forty-three, entered Jewish Hospital December, 1894. Had irreducible hernia on right side of two weeks' standing. Patient was very slender. There is an ovoid tumor, lobulated and the size of a small hen's egg. It can be traced to the femoral ring. Impulse on coughing. Operation showed mass to be a subperitoneal lipoma that had passed through the crural canal. It had a well-marked pedicle fairly vascular but no peritoneal protrusion. Three years after, following sudden strain, patient developed a similar tumor of left femoral canal, no peritoneal sac.

**Case XVIII (Ransohoff).—** Miss J. G., aged twenty-one, entered Good Samaritan Hospital, January 16, 1906, for right femoral hernia supposed. Six months before, patient had tumor in same region that could not be reduced, fever and obstructive symptoms followed. Operation performed to relieve the same. What was done then could not be determined. Two months following operation, tumor appeared suddenly and increased gradually in size.

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Present Condition.—Beneath a recent scar in right groin is a tumor the size of a small peach which can be in a large measure reduced. Impulse on coughing. Operation showed a fat hernia that possessed a central funnel-shaped sac which would only admit a probe. The author follows with an opinion as to how the second condition was brought about.

"It is curious that the onset of these hernias is often unnoticed until an accident attracts attention to them. The following case is an illustration."

Case XIX (Ransohoff).—O. J. F., aged twenty-eight, dining-car man, fell violently in a train accident. Pain was experienced in both groins. Three days after examination showed what seemed to be an indirect inguinal hernia on each side. Had a well-developed adipose layer. Tumors were size of a small peach and seemed partly reducible. Would recur without effort on the part of the patient. Impulse on coughing.

Operation under gas-oxygen anaesthesia, September 30, 1912, revealed a lobulated and encapsulated mass of fat on right and left side the size of a small peach, on the inner side of the cord and extending under the aponeurosis of the external oblique, terminating in a small pedicle. There was a small tongue-like sac extending through the centre of the mass. A small probe could barely be passed through it into the peritoneal cavity.

Case XX (Ransohoff).—Mrs. L. B., aged twenty-seven, married five years, never pregnant. Two months before admission to Jewish Hospital, noticed a slowly developing, painless tumor in the left groin.

Physical Examination.—"The patient is a slender woman and presents nothing abnormal except the local condition. Occupying the right inguinal canal and extending slightly into the labium majus is a pyriform solid tumor the size of a small pear. To the touch it is lobulated and gives the impression of an omentocele. There is an indistinct impulse on coughing, and the tumor can be partly pushed back into the enlarged canal. The operation at the Jewish Hospital, February 8, 1907, for a supposed irreducible inguinal hernia revealed a nicely encapsulated subperitoneal lipoma on the outer side of the round ligament. Through its centre there ran a process not larger than a broom straw.

Case XXI (Ransohoff).—Father H., aged sixty-four, February 10, 1909. Patient has had a right inguinal hernia for three years. It has been slow of development and painless, except when truss was worn.

Physical Examination.—Patient has a distinct tendency to obesity. In right inguinal canal and upper part of scrotum is a firm, rather smooth mass, as large as a peach and presenting a distinct impulse on coughing. The patient can apparently reduce the mass, but it can then be felt by the top of the examining finger.

"Operation, February 11, 1909, reveals a perfectly encapsulated subperitoneal fat tumor on the outer side of the cord. It is easily shelled out, but at its base there are running into it some quite large vessels. In the bed of the tumor there is exposed a circular area of the reverse side of the peritoneum, one inch in diameter, without any protrusion whatsoever, and moving distinctly with respiration. The operation was completed as an ordinary hernia."

Case XXII (Ransohoff).—Miss F. P., aged thirteen, referred by Dr. Forchheimer. Patient felt a sharp pain in right groin and on examination the next day a tumor the size of a pigeon's egg was discovered. She was certain that it came on suddenly.

Present Condition.—Patient is very slender. "Projecting from the right inguinal canal is a tumor, like a pigeon's egg in size and shape. It is slightly movable, quite tender to the touch and irreducible. There is no impulse on coughing. Believing it to be a hernia, an immediate operation was performed at the patient's home, June 6, 1907.

"The operation revealed an encapsulated fat hernia with many fibrous strands
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running through it. The vessels on the mass were greatly injected, and at its upper end there was a marked constriction, which accounted for the condition and the onset of the acute symptoms. No trace of a peritoneal protrusion could be found."

Case XXIII (Ransohoff).—C. R., aged forty-nine, admitted to the Jewish Hospital, April 15, 1910. For many years he had had a right inguinal hernia for which he has worn a truss. For the last two years, however, he has not worn a truss, because of the pain which it caused and because the hernia did not seem to get any larger. The patient is a very fleshy man with an irreducible right inguinal scrotal hernia. It is the size of a good-sized peach with distinct impulse on coughing. The operation revealed an indirect inguinal hernia. Nothing unusual presented until the sac was opened, when there was found within it a lipoma as large as a small peach and attached by a broad base. The sac itself was like the finger of a glove and readily tied off. The operation was completed by the Bassini method.

Ransohoff describes a case of fatty epigastric hernia, the size of a plum. Case entered the Cincinnati Hospital service of Dr. Kramer. Patient was found delirious at home. Six months previous he had been in the hospital for acute nephritis. At operation the tumor was strangulated by a sharp ring formed by the margin of the recti muscles. No contents. Patient died in four days of chronic Bright's disease.

Ransohoff makes mention of a case reported by Wendel (Zeitsch. f. Chir., vol. 65, p. 388) in which fat tumor of the femoral region was strangulated by torsion. A fine process of peritoneum was found within the tumor.

Case XXIV.—The following case is offered by the author, first because it represents a rare complication of an apparently rare condition; second, the anatomical relation being classical in this case, caused the author to be puzzled like a few of the previous writers.

