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Left-Sided Omental Torsion in a Child: Successful Conservative Management: A Case Report and Review of the Literature

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Abstract

***Background*:** Omental torsion (OT) is an infrequent cause of acute abdomen in children. OT is usually located in the right iliac fossa, and a left-sided localization is rare, primarily seen in adults. Herein, a left-sided OT in a pediatric patient is presented because of its unusual localization managed successfully with conservative treatment.

***Case Presentation*:** A nine-year-old boy was admitted with left upper quadrant abdominal pain, anorexia, and vomiting. His medical history was significant for an appendectomy which was performed two months before. The patient was diagnosed with an OT with clinical findings and imaging techniques; thus, conservative treatment was applied successfully. The case was treated in the University of Health Sciences, Kanuni Education and Research Hospital, Department of Pediatric Surgery, Trabzon, Turkey, in March 2020.

***Conclusion*:** Usually, there is no underlying condition in the OTs, but previous abdominal surgery or inguinal hernia repair may be the predisposing factor. Conservative treatment may be possible if a prompt diagnosis could be established, and unnecessary surgery may be avoided with a close follow-up.

***Key Words*:** Acute abdomen, Child, Infarction, Omentum torsion.

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1- INTRODUCTION

Omental torsion (OT) is a rare condition caused by the omentum rotation on its long axis. This rotation leads to the reduced blood supply to the distal aspect of the tissue's omentum and infarction (1). Its incidence in children is very low. Sweeney et al. detected OT in 0.1 % of children undergoing a laparotomy for suspected appendicitis (2). OT can be primary or secondary. The cause of primary OT remains unknown, but some factors as obesity are blamed**.** Secondary OT is always associated with an abdominal pathology, including tumors and cysts, post-operative scarring, or hernia sacs. OT is usually located in the right iliac fossa, but it may rarely be seen on the left side (3, 4). We present a pediatric patient with an OT located on the left side who was treated conservatively.

2- CASE REPORTS

A 9-year-old boy was admitted with left-sided abdominal pain, which started three days prior. Nausea and vomiting were also present for one day. The case applied to Health Sciences University Kanuni Training and Research Hospital, Department of Pediatric Surgery, Trabzon, Turkey, on March 18, 2020. The patients' medical history was remarkable with an appendectomy which was performed two months ago. His abdominal examination was consistent with rebound tenderness and muscle rigidity in the left upper and lower abdominal quadrantsHis abdominal examination consistent with rebound tenderness and muscle rigidity in the left upper and lower abdominal quadrants. His body temperature was 37.8 C° degrees. Laboratory tests noted elevated white blood cell count (12,400/mm^3, normal range 4000-10.000/mm^3) and a CRP level (28 mg/l, standard range 0-5 mg/L). Ultrasound examination revealed a hyperechoic heterogeneous fatty tissue located in the left side of the abdomen below the stomach, which was contagious with the transverse colon and fixed to the left anterior abdominal wall. The right iliac fossa appeared normal. A computed tomography (CT) scan was performed for further diagnosis, and the same mass with a low density (-40 HU), presumably for its fatty content, was seen. The area of fat stranding was not directly adjacent to the bowel but adjacent to the abdominal wall. Therefore, OT's diagnosis was favored over epiploic appendagitis, which was unlikely as there was no direct connection to the bowel wall (**Figure 1a-1b**).

Stomach and bowel perforation was excluded as there was no intra-abdominal free air. So, conservative treatment with intravenous fluid supplementation and analgesic (Parol; Atabay, Istanbul, Turkey) was started with the presumptive diagnosis of an OT. The patients' abdominal signs improved after the 2nd day of the treatment and the body temperature decreased to normal levels. The patient was discharged with normal laboratory findings and significantly reduced complaints on the 3rd day. He did not have any complaints at his office visit on the post-discharge 15th day, and an ultrasound examination revealed a recession in the mass. The patient is still doing well for a follow-up period of five months. Clinical features, radiologic-laboratory findings of the patient were shown in **Table.1**.

