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A Rare Case of Situs Inversus Presenting As Left Sided Acute Appendicitis

KEYWORDS: Appendicitis left sided, malrotation, situs inversus

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ABSTRACT *Appendicitis is a common surgical condition with various clinical presentations. The diagnosis could be obscured by underlying undiagnosed anatomical anomalies like situs inversus and intestinal malrotation. Situs inversus and intestinal malrotation – symptomps of these congenital anomalies occur rarely after the age of one year. We present a case of left sided acute appendicitis in an adult woman who was previously unaware about her situs anomaly.*

INTRODUCTION:
Appendicitis is a common surgical condition. Its symptomatology could mimic other disease process such as cholecystitis, diverticulitis, ruptured ovarian cysts and pelvic inflammatory disease. The diagnosis could be obscured by underlying undiagnosed anatomical anomalies like situs inversus and intestinal malrotation[1]. Intestinal malrotation is a rare foetal anomaly resulting from an incomplete or failure of midgut rotation and fixation. 85% of cases have been estimated to present in the first two weeks of life. Presentation at adulthood is rare[1]. Left sided acute appendicitis occurs in association with two types of congenital anomalies; situs inversus and intestinal malrotation. Because the appendix is located in an abnormal position, it is difficult to obtain an accurate diagnosis of left-sided appendicitis. Situs inversus totalis is a rare anatomic anomaly with an estimated incidence of 1:20,000 in the general populationand an autosomal recessive mode of inheritance. Visceral situs inversus can occur with or without dextrocardia[2]. Left quadrant pain because of appendicitis is a very rare condition and can occur with congenital anomalies that include true left sided appendix or as an atypical presentation of right sided. Left sided acute appendicitis develops in association with situs inversus totalis and intestinal malrotation[3]. Here in we report a case of left sided acute appendicitis in an adult woman with situs inversus.

CASE PRESENTATION (CLINICAL DETAILS)
A 52 year old woman presented with history of left lower abdominal pain, vomiting, fever for the past 4 days. On examination she was febrile with a temperature of 37.5^0 C and had tachycardia102/min. There was tenderness with rebound tenderness in left iliac fossa and mascular rigidity in left lower quadrant. Clinically she was suspected as a case of acute diverticulitis with localized peritonitis.

RADIOLOGICAL FINDINGS:
X-ray abdomen revealed fundal gas shadow under the right dome of diaphragm and liver shadow under the left dome. Barium meal follow through X-ray was done after giving antibiotics for 5 days and after pain subsides revealed a total situs inversus with cecum on left iliac fossa. (Fig. 1). Ultrasound of abdominal organs detected liver on the left side, spleen on the right side and an inflammatory mass in the left iliac fossa. This changed the diagnosis to situs inversus and inflammatory mass in left iliac fossa was thought to be appendicular origin. X-ray chest PA view revealed dextrocardia. (Fig. 2).

GROSS/HISTOPATHOLOGICAL FINDINGS:
Patient underwent Appendicectomy. The appendicectomy specimen measuring 4cm. C/S of the specimen showed lumen patent. Serosa is congested. Histopathological examination revealed acute appendicitis with periappendicitis. (Fig. 3).

