

TORSION OF THE OMENTUM

REPORT OF A CASE AND A BRIEF REVIEW OF
THE LITERATURE

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History.—Mrs. B. F., aged 36, admitted to the Jewish Hospital, Sept. 4, 1919, complained of pain in the lower part of the chest and in the epigastrium. She gave a history of a similar attack, but not so severe, five weeks previously. This improved in two days, but tenderness in the abdomen had persisted up to the time of admission. The present pain began on August 28, and at first was chiefly in the mid-epigastrium, but later moved down until it was quite low in the abdomen and more severe in the right iliac region. The pain was mild for four days and aching in nature; then it became much more severe, becoming a constant "cramp-like" or "doubling-up" pain. The abdomen was very tender, and any motion of it produced intense pain. The patient had been nauseated throughout the entire illness, but vomiting, expulsive in nature, occurred only once, having been induced by drinking hot water. The patient had been slightly constipated ever since the onset of the illness, and four days before admission she took a bottle of magnesium citrate and some cathartic pills, which caused the bowels to move and also increased her pain.

The patient had had a right inguinal hernia for twenty-two years which frequently descended, was often painful, and at times was difficult to reduce.

Examination.—On admission, the patient had the appearance of being quite ill. She was moderately obese, and her head, neck and chest presented nothing of significance. The abdomen was tender all over, but especially tender in the right lower quadrant. There was considerable rigidity of the muscles on the right side, preventing the palpation of any mass. A diagnosis of acute appendicitis was made, and the patient was operated on immediately.

Operation and Result.—The peritoneal cavity was opened through a right rectus incision. A little serosanguineous fluid escaped, and at the edge of the incision a greatly swollen mass of gangrenous omentum appeared. The omentum was found to be fixed by its distal extremity to the edge of the internal inguinal ring, and a considerable portion of it had been strangulated between the two points of torsion. The lower twist was just above the internal ring, where the omentum had been twisted into a cord not more than one-eighth inch in diameter. The portion of the omentum below this twist was healthy, probably having received a blood supply from adhesions. The upper twist had a thickness of about three fingers, and when unwound, was found to have undergone five and one-half complete turns. The gangrenous portion was ligated and removed, and a normal appendix was also removed. The uterus was found to be the seat of multiple fibroid tumors, but on account of the poor condition of the patient, these were not disturbed. There was a hernial sac on the right side, but this was empty at the time of operation. The patent internal inguinal ring was closed by suture from within the abdomen. The incision was closed without drainage. Convalescence was uneventful, and the patient obtained a complete recovery.

REVIEW OF LITERATURE

Since torsion of the omentum was first recognized by Oberst in 1882, new cases have been continually reported, so that in 1915 Bookman¹ was able to enumerate 131 cases in the literature, while an estimate of unrecorded or unrecognized cases would make the number much higher. The condition is therefore uncommon rather than rare, and not so interesting as a curiosity as it is from the standpoint of diagnostic

significance. Richardson has defined torsion as a twisting of the omentum on itself, causing sufficient obstruction of the blood supply to cause strangulation. In general, the condition is more frequent in males, the ratio of preponderance being 3 to 1 (Corner and Pinches²), while F. D. Smythe³ says that it is extremely rare in females. It usually occurs in middle aged persons, and its almost invariable association with hernia is a fact important both in etiology and in diagnosis.

The causation of torsion of the omentum is not clear. Some abnormal fixation of the omentum seems to be the universal and predisposing factor. Such a fixation is most frequent in the sac of a hernia, although all intra-abdominal adhesions are possible causes. The two fixed points of the omentum are poles between which the structure is swung (to use an apt comparison of Bookman's) in a manner similar to a hammock. Added to this static condition there must also be an active extrinsic mechanical element bringing about the torsion, since the omentum of itself is not motile. This active element is commonly believed to be the peristaltic action of the intestine. The normally attached omentum, being fixed at only one pole, is easily twisted by every peristaltic wave, and is equally free to untwist. The omentum that is fixed at two extremities, however, when turned about by violent peristaltic action is turned between two zones of torsion. Such a condition must necessarily cause the previously loosely hanging structure to be shortened and tightened between its points of fixation, thus itself impeding its unraveling. It is probably such a shortening and tightening of this band of tissue that prevents the structure (which under normal conditions can easily untwist) from falling back again into its normal position.

The pathologic changes occurring in the twisted omentum are those of strangulation, i. e., anemia or congestion with stasis terminating in gangrene. Infection is rare and is usually hematogenous. In addition, the transverse colon may be caught in the torsion and undergo similar changes, with symptoms of intestinal obstruction. The symptoms in any case will depend on the nature of the torsion; the most complete classification of the different types that may be found has been made by Payr:

1. Torsion without coexisting hernia:
 - (a) Of the omentum only.
 - (b) Of the omentum plus adhering viscera.
2. Torsion with coexisting hernia:
 - (a) Of the intra-abdominal portion only.
 - (b) Of the hernial portion only.
 - (c) Complicated cases:
 - (1) Involving both portions.
 - (2) Either type, associated with retrograde incarceration.

Corner and Pinches give a somewhat simpler division into:

1. Torsion purely abdominal, with no hernia present.
2. Torsion purely hernial. This is the type commonly not recognized as torsion, but diagnosed as strangulated omental hernia.
3. Abdominal torsion complicating a hernia. This is by far the largest group, and is the type usually referred to as torsion of the omentum.

