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Omental torsion-a very rare cause of acute abdominal pain

Md. Manir Hossain Khan[1], Jobaida Sultana[2], Tazin Ahsan[3],
[1.] *Associate Professor, Department of Surgery, Bangabandhu Sheikh Mujib Medical University (BSMMU)*
[2.] *Associate Professor, Department of Gynaecology and Obstetrics, Shahid Suhrawardy Medical College Hospital (ShSMC)*
[3.] *Honorary Medical Officer, Department of Surgery, Bangabandhu Sheikh Mujib Medical University (BSMMU)*
For Correspondence: Dr. Md. Manir Hossain Khan
Associate Professor Department of Surgery Room no- 915, Block- C Bangabandhu Sheikh Mujib Medical University (BSMMU) Shahbagh, Dhaka-1000

Abstract:
Torsion of the omentum is a very rare cause of acute abdominal pain. We report two cases of omental torsion, who presented with right iliac fossa pain. The patients underwent appendicectomy, where a normal appendix was identified and the diagnosis of omental torsion was made. The affected segment of omentum was resected along with the appendix. The patient made an uncomplicated recovery and was discharged on 2nd postoperative day. Normal appendix in the presence of omental torsion is seen in 0.1% cases of all appendicectomies in children. We suggest routine visualization of the omentum in the presence of a normal appendix during appendicectomy.
Key Words: *Omental Torsion, Appendicectomy*

I. INTRODUCTION:

Eitel first described primary omental torsion in1899. There have not yet been any definitive guidelines to aid diagnosis. Reported cases describe characteristic appearances on radiological imaging. However surgical exploration remains the definitive gold standard for intraoperative diagnosis and therapeutic management. Increased awareness of omental torsion as a differential diagnosis for acute abdominal pain will encourage routine inspection of the omentum intraoperatively. It may act to advocate the use of laparoscopy in suitable patients, in order to take advantage of its diagnostic value in exploring the abdominal cavity in the presence of a normal appendix. Now laparoscopy is the standard approach.

II. CASE PRESENTATION:

Two girls were admitted to the emergency department in Uttara Cresent Hospital, Dhaka , reporting acute onset of diffuse abdominal pain, later shifted to right-sided of abdomen and associated with nausea ,vomiting. One girl was six and half yrs and other was 10 yrs. There was no significant fever, or dysuria. The patients did not report any upper respiratory tract symptoms or change in bowel habit. Their medical history included a full term normal vaginal birth, with no history of childhood illness or surgery. She was of normal body mass index and had up-to-date vaccinations.

On examination of the vital signs, they were normotensive, but temp (98.4°F) and tachycardic (121). On examination of the abdomen, they was noted to be tenderness over the right iliac fossa, with localised rebound tenderness and guarding. Mcburney's sign was positive but psoas sign,obturator sign were negative. Examinations of the remaining systems were unremarkable. Additional examination of both hips confirmed no bony tenderness, and no pain on active or passive movements. Routine bloods on admission showed a moderate leucocytosis; a white cell count of 17.55×109/L,neutrophils of 78%. A routine urine exam was found to be negative for nitrates, blood, protein and white cells, ruling out urinary tract infection as a possible cause for her symptoms.A clinical diagnosis of acute appendicitis was made by the surgical team, with a plan to proceed with appendicectomy. Ultrasonography(USG) of whole abdomen returned mild pelvic collection and hypoechoic, irregular area seen in right iliac fossa ,may be due to inflammatiom. Imaging was not given the strong clinical evidence supporting a diagnosis of appendicitis.

The differential diagnoses considered in these cases by the surgical team included acute appendicitis, Meckel's diverticulum, mesenteric adenitis and ovarian pathology.

Fig 1- Resected Specimen

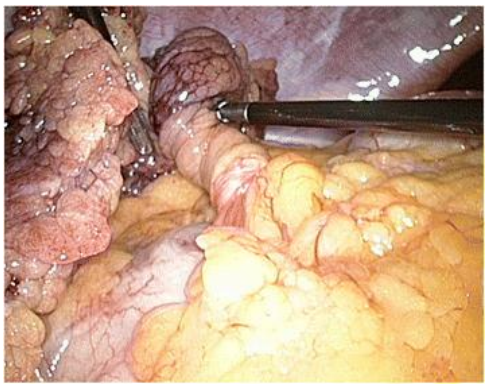

Fig 2- Laparoscopic view

On the basis of clinical signs and laboratory investigations, there was a high clinical suspicion of acute appendicitis. A decision was made to proceed with appendicectomy.The first steps in management were intravenous fluids and antibiotics. The patients were kept nil by mouth and preparations were made for theatre. The team proceeded with an open appendicectomy via a Lanz incision for 1st case and laparoscopy for 2nd case. On exploration, the appendix was found normal in the presence of a patch of torted ischaemic omentum. This was found arising from the right side of the transverse colon, with consequent ischaemia of the omentum. The left side of the omentum was found to be normal, with only a small amount of haemoserous fluid. The omentum was controlled & clipped and divided proximal to the point of torsion. The fluid was collected and sent for microscopy, and the omentum sent for histology. The appendix was also removed in the usual way for both cases.

