Left-Sided Acute Appendicitis With Situs Inversus Totalis In A Nigerian Male – A Case Report And Review Of Literature

O Ngim, L Adams, A Achaka, O Busari, O Rahaman, I Ukpabio, D Eduwem

Citation

O Ngim, L Adams, A Achaka, O Busari, O Rahaman, I Ukpabio, D Eduwem. *Left-Sided Acute Appendicitis With Situs Inversus Totalis In A Nigerian Male – A Case Report And Review Of Literature*. The Internet Journal of Surgery. 2013 Volume 30 Number 4.

Abstract

Situs inversus is a rare congenital abnormality which occurs in 1:20,000 of the general population. Left-sided acute appendicitis is associated with two types of congenital abnormalities, situs inversus and malrotation. This condition is often diagnosed incidentally while investigating or treating a patient for some other conditions as in our index patient.

We present a case report of a 22-year-old Nigerian male who was admitted through the emergency unit of a military hospital in South Nigeria on account of an acute abdomen. A diagnosis of acute appendicitis was made after clinical evaluation but at surgery, the inflamed appendix and cecum were found in the left iliac fossa. At the time of his presentation, an abdominal ultrasound scan could not be done for logistic reasons. However, an abdominal ultrasound scan and a chest X-ray done after surgery confirmed situs inversus totalis.

This case is presented to highlight the rarity of this condition (the first reported case in Calabar) and the need to do an abdominal ultrasound scan routinely in cases of acute abdomen where indicated to avoid making a wrong incision at surgery with its attendant morbidity and poor cosmesis. Laparoscopic surgery, where possible, is of immense benefit in this condition.

INTRODUCTION

Situs inversus was first described in the 16th century by Mathew Baillie1. Situs inversus (also called situs transversus or oppositus1) is a rare congenital anomaly characterized by the transposition of the abdominal viscera. When associated with dextrocardia, it is referred to as situs inversus totalis2. It has an autosomal recessive pattern of inheritance with an incidence of 1:20,0001,3 in the general population.

It is termed situs inversus with dextrocardia (situs inversus totalis) if the heart is swapped to the right side of the thorax or situs inversus with levocardia (situs inversus incompletus) if the heart remains in the normal left side of the thorax (a much rarer condition). Left-sided appendicitis occurs in two types of congenital anomalies namely situs inversus and intestinal malrotation3. The situs anomalies are rare and often unrecognized until they are incidentally detected during imaging for other conditions, emergency surgeries (as in the index case) or during laparoscopy4.

CASE REPORT

A 22-year-old Nigerian male presented to the emergency unit of the Nigerian Navy Hospital, Calabar, Cross River State, Nigeria with a 6-hour history of severe right-sided colicky abdominal pain associated with nausea but no vomiting or fever. He was previously unaware of his situs anomaly. Two years earlier, he had a similar episode of abdominal pain which was managed conservatively. At presentation, he was acutely ill-looking, afebrile (temperature 36.6°C), with positive pointing sign and maximal tenderness at McBurney's point. His packed cell volume was 44% and total white blood cell count was 5.1 x 109/L with a neutrophil count of 50%. Urinalysis was normal. A diagnosis of acute appendicitis was made and he was booked for emergency appendicectomy.

Surgery was commenced with a Lanz incision over the right iliac fossa but this incision was abandoned when the cecum and appendix were not found in the right iliac fossa. A mid-line sub-umbilical laparotomy incision was then made and a normal looking cecum found in the left iliac fossa with an

inflamed retrocecal appendix bound down by fibrous adhesions (figures 1-3).

Figure 1

shows the cecum and the appendix in the left iliac fossa.

