

Secondary torsion of the greater omentum: Report of a case with an interesting characteristic plain abdominal X-ray

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Abstract

A rare case of a secondary torsion of the greater omentum is presented. Diagnosis was established during an emergency operation for a strangulated, right-sided, congenital inguinal hernia, containing a not viable omental part. Resection of the strangulated omentum and hernia repair was performed and because of the suspicious looking of the proximal omentum, an additional median laparotomy was decided for abdominal exploration. The rest of the greater omentum in the abdominal cavity had necrotising damages with thrombosed vessels due to a fourfold torsion just below the transverse colon. The compromised portion was ligated and resected. The outcome of the patient was uneventful. The case is presented because of its rarity and the interesting plain abdominal X-ray film, at which a characteristic kinking of the transverse colon is noted.

INTRODUCTION

Torsion of the greater omentum is a rare acute condition in which the omentum twists on its long axis to such an extent that its viability is compromised. It is classified as primary or secondary^{1,2}. There is no specific aetiology to justify the primary cases and the torsion is usually associated with a single pedicle (unipolar). The secondary cases are usually the outcome of a trapped omental segment in postoperative scarring or wounds (adhesion) or a hernia sac and the torsion presents between two fixed areas (bipolar)^{2,3,4,5,6,7}. The entrapment and secondary torsion of the omentum in a hernia sac is not an uncommon surgical finding.

CASE REPORT

A 36-year-old man was admitted with a two-day history of strangulated right inguinal hernia with significant resistance in abdominal palpation. History of the patient revealed that the hernia was known and reducible since childhood. The onset of symptoms was initially overlooked by the patient as he thought he could seize them with rest and routine proper manipulations. He sought medical attention because the symptoms persisted and were getting worse.

Apart from a moderate leukocytosis, the rest of the results

were relatively normal. The chest X-ray was normal and the plain abdominal film showed air- bowel loop congestion and a significant curvature at the middle of the transverse colon that attracted no attention at that time (Fig.1).

Figure 1: Conventional abdominal radiograph and schematic presentation: Remarkable kinking of the transverse colon due to omental torsion.

Figure 1



A more detailed history informed that the patient suffered from non-typical abdominal pain episodes during the last six

months, which were attributed to a possible peptic ulcer and he was prescribed gastro-protective agents blindly, but with no significant improvement. Proper investigation of these symptoms showed no such pathology.

The patient was operated and a strangulated inguinal hernia extending to the scrotum was found, containing part of the greater omentum which was resected because it was not viable. The hernia was repaired with usual technique. During the procedure it was noted that the necrotizing signs of the omental part were expanding in the abdominal cavity. Further exploration of the abdominal cavity was decided through an additional lower midline incision. The greater omentum was retracted through the incision and necrotizing areas and vessel thrombosis were obvious. The whole omentum was twisted four times (4 rotations) at the level just below the transverse colon (Fig.2). The excision was easy after ligation. Exploration of the abdomen was negative for any other pathology. The patient recovered well, had no complications and left the hospital on the 7th postoperative day.

Figure 2

Figure 2: The exposed contorted greater omentum – right inguinal incision also visible



DISCUSSION

Torsion of the greater omentum is a rare condition classified as primary or secondary. The former (unipolar) has no obvious cause. It could be due to a previous abdominal inflammation, anatomical alterations of internal organs or a disturbed bowel movement. The secondary torsion has always a specific underlying pathology such as adhesions between the omentum and the abdominal wall, entrapment in a hernia sac or an omental mass. It appears twisted between two pedicles (bipolar) ^{1,2,3,4,5,6,7}. The first published report that registers omental torsion as a clinical entity is attributed

to Pierre de Marchette in 1851 ⁴. Until 1899, all the reports described cases of secondary torsion. Primary torsion was first announced by Eitel in 1899 ¹. Scepi et al. report 41 primary cases in a total 121 cases of omental torsion ⁴.