The histology from the omental section showed focal necrosis of the omentum with acute inflammation and haemorrhage consistent with torsion. The sections from the appendix were consistent with peri-appendicitis plus inflammation of the serosa. There was no evidence of acute suppurative appendicitis. The patient remained haemodynamically stable and afebrile throughout her recovery and was discharged the following day. Further follow-up was not required.

III. DISCUSSION:

The greater omentum, embryonically, is derived from the dorsal mesentery. It is a sheet consisting of four layers of peritoneum, suspended from the greater curvature to cover the surrounding organs[1,2,3,] . Omental torsion occurs as the omentum twists around a pivotal point on its long axis[4,5]. The most common point of torsion is around the distal right epiploic artery due to the increased length and mobility on the right side of the omentum[1,6,7,8]. This results in venous obstruction, causing further oedema and vascular compromise, consequently leading to necrosis and adhesion formation[9,10].

Omental torsion can be primary or secondary. Primary torsion forms one-third of cases, with no underlying causative pathology or distal fixation[6]. Precipitating factors include trauma, obesity and sudden changes in body position or excessive exertion, that lead to an increase in abdominal pressure[10]. Secondary causes can include adhesions from previous surgeries, hernias and other foci of inflammation[11,12]. These cause a distal fixation, resulting in bipolar torsion[12]. In extremely rare cases, the omentum has been noted to infarct without any evidence of torsion, a phenomenon known as primary idiopathic segmental infarction[13].

Right iliac fossa pain in a premenarche female,with associated leucocytosis, fever and vomiting, is often a classical presentation of acute appendicitis, and is treated by an appendicectomy. This remains the most common cause for emergency surgery today, via either laparoscopy or open technique. Intraoperatively, when no inflammation is found surrounding the appendix, it is routine to check for other pathology, such as Meckel's diverticulum.

The presence of a normal appendix and terminal ileum on inspection ruled out these differentials as a cause for her abdominal pain. Other possible paediatric causes of right iliac fossa pain in the presence of a normal appendix include mesenteric adenitis, urinary tract infection and ovarian pathology. Mesenteric adenitis involves inflammation of the mesenteric lymph nodes, typically causing pain in the right iliac fossa[3],differentiated by preceding symptoms of upper respiratory tract infection. The most common ovarian pathologies seen in paediatric females are ovarian cysts or less commonly, malignant neoplasms.

The diagnosis would normally be made by preliminary imaging or at diagnostic laparoscopy[4].Omental torsion is a rare differential for acute abdominal pain, clinically mimicking acute appendicitis—presenting typically with constant non-radiating pain in the right iliac fossa, and occasionally with associated low-grade fevers, moderate leucocytosis and vomiting. Fifty per cent of patients are found to have omental torsion present with an abdominal mass and localized peritonitis[5]. They are found to be less systemically unwell than those with acute appendicitis[6], although most diagnoses are made intraoperatively in the presence of a normal appendix.

Since the first diagnosis of omental torsion by Eitel in 1899, primary omental torsion has been found in 1% of appendicectomies carried out for suspected appendicitis in children[14,15]. Patients typically present with non-radiating pain in the right iliac fossa and a moderate leucocytosis. There is often associated low-grade fever, anorexia, nausea or vomiting. Retrospective studies have shown that patients found to have omental torsion have been less systemically unwell compared to those with acute appendicitis[6]. Patients typically present within the third to fifth decades, with a slightly higher prevalence in males (3:2)[6].

In cases where the clinical picture is equivocal, ultrasound and CT have been shown to have a role in diagnosis[10].CT scans in positive cases typically show hyperattenuated streaks of fat beneath the parietal peritoneum in the affected segment, with associated thickening of the overlying anterior abdominal wall[5].There is often a characteristic whirling pattern of the mesentery, with an accumulation of serosanguinous fluid within the peritoneum[5].Ultrasound imaging is useful in cases presenting with a palpable mass. A hyperechoic, non-compressible mass is typically shown with localised point tenderness[10].Diagnostic laparoscopy in suitable patients remains the investigation of choice for patients with atypical presentations, allowing intraoperative diagnosis and treatment[15].However, it has been argued that laparotomy should be the definitive method for omental excision[2].

IV. CONCLUSION:

We recommed routine inspection of the omentum in the presence of a normal appendix and terminal ileum for appropriate surgical management. Visualisation of the omentum via a Lanz incision can be challenging in overweight children and adolescents. In these patients, moving towards laparoscopy will improve the chances of making accurate diagnoses.

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