

# Left Sided Acute Appendicitis: Radiological Aspects

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## Abstract

Left sided appendicitis is a rare pathology. Two situations may explain the occurrence of the disease: situs inversus or midgut malrotation. Its diagnosis is based on clinical presentation but confirmed by radiological examination. Our observation is based on a left-sided acute appendicitis with a midgut malrotation in a 31-year-old patient with no clinical history.

## Keywords

Appendicitis, Left, Midgut Rotation, Radiological Aspects

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## 1. Introduction

Acute appendicitis constitutes the commonest abdominal surgical emergency. Typically acute appendicitis presents as a sharp abdominal pain in the right iliac fossa (RIF) or sometimes starting in the epigastric region, continuous in nature without irradiations sometimes associated with nausea and vomiting. Abdominal examination may reveal RIF tenderness more prominent at the Mc Burney point. Abdominal pain could be exacerbated by abrupt removal of abdominal pressure, hence a rebound tenderness, at the RIF (Blumberg sign) or elicited by pressing on the left lower quadrant indicating a positive Rovsing's sign. Histologically an inflammation of the appendiceal wall: the presence of neutrophils in the mucosa and the muscularis propria with an ulceration of the mucosa could be observed. The presence of an appendicular syndrome at the left iliac fossa is an extremely rare occurrence. This could however be possible as a result of either a complete situs inversus or could even be

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explained by the presence a common mesentery and could lead to a misdiagnosis. Imaging allows precise positive diagnosis of the lesion thereby guiding its surgical management. We report the case of a patient who presented with acute appendicitis left side of a complete common mesentery.

## 2. Case Report

Patient, 31 years old without significant history was admitted to our unit with left iliac fossa pain and fever. Symptoms dated back to 48 hours prior to his admission with the onset of abdominal pain associated with a few episodes of vomiting.

Physical examination found a conscious patient febrile 38.5°C and heart rate 92. Abdominal examination revealed tenderness in the left iliac fossa.

Laboratory tests came back with 14,500/mm<sup>3</sup> leukocytosis and C-reactive protein level at 178 mg/l.

Abdominal ultrasound showed significant infiltration of the surrounding fat in the left iliac fossa.

Complementary abdominopelvic CT (multibaret scanner, spiral acquisition, 5 mm slice thickness 2.5 mm reconstructions) with intravenous iodinated contrast medium made evident an entire colic loop shifted to the left side of the abdominal cavity suggestive of a common mesentery (**Figure 1**) and an inflamed appendix, thickened and medially situated with infiltration of its surrounding fat (**Figure 2** and **Figure 3**).

Patient was admitted to emergency theatre where laparotomy and subsequent appendectomy was performed.

The postoperative recovery was uneventful and patient was discharged 2 days after emergent surgery with favorable outcome.

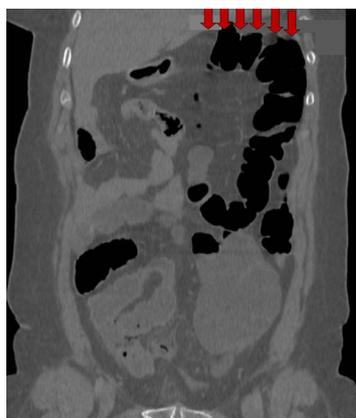
## 3. Discussion

Birth defects of gastrointestinal tract constitute a frequent morbidity in children and a rather less common pathology in adults [1]. These birth defects include atresia of the small intestine and colon, abnormal rotation and fixation of the primitive gut, anorectal abnormalities, and intestinal duplications. Normally, after complete rotation during intra uterine life, the mesentery has a large base stretching from the left upper quadrant down to the right iliac fossa.

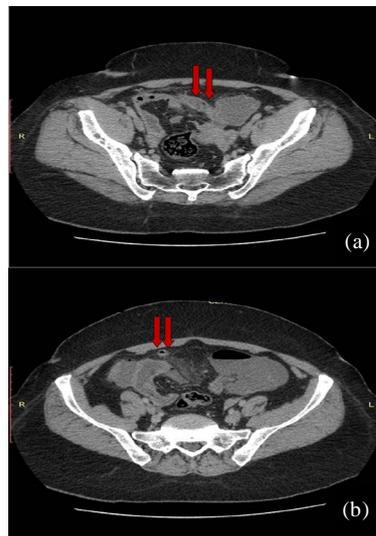
Intestinal malrotation is a defect in or an incomplete rotation of the mid gut that results in a shortened mesentery with a displaced Treitz ligament and cecum [1]. This rotation defect complicates with mid gut volvulus in case malrotation stops at 180° [2] or could be asymptomatic if it stops at 90° giving rise to a complete common mesentery which rarely complicates hence explaining its fortuitous discovery on radiological imaging done for other indications.

Embryologically, a common mesentery results from persistence:

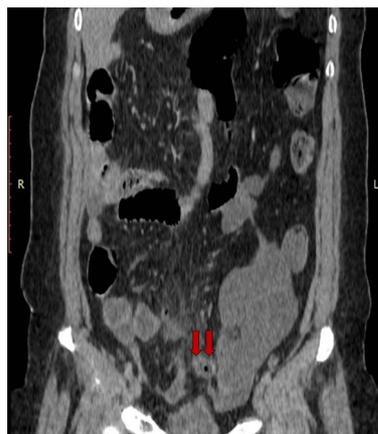
- of the primitive gut which fails to undergo a normal rotation;
- of a posterior attachment to the primitive gut wall after 12 weeks, during reintegration of the latter in the abdomen.



**Figure 1.** Abdominal CT coronal section after contrast medium injection revealing the entire colic loop on the left side of the abdominal cavity evoking a common mesentery.



**Figure 2.** Axial reconstruction after injection of contrast medium showing the abdominal cavity: (a) thickened inflamed appendix closely linked with cecum in the LIF with infiltration of surrounding fat; (b) the inflamed appendiceal tip sitting next to the rectus abdominis muscle.



**Figure 3.** Abdominal CT after contrast medium injection revealing an inflamed appendix slightly detached from caecum as well as thickening of the surrounding fat.

Appendicitis accounts for almost a third of acute abdomens yet the presence of an appendix on the left represents an extremely rare occurrence [3]. A recent review of literature attributed 63 cases reported to situs inversus [4] [5]. Cases associated with complete common mesentery malrotation are even rarer [6]; this unusual location is responsible for its delayed diagnosis and can present with serious complications. Modern imaging techniques including doppler-ultrasonography and CT may reveal a transposition of the mesenteric vessels and the location of the small intestine in relation to the colon, allowing for early diagnosis [7] [8].

Laparoscopy stands out as the primary surgical management as it presents two advantages: specify the anatomical abnormality in question and then allows treatment by laparoscopic appendectomy. [9]

#### 4. Conclusion

While appendicitis is by far the most frequently encountered surgical emergency in the operating room, its preoperative diagnosis, when the presentation is atypical, requires appropriate imaging notably CT and a good knowledge of the anatomical variability of the digestive tract.

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