



Acute Appendicitis and Omental Torsion: Report of 2 cases with Review of Literature

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Abstract

It's a known fact that the most common surgical cause for acute abdomen among children attending emergency is acute appendicitis, where as condition like Omental torsion is unforeseen etiology among children. Here we have reported two cases, 12 year and a 11 year old boy who presented with symptoms and signs of acute appendicitis but on exploration turned out to be a combination of Omental torsion and acute appendicitis.

Keywords: *Omental torsion, appendectomy, omentectomy.*

Introduction

Omental torsion (OT) is a rare cause of acute abdomen. It is common in middle age and rarely affects children. Very few cases have been reported in children. Appendicitis and Omental torsion in combination is even rarer. Eitel first described Omental torsion in 1899¹. This condition occurs when the greater omentum undergoes torsion around its axis producing perfusion defects and vascular impairment of the organ leading to ischemia and gangrene. Omental torsion is rarely detected pre-operatively and is usually detected during surgery for acute abdomen or suspected appendicitis.

Case Report

A 12year-old boy (child 1) presented with right-sided abdominal pain of two days duration. Pain was insidious in onset, continuous, non radiating, spasmodic in nature. There was no history of any surgical interventions in the past. There was no history of fever, vomiting, abdominal distension or diarrhea. The general examination and vitals were normal. Weight of the child was 35 kilograms. Systemic examination revealed tenderness in right iliac and hypochondriac region. Blood investigations showed a total leukocyte count of 12500 cells with predominant neutrophilia, and the other laboratory tests were within normal limits. Ultrasound examination

revealed nonspecific mesenteric lymphadenitis. CT scan showed bulbous tip of appendix suggestive of appendicitis. (Fig 1)

Likewise an 11 year old boy (child 2) presented with pain abdomen of two days duration. Pain was sudden in onset, continuous, radiating in nature. There were no aggravating and relieving factors. General examination and vitals were normal, weight of the child was 38kgs. Systemic examination revealed tenderness in right iliac, lumbar and hypochondrium.

Blood investigations showed leucocyte count of 10,200cells with predominant neutrophilia and other lab investigations were within normal limits. CT scan showed thickened omentum.

With the above clinical and investigatory findings, child 1's provisional diagnosis arrived at acute appendicitis. Child was posted for laparoscopic appendectomy. Laparoscopy revealed a segment of greater omentum adherent to the anterior abdominal wall in the region of right hypochondrium. On closer examination this segment of omentum was discolored, edematous, inflamed. On tracing the omentum proximally there was a twist in the omentum along its long axis in the clock wise direction by $3 \times 360^{\circ}$. (Fig 2& 3) The appendix was paracaecal in position, turgid, inflamed and edematous (Fig 4) with tip in paracaecal position. The child underwent segmental omentectomy and appendectomy.

The postoperative period was uneventful. Child1 was started on oral liquids on post-operative day one and discharged the subsequent day. Biopsy consistent with acute appendicitis

Child 2 was posted for diagnostic laparoscopy, on introduction of camera port it was noticed the omentum was gangrenous and adhered to the gall bladder. The appendix was retrocaecal and inflamed. With the above findings it was decided to convert laparoscopy to laparotomy. On exploration the omentum was gangrenous with torsion in clockwise direction by $2 \times 360^{\circ}$. The child underwent excision of omentum and appendectomy.

The postoperative period was uneventful. Child 2 was started on oral liquids on post-operative day one and discharged on day 3 of surgery.



Figure 1



Figure 2



Figure 3



Figure 4

Discussion

Omental torsion is rare cause of acute abdomen. Though described 100 years ago it still remains a diagnostic challenge¹. It closely mimics appendicitis. It has been observed by Kimber et al that omentaltorsion is present in 1 out of every 600 operations for presumed appendicitis, where the appendix was found to be normal². Very few cases of omental torsion and appendicitis together have been reported especially in pediatric age group.

Omental torsion can be classified as primary or secondary. The exact cause of primary omental torsion is still not known³. It is thought that thick, mobile segment of omentum rotates around a proximal fixed point in a clockwise direction in the absence of any intra-abdominal pathology. Spitz et al has suggested changes in omental consistency including inflammation, edema and excess fat deposition (obesity) or anatomic malformations including tongue-like projections, bifid and accessory omentum as predisposing factors for primary omental torsion⁴.

Secondary omental torsion is more common and is associated with pre-existing abdominal pathology in the form of cysts, tumors, intra -abdominal inflammations⁵, surgical wounds and presence of hernia sacs⁶. Moris et al⁷ has reported most cases of secondary torsion occurring in association with inguinal hernias.

Following torsion the distal omentum becomes congested and oedematous due to compromised venous return. Either this may recover or progress to arterial occlusion leading to acute hemorrhagic infarction and eventually to necrosis of the omentum⁷.

Clinically OT mimics appendicitis. Goti et al, stated that 66% of these cases mimic appendicitis, and 22%, cholecystitis.⁸

Omental torsion can sometimes be detected by ultrasound (US) using high resolution probe. The classical ultrasound appearance is an ovoid complex intra-abdominal mass adherent to the anterior abdominal wall and free fluid within the peritoneal cavity. With the increasing use of CT more and more cases of Omental torsion are being

diagnosed. On CT the reliable features are "vascular pedicle sign" and "whirl sign". The vascular pedicle sign consists of a central enhancing dot of mesenteric vessel surrounded by several twists of smaller mesenteric branches⁹. The whirl sign corresponds to a hazy fatty mass with concentric linear fatty stranding and twisting blood vessels within the greater omentum, which whirl around the central vascular rod. Other differential diagnoses of hazy fatty mass with associated stranding, such as omental hernia, inflammation of epiploic appendages, panniculitis, and fat-containing neoplasms should be kept in mind¹⁰.

With the advent of better imaging modalities omental torsion can be treated conservatively in stable patients¹¹ unlike earlier when the standard treatment was resection of the involved segment of omentum.

Conservative treatment includes reassurance, analgesics, and antibiotics, and resolution is expected in two weeks. It has been observed that, if the omentum is not excised it may become atrophic and fibrotic. In rare cases the pedicle may undergo auto amputation, leading to automatic clinical regression¹². Spontaneous derotation is possible and this may explain omental adhesions found during laparotomy that have no clear cause. The other diagnostic as well as therapeutic modality is laparoscopy. Hapuarachchi also thought laparoscopic approach was a reliable diagnostic method¹³. Laparoscopy helps to visualize the abdomen and chance of missing omental torsion is rare. Advantage of laparoscopy is same as elsewhere with less post-operative pain and early discharge. The child mentioned above was started on orals the next day and discharged within 48 hours.

Conclusion

Primary omental torsion is a rare cause of pain abdomen. It mimics many abdominal pathologies and should be included in differential diagnosis. Advent of laparoscopy has resulted in diagnosis of many cases of associated omental torsion which

might otherwise have missed during open appendectomy

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