In children, primary omental torsion is a rare cause of acute abdominal pain that is very often misdiagnosed as appendicitis ^{1,2}. Because of the rarity of the disease, there are no statistical results concerning the frequency of each situation ^{1,2,3}.

Secondary cases involve torsion of the omentum in an inguinal or umbilical hernia sac and are a rather common surgical finding. Other causes are acute or chronic intra-abdominal inflammatory situations (usually appendicitis) and tumors or cysts of the omentum ^{2,4}. The omentum is usually twisted from the right to the left and if possible it presents as a long, thick mass of variable size on palpation ^{1,2}. An abdominal mass may be palpated in about half of the patients ¹.

Our patient did not allow abdominal clinical examination due to his remarkable abdominal resistance and intense clinical manifestations of his strangulated hernia. The rotation of the contorted omentum was from right to the left (Fig.1). In Figure 2 the left side of the greater omentum presents with an abnormal edge which is the line of ligation and excision during the hernia repair.

Accurate preoperative diagnosis is possible in 0.6-4.8% of cases ¹ and the situation can be characterized as a diagnostic enigma. In primary torsion, pain is usually located in the right abdomen. For this reason, a great number of cases are initially misdiagnosed as appendicitis, acute cholecystitis, peptic ulcer or abdominal tumor of any kind, or twisted ovarian cyst ^{1,2,3,4,5,6,7,8,9,10}. Palpation of a right-sided abdominal mass has very often been mistaken for a phlegmonous appendicitis walled off by omentum. Sometimes, the symptoms mimic those of an incomplete bowel obstruction, acute or chronic. Definite diagnosis can be established by laparotomy or even better by laparoscopy ^{1,7,11}. Torsion of the omentum should be suspected in all cases of acute abdominal pain with no specific findings. Additionally, in all cases of omental entrapment, e.g. in a strangulated hernia, the omentum should be examined for pathological signs due to possible co-existing secondary torsion.

As opposed to ultrasonographic investigation, imaging

techniques such as computed tomography scan (CTS) or magnetic resonance imaging (MRI) are of great value, since specific findings are reported. They are: 1) a whirling mass of fatty and fibrous tissue around a vascular pedicle 2) a spiral fat pattern, 3) a fatty mass with a whirling pattern 4) a circumscribed fatty mass with hyper-attenuated streaks and 5) a concentric distribution of fibrous folds ^{12,13,14,15} .

The main complications of an untreated situation are omental necrosis because of hemorrhagic infarction, peritonitis or bowel obstruction ^{1,2} . Spontaneous derotation may be possible and may explain omental adhesions found during laparotomy that have no clear cause ¹ .

The surgical treatment is rather simple. Ligation of the twisted pedicle and resection of the compromised portion is the procedure of choice even laparoscopically ¹¹ . Meinzer et al. treated 3 out of 165 cases of torsion with simple rotation of the twisted omentum to the opposite direction, correcting its initial torsion by a simple maneuver ³ . In children, in cases of a negative laparotomy for appendicitis or Meckel's diverticulitis, omental torsion should be suspected, especially if blood-stained peritoneal fluid is found ^{6,7,8,9,10} .

In our case, we could assume a primary torsion of the greater omentum that was finally diagnosed when pushed and strangulated in a hernia sac. This thought was supported by literature ^{1,2,3,4,5} and the history of our patient. On the contrary, the torsion of the lesser omentum is rather unusual. In the literature, there are very few reports of lesser omental torsion and they refer to cases of a freely moving omental part (anatomical variation) ¹⁶ .

The interpretation of the diagnostic imaging (plain abdominal x-ray) in our patient could be considered specific of omental torsion, as the curvature of the transverse colon is remarkable. We found no similar imaging descriptions in our literature search. We suppose that the precipitating factor to obtain such a film is an air-congested transverse colon, possibly because of reduced bowel movement after a long-duration status of pain.

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