ISR Journal of Surgery (ISRJS)
Homepage: https://isrpublisher.com/isrjs/
Volume 01, Issue 06, December 2025 ISSN: 3107-8621 (Online)

Acute Appendicitis and Situs Inversus Totalis: A Case Report

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Article History

Received: 27-11-2025

Accepted: 06-12-2025

Published: 07-12-2025

Abstract: Case Report

Situs inversus is a rare congenital anomaly that results in transposition of abdominal organs, leading to atypical clinical manifestations, such as left-sided appendicitis. Its occurrence on the left is extremely rare and often results in diagnostic delays, which can lead to serious complications if not treated promptly. Imaging, particularly computed tomography (CT), plays a vital role in pathological diagnosis, thus guiding appropriate surgical management. We present the case of a 51-year-old female patient with no previous pathological history admitted for left iliac fossa pain. A CT scan revealed situs inversus with high left appendicitis, justifying a laparotomy appendectomy in the absence of laparoscopy in the emergency department.

Keywords: Acute Appendicitis, Situs Inversus Totalis, Appendectomy, Congenital Anomaly, Computed Tomography (CT), Diagnostic Challenge.

INTRODUCTION

Situs inversus is a congenital anomaly characterized by the transposition of abdominal organs. It may or may not be associated with dextrocardia, also known as situs inversus totalis [1-3]. This pathology alters the normal anatomy of the human body, which can complicate diagnosis, especially when it manifests as frequent but atypically located conditions. Acute appendicitis, the most common cause of pain in the right iliac fossa, is extremely rare when it occurs on the left side due to organ rotation. This phenomenon can lead to delayed diagnosis and serious complications if treatment is not prompt [4, 5]. We report a case of acute appendicitis in a patient with total situs inversus.

PATIENT AND OBSERVATION

Patient information: This is a 51-year-old female patient with no particular medical history. The patient was admitted to the general surgery department of the Mohammed VI University Hospital in Marrakech for treatment of pain in the left iliac fossa.

Clinical results: The clinical examination revealed a conscious patient, hemodynamically and respiratory stable, OMS: 1 and BMI: 29.1, soft, compressible abdomen with tenderness in the left iliac fossa, and digital rectal examination revealed pain lateralized to the left.

Chronology: the onset of symptoms dates back 24 hours to the sudden onset of left iliac fossa pain associated with vomiting without other extra-digestive signs. The whole thing evolving in a context of fever at 38.6° and preservation of the general state.

Diagnostic: The biological examination revealed an infectious syndrome characterized by a hyperleukocytosis of 14,100 with a predominance of PNN and an ESR of 14. Abdominal CT showed a swollen appendix at 9.7mm with slight infiltration of the mesenteric fat at the level of the left iliac fossa, the site of sub-centimeter nodes.