In a condition of such a variable nature the symptomatology must be necessarily multiform. This is even more evident when we consider the complex nature of

1. Bookman: Ann. Surg. **61**: 730, 1915; Am. J. Surg. **29**: 304, 1915.

2. Corner and Pinches: Am. J. M. Sc. **130**: 314, 1905.
3. Smythe, F. D.: Surg., Gynec. & Obst. **3**: 531, 1906.

the mechanical factors. Bookman thinks that the symptoms are produced chiefly by the interference with the omental blood supply. It seems most probable, however, that the traction of the tightened band of omentum on the stomach, the transverse colon and their peritoneal attachments is the all-important factor in symptomatology. Pain is the first symptom to appear, usually the most conspicuous, and the only one constantly present. The pain is often sudden in onset, usually abdominal, and frequently referred to McBurney's point, although occasionally referred to the hernia. Corner and Pinches state that there is usually no history of previous illness referable to torsion, although sixteen cases are cited in which previous abdominal symptoms, chiefly pain, were continuous for several weeks. They mention others in which there were histories of recurrent attacks of pain over periods up to nine years. As many as ten complete twists have been found, probably each attack of pain representing an increment of torsion before the final straw brings the patient to operation. Thus, Hartwell⁴ reports a case giving a fairly typical history of gastric ulcer lasting many years in which operation revealed a twisted omentum attached to the healthy wall of the stomach. Hale⁵ reports a case with a similar attack twenty years previously. In Bookman's case there were indefinite cramplike pains for four months, while in our case there was a history of an acute attack followed by a subacute hiatus of five weeks before the final attack.

The pain is usually of an aching or pulling character, and cramps may be present if there is an attendant ileus. Vomiting, according to Corner and Pinches, is present in one third of the cases, although Bookman believes it is present in nearly one half. Usually the vomiting is frequent and violent; occasionally it is blood stained, although nausea without vomiting may occur. If torsion or knuckling of the intestine occurs, the symptoms of mechanical obstruction supervene. The condition of the bowels is variable. They are usually open, but constipation or even obstipation may occur; blood and mucus may appear in the stool if there is obstruction. The temperature is usually slightly elevated, and there is also a moderate acceleration of the pulse. Some rigidity of the abdomen occurs in well developed cases, but the most significant physical sign is the presence of an abdominal mass, especially when associated with a hernia. Mild leukocytosis, with an increase in the polymorphonuclear elements, is usually present.

The foregoing, in addition to a brief study of the literature of the subject, will indicate how difficult the differential diagnosis may be in these cases. The very infrequency of torsion seldom brings it to the mind of the diagnostician as a possibility. It is most frequently mistaken for appendicitis, since that is the most common surgical intra-abdominal condition and is itself often of variable symptomatology. Volvulus is also commonly diagnosed in this condition, and may actually be associated, as previously indicated. Torsion within the sac of a hernia is always diagnosed as ordinary strangulation, nor is the differentiation of any importance.

F. D. Smythe has tabulated the differential points between torsion and appendicitis. These, however, in the main, are purely relative, and while of general academic interest, they are of little value in the

individual case. They indicate only an indefinite probability in diagnosis; but the rarity of torsion makes the probability of its presence infinitely less than that of appendicitis. The more rapid pulse, the lower temperature and leukocytosis, and the less marked septic symptoms, which are usually present in torsion, as well as the possibility of palpating or percussing an abdominal mass, are the most significant of the facts that the patient presents.

A feature in the histories of a number of cases presented in the literature, which seems to us to be of some diagnostic importance, is the nature of the onset. There is a progressive augmentation of symptoms by a series of sharp steps or jumps with intervals of varying length. Such a history is very suggestive of a mechanical disturbance with successive increments, in contrast to the steady and rather smoother continuous aggravation of symptoms in a mounting inflammatory condition. However, from a practical standpoint, there is only one thing that can give the diagnosis of omental torsion any degree of surety, namely, the coexistence of a hernia with the sudden appearance of an abdominal mass. Bookman's correct preoperative diagnosis was based on such a finding; without it a diagnosis is probably impossible. Corner and Pinches hypothesize a type of history, leading to an inferential diagnosis: a man of middle age with an inguinal hernia giving rise to symptoms suggestive in a general way of subacute intestinal obstruction. Examination reveals a painful or irreducible hernia, either incarcerated or strangulated, with a tumor, either in the scrotum or in the abdomen.

The treatment is, of course, operative. Unless there is delay, the condition is not likely to be a severe one, and the operation is technically easy; and it seems to be generally agreed that, in uncomplicated cases, the mortality is almost nil.⁶

CESAREAN SECTION UNDER PROCAIN ANESTHESIA *

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The choice of an anesthetic for cesarean section, always debatable, becomes more difficult in the presence of either cardiac or renal complications; and, if both exist, the problem is indeed a vexing one. Although pregnancy should carry with it some degree of immunity against the toxic effects of chloroform—which is doubtful—certainly its administration to any one suffering from a cardiac lesion would be very dangerous. Similarly, the administration of ether to a patient with pulmonary edema would be hazardous; in such cases even nitrous oxide anesthesia has been followed by pneumonia.

The respiratory distress accompanying decompensated cardiac lesions generally requires that the patient sit up, though confined to bed, and in this position the employment of general anesthesia becomes awkward

6. In addition to the references already given, the following will be found of interest.

Armstrong: *Interstate M. J.* 20: 1148, 1913.

Mueller: *Ann. Surg.* 56: 498, 1912.

Syms: *Ann. Surg.* 54: 269, 1911.

Syme: *M. J. Australia* 5: 368, 1918.

* From the Department of Obstetrics and Gynecology, Yale University School of Medicine.

4. Hartwell: *Ann. Surg.* 61: 626, 1915.

5. Hale, Kelley: *Torsion of the Omentum*, J. A. M. A. 68: 977 (March 31) 1917.