My assistant, Dr. Elizabeth Shrieves, was called to see Mrs. L., aged seventy, widow, on Saturday, November 17, 1917, at one-thirty P.M., and from the patient obtained the following history: On Friday, November 16, 1917, the patient, late in the afternoon, helped her daughter lift a tub of dirt. She experienced a sudden pain in the region of right groin. After this she hoed in the garden for a short time but had to give it up on account of the pain.

She grew worse and Saturday, after dinner, Doctor Shrieves found her confined to her bed and complaining of extreme pain in right groin. Patient was vomiting and continued to vomit the rest of the afternoon. The doctor forgot to record the pulse and temperature. On examination a very hard, tender tumor the size of a small hen's egg was situated in the region of a femoral hernia on the right side. The doctor's recollection was that there was no impulse on coughing. She did not employ taxis but instead used hot and cold applications with the patient's hips elevated. She made three trips that afternoon to see the patient, and at eight P.M., when I was called to operate, the tumor had not been reduced. I did not take time to examine the patient because of her critical condition. The patient's previous history is of interest. She came to America from Cork, Ireland, when she was aged twelve. At the time of her immigration, she was carrying from two to four gallons of milk on her head daily over a milk route four miles long.
The patient has always been constipated; never had any serious illness. Has had frequent pain starting in right axillary line at costal margin and radiating down to the inguinal region on the same side. She never noticed a lump before in her groin. She has experienced the radiating pains for forty years or more.

Patient is slender, very frail, and possesses very little subcutaneous fat.

Operation at home; under ether anaesthesia. I palpated a solid tumor in right crural region; it was very prominent. A vertical incision was made over the tumor dividing the skin and subcutaneous tissue. This revealed a tar-black mass projecting through saphenous opening and situated within a thin transparent sac which was supposed to be the peritoneal sac of a femoral hernia. We had just come from the hospital where I operated on a lady of the same age for a strangulated femoral hernia on the right side. The femoral sac in this patient contained a gangrenous bowel, which we resected, which on inspection presented an identical appearance to the above case. I said to Doctor Shrievs, "Here is another bowel to resect," but on opening the thin sac I discovered that the mass was not bowel, omentum, bladder or any abdominal organ that I had ever seen. It was lobulated and had a shiny surface though black, and was apparently attached to the margins of the femoral ring where it formed a narrow neck. Like Annandale, I was puzzled, even more than he because I at once recognized that I was not dealing with any part of an intra-abdominal organ, but still there was a strangulated mass the size of a hen's egg apparently situated in a peritoneal sac that I must recognize and that quickly. I decided to divide Gimbernat's ligament. This I did by introducing the index finger of the left hand into the femoral ring the best I could and dividing the ligament with a pair of straight Mayo dissecting scissors. This solved the mystery, for, when I withdrew my finger, out slipped the vermiform appendix through the opening I had made in the true peritoneal sac at the femoral ring. The strangulated mass was a fatty tumor surrounding the peritoneal sac. The appendix was easily removed and showed no evidence of acute inflammation, therefore I do not believe that it was in the femoral sac at this time although, no doubt, it had frequently occupied this position. Microscopic examination of the appendix showed that the lumen was obliterated. The radiating pain of long standing might have been caused by irritation or pulling of the appendix while it was in the femoral sac. The thin transparent femoral sheath is the thing that has fooled us all. In my case it seemed to be identical with the femoral sac. The tumor was ligated and removed and the operation completed in the usual way. The patient made a good recovery, union was by first intention and she is enjoying good health, 1919. The radiating pain complained of for so many years stopped after the operation, and her constipation has been relieved.

Case XXV.—While preparing this paper, I operated upon a case of fatty hernia of the umbilical region that I had seen in consultation
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with Dr. G. W. Wire on Thanksgiving day, 1918. At that time I made a diagnosis of umbilical hernia that contained an adherent piece of omentum. When the patient came in for operation, I reexamined her and found just above the umbilicus a tumor mass about 2 cm. in diameter. There was no impulse on coughing, although the umbilicus itself was pouched out, the mass was not painful or tender and had been discovered by Doctor Wire while making a general physical examination of the patient. She is the mother of eight children, rather frail, there is small amount of adipose tissue, aged forty-two. A transverse incision surrounding the umbilicus was made and that region removed. There was no peritoneal pouch and the mass consisted of a lobule of fat that had passed through the linea alba just above the umbilicus (see Fig. 1). A small portion of the lobule could be distinguished from the internal surface of the linea alba. The operation was completed by Mayo’s technic. Patient made a good recovery.

The differential diagnosis of Carsten Holthouse, the English authority, as quoted by Fifield, will be of interest at this point to show that we must change our views as new facts are added to the subject at hand.

1. They are of slow growth and come on without obvious cause.
2. Their growth and increase of bulk are progressive, never larger at one time and smaller at another.
3. When pinched up between the fingers, they are of lobulated, dimpled appearance.
4. When lifted off the parts below there is no impulse on coughing.
5. They are never reducible.

After a careful study of the foregoing cases, the following summary is offered.

1. Can be located in region of indirect inguinal hernia, in femoral region, linea alba or linea semilunaris.
2. They are gradual in development but onset of symptoms may follow a sudden exertion or injury and the patient first notices the tumor at that time.
3. May or may not have a peritoneal sac. The latter is usually small and empty but can have contents of ordinary hernias.
4. Fatty tumor can be on either the inside or outside of the sac if the latter is present.
5. Can become strangulated with an empty sac or even without a sac, and with or without torsion.
6. An impulse on coughing has been observed, but is generally absent.
7. False reduction in some cases is possible.
8. Diagnosis seems to be difficult.
9. Treat the same as an ordinary hernia.

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