Section: General Surgery

Case Report

A RARE CASE OF LEFT-SIDED APPENDICITIS IN SITUS INVERSUS TOTALIS

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ABSTRACT

Left-sided acute appendicitis (LSAA) is a rare condition commonly associated with situs inversus totalis or midgut malrotation, often causing diagnostic difficulty due to atypical presentation. A 36-year-old man presented with left lower quadrant pain, fever, anorexia, and diarrhoea for two days. Examination revealed left iliac fossa tenderness with leucocytosis. ECG, chest X-ray, ultrasonography, and CT abdomen confirmed situs inversus totalis with left-sided acute appendicitis. The patient underwent open appendicectomy through a midline laparotomy, which revealed an inflamed appendix in the left pelvis. Histopathology confirmed acute appendicitis. Early imaging is essential for accurate diagnosis and timely management of LSAA.

INTRODUCTION

Left-sided appendicitis is an uncommon clinical presentation. It may occur due to congenital anomalies such as midgut malrotation or situs inversus, or because of anatomical variations including a long right-sided appendix extending into the left lower quadrant or a mobile, redundant caecum. Situs inversus is a rare autosomal recessive congenital condition characterized by a 270-degree clockwise rotation during embryological development, leading to complete transposition of the intra-abdominal organs. According to the literature, the incidence of situs inversus totalis ranges from 0.001% to 0.01% in the general population, while among patients with acute appendicitis, its incidence is reported to be between 0.016% and 0.024%.

CASE REPORT

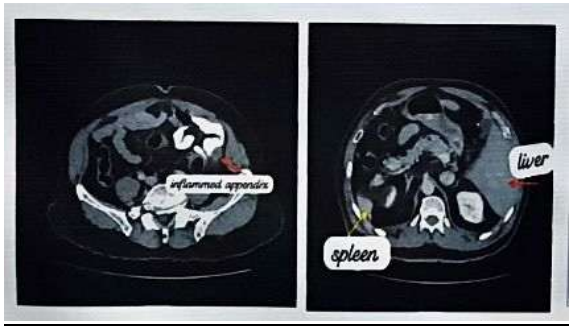
A 36-year-old man presented to the casualty department with a 2-day history of left lower quadrant abdominal pain associated with anorexia, fever, and diarrhoea. On examination, tenderness was noted in the left lower quadrant and suprapubic region without evidence of generalized peritonitis. Electrocardiography (ECG) demonstrated reversed electrode tracing patterns with right axis deviation. Laboratory investigations revealed leucocytosis. A chest X-ray and echocardiography were performed, which suggested situs inversus. Ultrasonography confirmed appendicitis, showing mucosal enhancement and mild adjacent fat stranding.

Contrast-enhanced CT scan of the abdomen and pelvis revealed situs inversus totalis. The liver was located on the left side, the duodenum failed to cross the midline, and the superior mesenteric vein (SMV) was situated to the right of the superior mesenteric artery (SMA). The caecum and appendix were identified in the mid to left pelvis.

The patient subsequently underwent an open appendicectomy through a midline laparotomy incision. After retracting the small bowel, the appendix was identified in the left pelvis. It appeared inflamed and suppurative, consistent with acute appendicitis. The mesoappendix was ligated, and the base of the appendix was transected.

Histopathological examination demonstrated lymphoid aggregates consistent with acute appendicitis. The postoperative recovery was uneventful, and the patient was discharged in stable condition.

X-ray showing dextrocardia and right-sided gastric bubble



CT scan of the abdomen-pelvis shows situs inversus totalis

Intra operative images

DISCUSSION

The differential diagnosis of left iliac fossa pain in adults is extensive and includes bowel obstruction, acute sigmoid diverticulitis, strangulated or incarcerated hernia, small bowel enteritis, Meckel's diverticulitis, ruptured ovarian cyst or ectopic pregnancy, ureteric colic, acute epididymitis, psoas abscess, and acute appendicitis.

Left-sided acute appendicitis (LSAA) is a rare clinical entity that most commonly occurs in association with congenital anomalies such as situs inversus totalis and midgut malrotation. Owing to its rarity and atypical clinical presentation, the diagnosis of LSAA can be challenging.

The diagnosis of LSAA in such patients can be established through a combination of physical examination and imaging studies, including chest X-ray, electrocardiography (ECG), ultrasonography (USG), and computed tomography (CT) scan, which typically demonstrates peri-appendiceal inflammatory changes.

Once the diagnosis of situs inversus totalis with LSAA is confirmed, the principles and surgical management remain similar to those for appendicitis in a normally positioned appendix.

CONCLUSION

Left-sided acute appendicitis (LSAA) presents a diagnostic challenge because the appendix is situated in an abnormal anatomical position. Awareness of the differential diagnoses of left lower quadrant abdominal pain and maintaining a high index of clinical suspicion are essential for accurate diagnosis. It has been suggested that although the visceral organs are transposed, the nervous system may not undergo a corresponding transposition, leading to atypical and misleading clinical symptoms and signs. Plain radiographs are generally of limited value in diagnosing appendicitis. However, the identification of dextrocardia on chest X-ray and a right-sided gastric bubble on abdominal radiography can provide important clues toward the diagnosis of situs inversus. Imaging modalities such as ultrasonography (USG), computed tomography (CT) scan, and diagnostic laparoscopy play significant roles in achieving an early and accurate diagnosis.

Both open and laparoscopic appendicectomy in patients with situs inversus totalis may be technically challenging because of the mirror-image arrangement of intra-abdominal organs and the requirement for a right-handed surgeon to operate predominantly with the left hand. As with appendicitis in normally positioned appendices, all appendectomy specimens in LSAA should undergo histopathological examination.

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