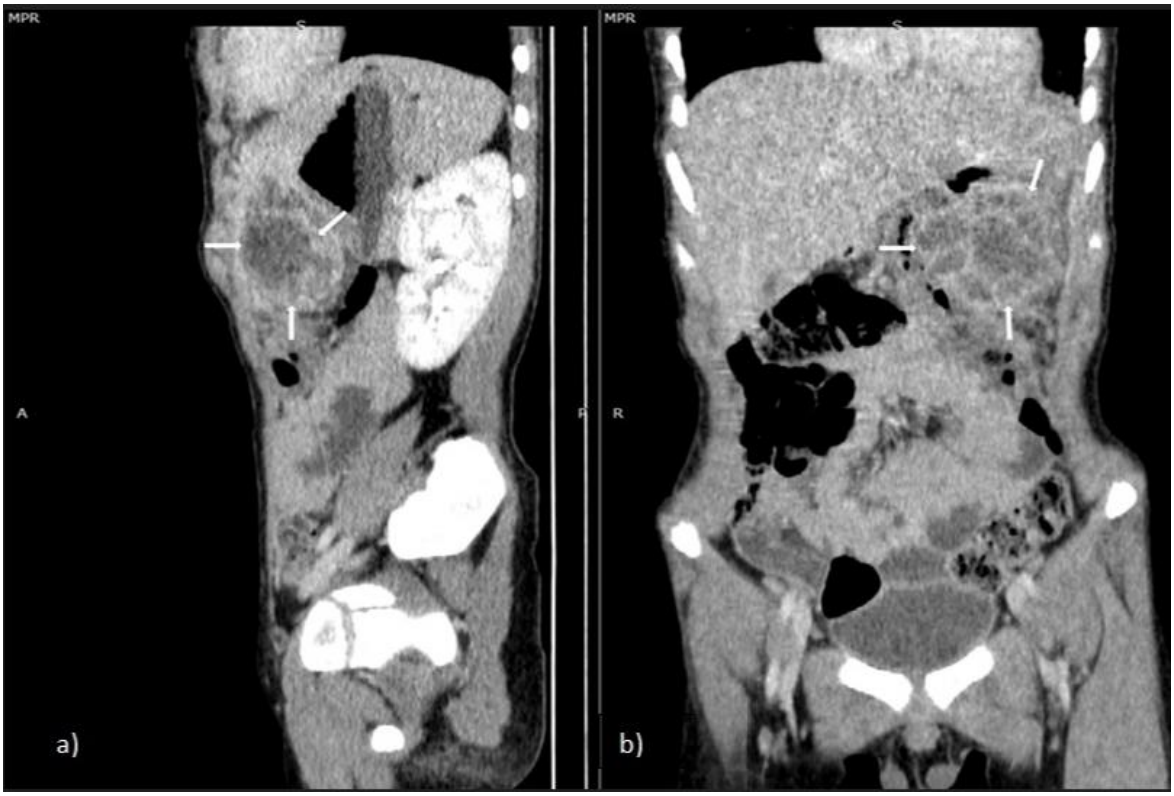

Fig.1: Contrast-enhanced CT images [a) sagittal, b) coronal] show a 6-cm mass of low attenuation marking fatty nature, and having small vessels and inflammatory changes in the left side of the abdomen below the stomach.

Table-1: Clinical features, radiologic-laboratory findings of the patient.

Age/sex	9 years old/male
Presenting symptoms	Left-sided abdominal pain, nausea and vomiting.
Physical examination	Rebound tenderness and muscle rigidity in the left upper and lower abdominal quadrants.
Laboratory parameters	White blood cell count: 12,400/mm^3, C-reactive protein: 28 mg/l.
Ultrasound examination	Hyperechoic heterogeneous fatty tissue located in the left side of the abdomen.
Computer tomography findings	6-cm mass of low attenuation marking fatty nature, and having small vessels and inflammatory changes in the left side of the abdomen below the stomach.

3- DISCUSSION

OT is a rare entity. Its occurrence after an appendectomy has an incidence of approximately once for every 600 to 8000 cases (1). The omentum can become twisted along its long axis, causing venous obstruction, edema, vascular compromise, and infarction. OT is usually located in the right iliac fossa because it is longer and more mobile on the right side, but left-sided localizations may also be seen rarely (1, 3). Left-sided OT has been generally reported in adults (4). Only one pediatric case with a left-sided OT was reported up-to-date (3). OT may be categorized as a primary or secondary type (3, 4). Primary OT is rarer than secondary type, and its etiology is not clear. The redundancy of the omental veins compared to the arteries may result in venous engorgement and rupture of a dependent vein which in turn precipitating a thrombosis may be the causative event (4). Some predisposing factors have also been accused as a bifid omentum, a tongue-like portion of omentum, and obesity, possibly due to

redundant fat content in the abdomen (1, 4). Secondary OT is more common and caused by adhesions between the greater omentum and a preexisting lesion in the abdominal cavity as a tumor, an inflammatory lesion, a hernia sac, or a post-operative incision scar (5). In the present case, the previous appendectomy operation had been performed due to gangrenous appendicitis. We think that omentum torsion developed because of adhesions and ongoing inflammation in the omentum, possibly after separation of the appendix during the operation. However, it might also have developed independently of the previous surgery. Whether it is primary or secondary, complaints in OT are generally similar. The most common symptom is a sudden onset of pain. Nausea and vomiting, as well as low-grade fever, may accompany (1, 4). These symptoms can confuse the diagnosis. Imaging techniques are often necessary to establish a correct diagnosis (6). Abdominal ultrasonography and CT- scan can be used to make a more reliable diagnosis. Ultrasonography may determine a complex mass and mixture of solid material and hypoechoic zones in the peritoneal cavity, but a CT scan is more sensitive for showing an omental mass (6, 6). In our case, although ultrasonography was used as a first-line, it was unable to detect the origin of the fatty mass and the intravenous contrast medium CT scan provided the prompt diagnosis. Treatment of OT is remained controversial. Some authors recommend surgical treatment, because of the high risk of septicemia, adhesions, and abscess formation, by advocating a shorter hospital stay. On the other hand, one other believes that unnecessary surgery should be avoided due to the disease's self-limiting nature (6, 7). Soobrah et al. concluded that conservative treatment could have led to a smooth recovery if a correct radiological diagnosis had been obtained and the patients' condition remained stable (7).

4- CONCLUSION

In summary, OT is very rare in children, and it is usually located in the right abdominal cavity, thus making a left-sided OT an extreme entity. Torsions may be idiopathic, but conditions such as previous surgery and inguinal hernia sacs may be the predisposing factors. Conservative treatment may be possible with a prompt diagnosis, and unnecessary surgery may be avoided with a close follow-up and medical treatment.

5- CONFLICT OF INTEREST: None.

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