Primary Omental Torsion Masquerading Acute Appendicitis In Adults: A Case Report From A Resource-Limited Country

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Abstract

Omental torsion is a rare cause of acute abdominal pain for which preoperative diagnosis is very uncommon. We report a young adult from the rural part of Ethiopia, presented with acute abdominal pain. He was operated on with the impression of appendicitis, and primary omental torsion was diagnosed intra-operatively. He was managed surgically and discharged home after an uneventful recovery.

1. Introduction

Torsion of the greater omentum is a rare cause of acute abdominal pain. It is very difficult to diagnose torsion pre-operatively clinically. It mimics acute appendicitis in nearly two-thirds of the cases reported in the surgical literature [1, 2]. It can be primary or secondary. Primary Omental Torsion (POT) occurs when a mobile, thickened segment of the omentum rotates about a proximal, fixed point in the absence of any associated primary intra-abdominal pathology. Secondary Omental Torsion (SOT) is associated with several preexisting conditions, the most common among which is inguinal hernia. Other causes include tumors, cysts, internal or external herniation, areas of intraperitoneal inflammation, and post-surgical wounds or scarring [2, 3]. Anyone can be affected by this condition but it is primarily seen in males in the age group of 30-50 years [1].

2. Case report

A 38-year-old male patient presented with peri-umbilical pain that later shifted to RLQ of two days duration. He also complained of anorexia, nausea, and two episodes of vomiting. Of note, he experienced similar, but milder pain episodes in the past that subsided and he ignored. On physical examination he appeared to be in pain, his vitals were in the normal range. Both direct and rebound tenderness in the upper part of RLQ were positive. But, an inflammatory mass was not appreciated. His lab findings were as follows: WBC counts 7100cells/mm3 (with PMN cells 52.9% and lymphocytes 30.5%), hematocrit 41.8%, hemoglobin 15.7g/dl, and platelets 148000cells/micro-liters. He underwent open surgery with the presumed diagnosis of acute appendicitis. The intraoperative findings were minimal serosanguinous fluid, secondarily inflamed appendix, and bifid greater omentum with darkened, ischemic right side. The omentum was also congested and twisted several times along its long axis. Other intra-abdominal organs were inspected and grossly normal. Resection of the affected section of the omentum as well as appendectomy was done. The tissue was not sent for pathology. Following surgery, the patient's condition rapidly improved. After three uneventful post-op days, the patient was discharged.

4. Discussion

The greater omentum is a double fold of peritoneum that takes its embryonic origin from the dorsal mesogastrium and hangs down from the greater curvature of the stomach to cover the intra-abdominal viscera. Torsion of the greater omentum represents the

vascular compromise caused by twisting of the omentum about its long axis, clockwise being the usual direction. It commonly affects the 30-50 years age range with male predominance, although pediatric case reports are also out there [1, 4, 5]. We didn't come across a case report of omental torsion in the very old or children under 4 years old which may be due to the fibrosis and involution associated with senescence and relative paucity of omental fat respectively [6]. The oldest case reported is 83 years old. Ever since the first accounts by Eitel GG in 1899, and Bush in 1896 there have been only less than 400 cases in the literature, most of them evading pre-operative diagnosis [7]. Here we report a case of an adult male in the fourth decade who presented with abdominal pain, operated on for presumed acute appendicitis, and intra-operatively diagnosed to have omental torsion.

Greater Omental Torsion (GOT), a fairly rare entity in the differential diagnosis of acute abdominal pain, can masquerade as acute appendicitis, cholecystitis, meckel's or colonic diverticulitis, or in women, ovarian pathologies such as twisted or ruptured ovarian cyst depending on which part of the omentum is affected. For this reason, and also because it seldom crosses the clinicians' minds in the differentials of acute abdominal pain, preoperative diagnosis has been very rare.

As there is no single known cause for this condition, only predisposing and precipitating causes have been described across the literature. Some of the precipitating conditions include strenuous exercise, sudden change in position, cough, hyperperistalsis, occupational use of vibrating tools, uneven fat distribution, and abnormal omental anatomy [8, 9]. Torsion of the omentum can occur without any underlying pathologies, as in primary omental torsion, or as a result of other intra-abdominal pathologies, hernia being the most common. Secondary torsion is significantly more common than primary [10].