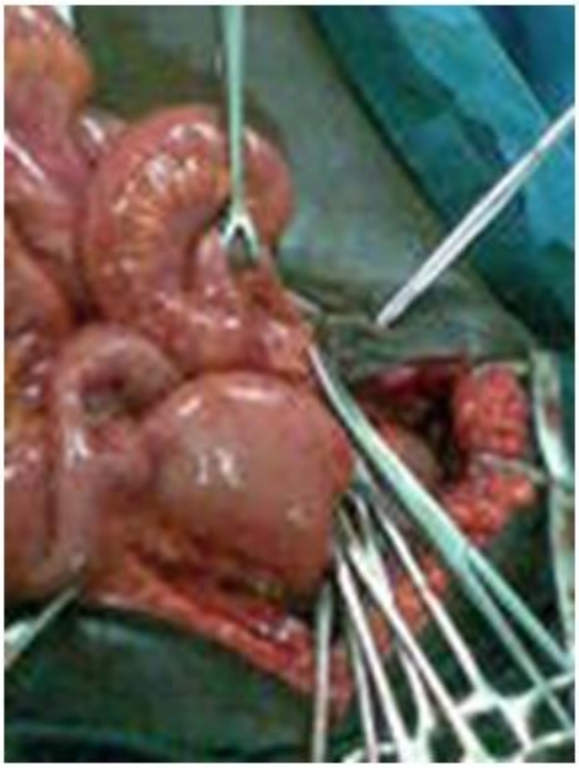


Figure 2

shows the left-sided appendix after adhesiolysis.

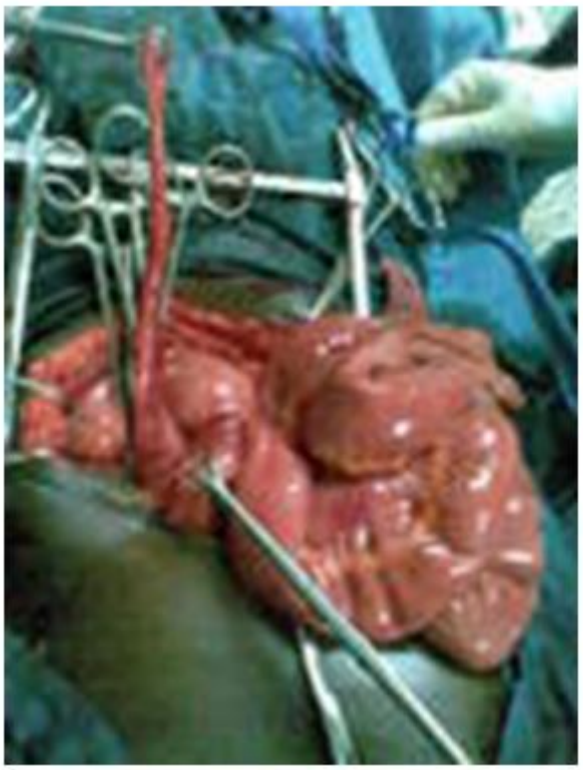
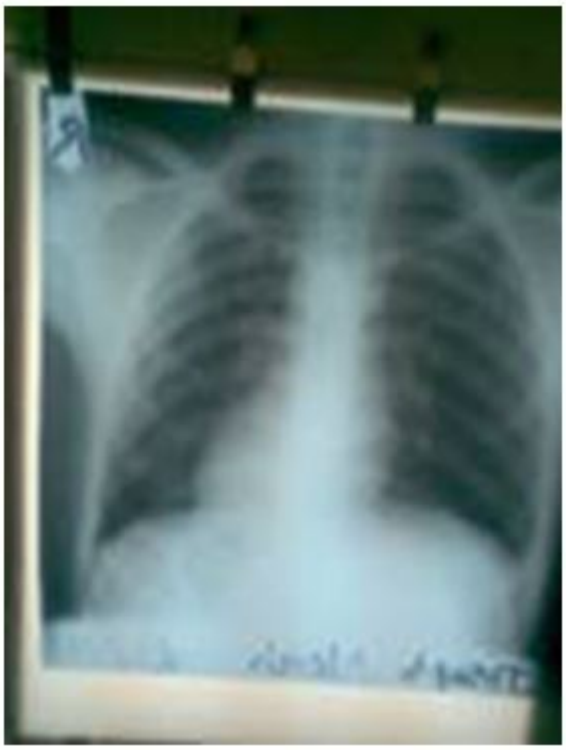


Figure 3

shows the initial Lanz incision and the subsequent midline subumbilical incision.