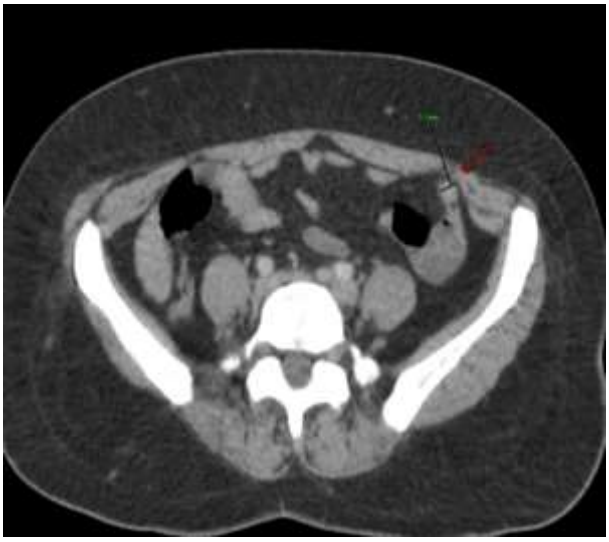

Figure 1: Axial CT scan of the abdomen

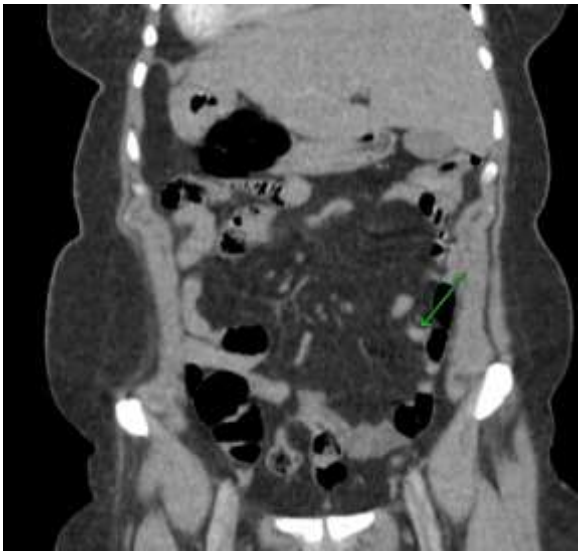

Figure 2: Frontal section of abdominal CT scan

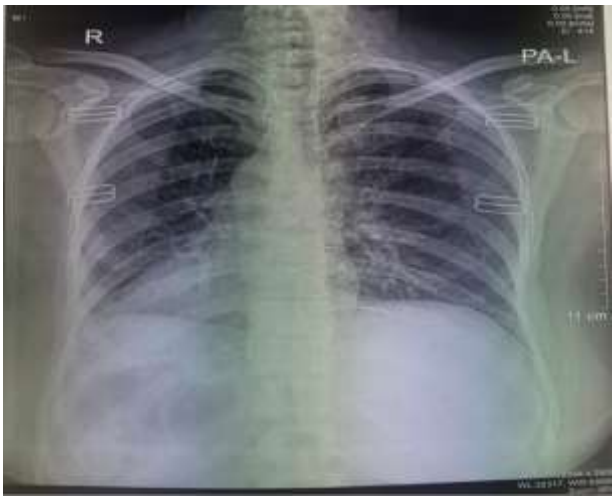

Figure 3: Dextrocardia on chest X-ray

Therapeutic intervention: an appendectomy was considered via laparotomy (left Mac Burney). The exploration revealed a swollen appendix with a healthy base, without effusion or collection.

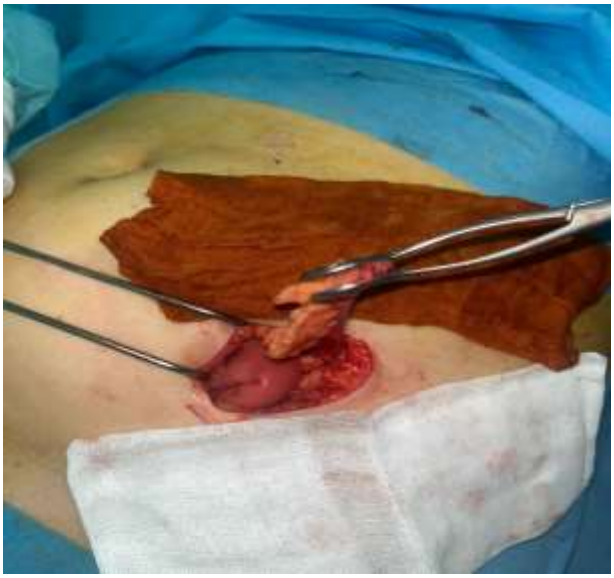

Figure 4: Image of appendix during surgery

Figure 5: Appendicectomy

Follow-up and results of therapeutic interventions: post-operative follow-up was simple. The patient was declared discharged on post-operative day 1.

Patient's perspective: The patient was satisfied with the good clinical-biological evolution.

Informed consent: The patient declared her consent freely and in an informed manner, in order to allow the creation and publication of this manuscript.

DISCUSSION

Congenital anomalies of the digestive tract are a major cause of morbidity, particularly in children [6], but they can also be observed, although more rarely, in adults [7], as in our case. Patients with situs inversus may encounter diagnostic difficulties due to the unusual location of their symptoms.

This clinical case illustrates the unusual discovery of this anomaly in the form of appendicitis presenting with symptoms localized to the left side [8, 9]. Although acute appendicitis accounts for approximately one-third of abdominal emergencies, its occurrence on the left side remains exceptional [3]. This can lead to diagnostic errors, particularly in differentiating it from pathologies such as colonic diverticulitis, Meckel's diverticulitis, and other gynecological conditions in women, such as disorders of the left ovary. A study involving 71,000 patients presenting with symptoms of appendicitis revealed that 0.04% of cases concerned a left iliac fossa localization, including 0.024% in patients with abdominal situs inversus and 0.016% in patients with situs inversus totalis [6]. Until 2008, fewer than 10 cases of appendicitis associated with situs inversus had been reported in the literature [6]. Half of these patients presented with pain in the right iliac fossa, despite the presence of situs inversus [3]. Due to the rarity of this association, the diagnosis of appendicitis in a patient with situs inversus is not usually considered, which delays appropriate management.

This atypical location often leads to diagnostic delays and increases the risk of serious complications. Thanks to modern imaging technologies, such as Doppler ultrasound and computed tomography, which can detect these positional anomalies, diagnosis can now be made more quickly. Medical imaging can also guide treatment choices, indicate the need for surgery, and determine the type and location of the incision [10].

Laparoscopy is generally considered the gold standard in these cases. It allows not only confirmation of the anatomical anomaly but also laparoscopic appendectomy. However, laparoscopy is technically more complex due to the inverted position of the abdominal organs in these patients. Despite this, it remains indicated for the diagnosis and treatment of acute appendicitis in this type of case [11]. Our case underwent an appendectomy via laparotomy due to the unavailability of laparoscopy in the emergency department.

CONCLUSION

Appendicitis in individuals with situs inversus is extremely rare. Very few cases have been reported in the medical literature. This type of pathology presents a diagnostic challenge, but this can be simplified through the use of imaging techniques such as ultrasound, computed tomography (CT scan), and laparoscopy. These examinations allow for early diagnosis and guide treatment selection.

Conflicts of Interest: Conflict of Interest: The authors declare no conflict of interest.

Contributions Des Auteurs

Patient care: Fathiallah el Karim MAAROUFI, Mohamed BOULATAR. Data collection and manuscript writing: Mohamed BOULATAR. Manuscript revision: Fathiallah el Karim MAAROUFI, Soumaya JAMIL, Khalid RABBANI, Abdelouahed LOUZI. All authors approved the final version of the manuscrit.

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