

CASE REPORT

Laparoscopic appendectomy in a female patient with situs Invertus totalis; a case report

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Received:

2nd February 2017

Accepted:

23rd November 2017

Abstract: Acute appendicitis is the most common of all acute abdominal conditions. The diagnosis is usually clinical but it becomes highly misleading in the cases of altered anatomy like situs invertus. In addition to the clinical evaluation, various imaging studies can support the diagnosis. But laparoscopy is of great help in the optimal care of such patients. It not only helps in identifying and treating the acute surgical emergency efficiently, but also avoids delay in diagnosis or any surgical mishap.

Conclusion: Acute appendicitis is the most common surgical condition and similarly appendectomy is the most commonly performed operation. As we know Situs invertus is an uncommon anomaly in which all the organs anatomically present in a way that right side organ are found of the left side of the abdomen. It is difficult to diagnose situs invertus, the abdominal x-ray is of some help. In addition to the other imaging studies, the use of laparoscopy in diagnosis and management of acute appendicitis in such cases is of great value.

Keywords: Situs invertus totalis, pain lower abdomen, acute appendicitis, and laparoscopy.

Introduction:

The patients having acute abdomen are the most common, seeking medical attention in emergency. And among the various conditions, acute appendicitis is on top of all the causes of acute abdomen.^{1,2} Despite so many advances in various diagnostic modalities, appendicitis still remains a clinical diagnosis based upon typical history and findings on physical examination.² However, the clinical presentation varies according to the anatomical position of the appendix³ and it is quite uncommon and highly misleading, if it presents with pain in the left lower quadrant of the abdomen resulting in a false diagnosis.² The diagnosis of an acute appendicitis becomes even more challenging in case of an altered anatomy⁴ like midgut malrotation and situs invertus (SI).

Situ invertus totalis is a congenital anomaly characterized by mirror image transposition of the abdominal viscera and a right sided heart.^{5,6} It is a rare anatomic condition having an autosomal recessive mode of inheritance with an esti-

mated incidence of 1:20,000.⁷ It can go unrecognized until the patients presenting with acute abdominal conditions like appendicitis.^{7,8}

The first signs of acute appendicitis are pain and tenderness in the right lower abdomen in about 50% cases of visceral transposition. It is because there are no corresponding changes in the nervous system.⁸ Therefore, it becomes extremely important to recognize the reversed anatomy and atypical history to prevent any mishap like a delayed diagnosis,⁹ an inappropriate surgical approach and a wrong incision.¹⁰ Here in we present a case of a case of acute appendicitis in a female patient with situs invertus totalis.

Case Report:

A 17 years old unmarried female presented with pain left iliac fossa (LIF) and vomiting. During the initial clinical evaluation, she had tenderness and rebound tenderness in LIF. She was also found to have heart sounds on the right t side instead. Her TLC was 11,000 with Neutro-

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phils 70%. The Urine had 10-12 pus cells and a few RBCs. Her dextrocardia was confirmed by chest x-ray and Ultrasound abdomen showed left sided gall bladder and no other significant renal or pelvic pathology. CT scan was also done but remained inconclusive in diagnosis except confirming situs invertus totalis. Her C-reactive Protein (CRP) level was also raised. She was put on antibiotics to treat her UTI but her symptoms did not resolve in 48 hours.

On the 3rd day of her admission, she was planned for a diagnostic laparoscopy suspecting acute appendicitis. Camera passed through an infra umbilical port by an open technique and intra abdominal survey was performed. The caecum and appendix were confirmed in left iliac fossa. Appendix was found to have a visible fecolith near its base with distended lumen and acutely inflamed. Nothing else of significance was found. Appendectomy was performed and the specimen sent for biopsy. Post-operative recovery was smooth and the symptoms were resolved. The patient was discharged from hospital, the next day. The histo-pathology showed congested mucosa with neutrophilic infiltrates.

Discussion:

Acute appendicitis carries a high risk of missed and a delayed diagnosis especially in the atypical conditions and altered anatomy like midgut malrotation or situs invertus.¹¹ The rising intraluminal pressure due to obstruction of the appendix by a fecolith has been attributed in the pathology of acute appendicitis. This can progress to ischemia and eventual perforation. In case of perforation, the mortality can increase from 0.0002% to 3% while the morbidity from 3% to 47%. Therefore the emergency room physicians must have these unique conditions in mind to pick any atypical cases.^{3,12,13}

Although the reversed anatomy does not usually cause symptoms but these people can suffer from the general medical and acute surgical conditions like appendicitis and cholecystitis leading to confusion in interpreting the clinical picture.^{9,14} The incidence of acute appendicitis with situs invertus totalis is between 0.016% and

0.024%.¹⁵ The recognition of visceral transposition is important to prevent any mishap. The ultrasound can help in such cases but CT is a preferred investigation.⁵ The position of caecum is ascertained on CT and the acute appendicitis is diagnosed or ruled out.¹⁶ But the anomaly of situs invertus can still remain a diagnostic dilemma on these imaging modalities.⁴ The differential diagnosis of lower abdominal pain in such settings may include ovarian torsion, genitourinary tract problems, ectopic pregnancy and pelvic inflammatory or diverticular diseases.⁹ Moreover, the pain and tenderness in the left lower abdomen may also be due to a very long right sided appendix reaching the left iliac fossa.⁸ However, in doubtful cases, the use of diagnostic laparoscopy is highly useful since the whole abdomen can be easily explored and the surgery performed at the same time by a minimal invasive approach.^{8,10} And it has been estimated that laparoscopy in such situation can improve the diagnostic accuracy up to 97%, where the localization of appendix is difficult.¹⁷

Conclusion:

Situs invertus is an uncommon anomaly. In addition to the imaging studies, the use of laparoscopy in diagnosis and management of acute appendicitis in such cases is of great value.

Conflict of interest: None

Funding source: None

Role and contribution of authors:

Dr. Ziauddin Afridi, case management, references & case writing.

Dr. Mubashra Ahmad Khan, case management & references

Dr. Riaz Ahmad, case management & references

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