The pathophysiology is consistent with that of torsion elsewhere (eg. Testicular), and it follows the classic sequence of venous occlusion, engorgement and edema of the distal affected omentum, and finally arterial occlusion with the resultant frank ischemic necrosis. The right side is more commonly affected than the left owing to its length and greater fat distribution [11, 12].

Omental infarction preceded by torsion is not always the case [1, 7]. McMillen et al. reported a 49-year-old woman presented with infarction without twisting, a condition termed idiopathic segmental infarction of the greater omentum (ISIGO), managed conservatively [7]. They have associated this condition with congenital malformations, uneven fat distribution, and redundant omental veins [7].

The most common site of abdominal pain reported in the literature is RLQ, mimicking acute appendicitis [9]. In 2015 Alexiou et al. reported a case of omental torsion masquerading as appendicitis so well that they chose not to investigate with US or CT although it was available [11]. Next in frequency is RUQ pain, mimicking acute cholecystitis, including a positive Murphy sign in a 2015 case report [13]. Pain in these locations may be accompanied by epigastric or supra-umbilical pain, pointing to the fore-gut embryologic origin of the greater omentum. Nausea, vomiting, or mild pyrexia may accompany pain [12]. Omental torsion patients may appear on average "less sick" than appendicitis or cholecystitis patients, with the relative absence of vomiting, high-grade fever, and significant leukocytosis [4, 14]. From the way they present clinically, no pattern distinguishes POT from SOT.

Similar bouts of pain attack, albeit milder, might be uncovered on inquiry in some patients. This might suggest previous spontaneous torsion-detorsion, which might explain some of the omental adhesions encountered during laparotomy on a virgin abdomen [1, 2, 5]. Importantly, it is vital to keep in mind that the more common causes of right-side abdominal pain (appendicitis, cholecystitis) can also be recurrent and present with previous self-limiting episodes [1].

CT scan has been the investigation of choice [7, 15]. Classical findings include whirl pooling, a well-localized fat-density mass in the right quadrant with hyper-attenuation streaks, and intra-peritoneal free fluid [9, 16]. Other intra-abdominal pathologies such as panniculitis, epiploic appendagitis, and liposarcoma, among others, may have similar appearances on CT scan imaging [12]. In their radiologic-pathologic correlation case report, Corvino et al. were able to show that the hyper-attenuation streaks on CT were areas of necrosis and hemorrhage in the congested omental tissue [16]. While the ultrasonography has some role in ruling out appendiceal or gall bladder inflammations, occasionally a large, non-compressible echogenic mass, which is typical for omental infarction may be seen in the omentum [7]. Recently MRI has shown some promise in this area, particularly when omental torsion is complicated [5, 17]. Although it is expected to improve in the era of imaging and laparoscopy, the preoperative diagnosis of OT has been rare, in the range of 0.6-4.8% [3, 11].

Although successful non-operative (conservative) management has been reported in the literature, the success is stained by the drawbacks of close to 16% failure rate, prolonged convalescence, and the possibility of increased complications including intra-abdominal abscess formation and sepsis [15, 18]. AA Tandon and KS Lim reported successful conservative management of a 41-year-old male with inguinal hernia and SOT after pre-op diagnosis using a CT scan, probably due to early detection before frank necrosis ensues [2].

We employed the time-tested treatment of surgically removing the infarcted section to get a much shorter recovery time (3-4 days vs. 12-13 days) and to avoid complications of leaving a dead tissue in the peritoneum (eg. abscess) [2, 16]. Appendectomy was a frequent accompaniment in the literature, regardless of whether it was healthy. In our case, an infra-umbilical midline incision was used from the outset, but if the need arises one shouldn't hesitate to extend or change incisions to facilitate the diagnosis and detection of this condition. It was pointed out that the diagnosis of omental torsion is difficult with incisions at the right lower quadrant [2, 16] although there are reports of its successful management through a gridiron incision [16]. Michael Karanikas et al reported a case of omental torsion where it was required to convert the incision from McBurney's point to midline after finding serosanguinous fluid in the RLQ [10].

5. Conclusion

Although Omental torsion/infarction may not be as common or as drastic as other typical causes of acute abdominal pain, it should always be kept in mind once the common suspicions are addressed. In a developing country, where sound clinical judgment is often the only tool available to the surgeon, a conscious exploration should be made once the appendix, gall bladder, and ovary in females are confirmed to be normal. This might require a primary midline incision or conversion from Lanz's or grid-iron incision.

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