DISCUSSION:
Appendicitis including both right sided and left sided has an annual incidence of 1:1,000 population. The classic presentation includes the gradual onset of vague periumblical abdominal pain localizing to the right lower quadrant over approximately 24 h, associated with nausea, vomiting, anorexia and diarrhoea. This typical presentation occurs only in about 60% of patients[2]. The diagnosis of acute appendicitis in situs inversus totalis can be difficult because of abnormal pain localization. Malrotation of the intraabdominal viscera is not accompanied by corresponding changes in the nervous system and in about 31 % of patients the first sign of acute left sided appendicitis are pain and rebound tenderness in the right lower quadrant of the abdomen. This led to an incorrect incision in 45% of cases; in 1/3 a second correct incision had to be made[2]. In our case, we first diagnosed situs inversus totalis and then diagnosed left sided acute appendicitis. The differential diagnosis of left lower quadrant abdominal pain in an adult includes among others sigmoid diverticulitis, renal colic, epididymitis, incarcerated hernia, bowel obstruction, regional enteritis, psaos abcess and in the rare instances situs inversus with acute appendicitis[4]. The incidence of situs anomalies reported in the literature varies from 0.001 to 0.01% in general population[4]. The pain of the left side appendicitis has been reported to the right iliac fossa in about 50% of patients of situs inversus. The pain and tenderness in the left iliac fossa can also be due to right sided long dilated appendix located in the left lower quadrant. In one report contrast enema with gastrographin revealed diagnosis of left sided acute appendicitis with malrotation[4]. In other case report laparoscopy has its dual role in diagnosis and treatment[4]. In the present case, plain abdominal x-ray, barium meal follow through and ultrasound were utilized for diagnosis of situs inversus and left sided appendicitis, which was confirmed preoperatively.

CONCLUSION:
To conclude when we examine an adult with acute abdominal pain that is difficult to diagnose, we should perform a careful examination to determine whether the patient has situs inversus or malrotation. This report represents that even simple investigations like plain abdominal x-ray, barium meal follow through and ultrasound abdomen may able to diagnose such situs anomaly with left sided appendicitis.

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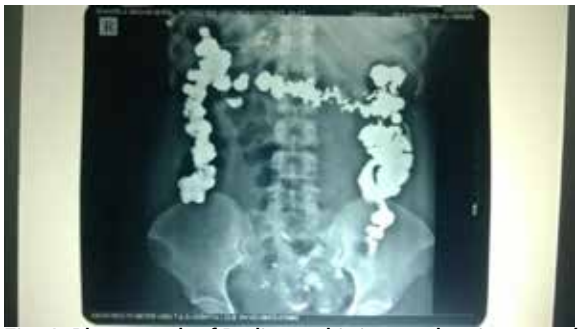

Fig. 1. Photograph of Radiographic image showing a total situs inversus with cecum on left iliac fossa.

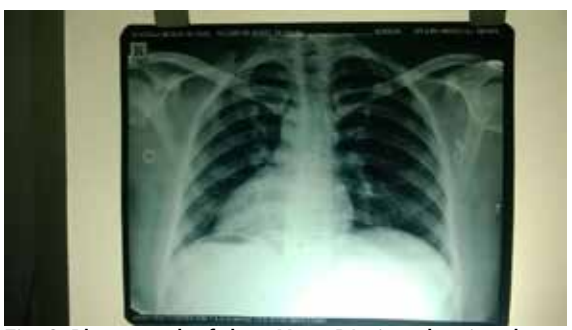

Fig. 2. Photograph of chest X-ray PA view showing dextrocardia.

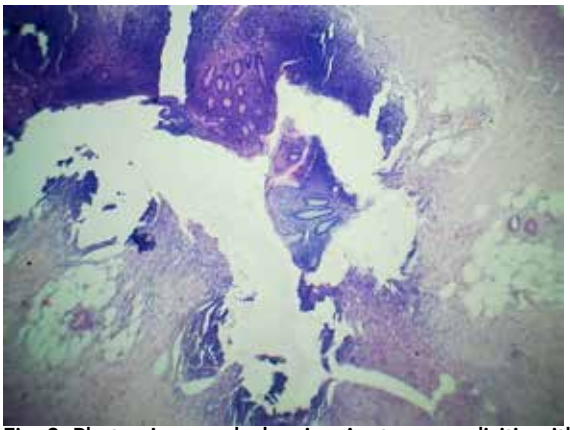

Fig. 3. Photomicrograph showing Acute appendicitis with periappendicitis.(H&E,100X)

Fig. 4. Photograph of post operative surgical sutures in left iliac fossa

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