Figure 4

Chest X-ray showing dextrocardia



Appendicectomy was done after careful adhesiolysis. The patient had an unremarkable post-operative recovery. A post-operative abdominal ultrasound scan done by a consultant radiologist confirmed situs inversus totalis. Also a plain chest radiograph and an ECG, done post-operatively, confirmed dextrocardia (figure 4). Histology of the appendix confirmed inflammation of the appendix with obstruction of the lumen by fecolith.

DISCUSSION

Situs anomalies are rare and their incidence, as documented in the literature, varies from 0.001 to 0.01% in the general population4. Diagnosis of a left-sided acute appendicitis in these patients is rather challenging due to altered anatomy1-5.

Acute appendicitis is the commonest surgical emergency the world over6-9 with an annual incidence of 1:1000 of the population. The classical presentation occurs in only 60% of patients and comprises vague peri-umbilical pain (which later localizes in the right lower quadrant of the abdomen) with associated nausea, vomiting and anorexia, amongst other symptoms. This is the first documented case of situs inversus in the literature from this environment, hence the need to draw attention to this rare condition.

Diagnosis of acute appendicitis in situs inversus totalis is often difficult because of abnormal pain localization3. It has been noted that although the viscera are transposed, it is thought that the central nervous system may not share the reverse transposition thus leading to confusing symptoms of signs in these patients. Thus, the pain and rebound tenderness of left-sided acute appendicitis is reported to be on the right iliac fossa in about 31-50% of patients with situs inversus totalis3-5 (as in our index patient). This has led to an incorrect incision in 45% of cases and in a third a second correct incision had to be made like in our index patient3. In their case report, Ucar et al.3 made a correct initial incision because the diagnosis of situs inversus totalis and left-sided acute appendicitis was made using abdominal ultrasound scan and chest radiograph before surgery, whereas Golash4 established the diagnosis incidentally at laparoscopy in a patient with suspected diverticulitis and localized peritonitis. In Turkey, Fuat et al.10 also reported a pre-operative diagnosis of acute appendicitis in situs inversus based on the clinical finding of a right-sided heart confirmed radiologically (dextroposition of the heart and gastric fundus). Though the diagnosis of acute appendicitis is largely clinical, the place of abdominal ultrasound scan in diagnosis of acute abdomen cannot be overemphasized.6,7 In our index patient, a correct incision may have been made at the onset if situs inversus had been confirmed by an abdominal ultrasound scan pre-operatively. We strongly recommend that abdominal ultrasound scan should be done for suspected acute appendicitis as this may reveal the existence of this condition and guide surgery accordingly. In centers where laparoscopic surgery is possible, it can be used as the preferred approach. Laparoscopy, apart from helping to confirm the situs inversus at surgery, also provides a better cosmetic outcome in addition to the reduced morbidity it offers.

It is also important to educate patients with this condition once they have been diagnosed and advice them to volunteer this information to the doctor whenever the need arises to minimize the risk of misdiagnosis and treatment. Some authorities advocate that these patients should carry a name tag to this effect1.

Finally, situs inversus has significant implications on organ transplantation since such organs may be from situs solitus (normal) donors because of geometric problems1.

CONCLUSION

Left-sided acute appendicitis is a rare but important condition and is usually associated with situs inversus. Diagnosis is often incidental and the use of abdominal ultrasound scan, which is non-invasive, is advocated routinely in patients suspected to have acute appendicitis as this will demonstrate the situs abnormality and guide the surgeon accordingly. Laparoscopy is of immense benefit where facilities and expertise exist. These patients should be made aware of their abnormal anatomy and advised to volunteer it subsequently to any physician as this will aid diagnosis and treatment in future.

References

1. Gedda L, Sciacca A, Brenci G, Villatico S, Bonanni G, Gueli N, Talone C: Situs viscerum specularis in monozygotic twins. Acta Genet Med Gemellol (Roma); 1984; 33: 81-5.

2. Cissé M, Touré AO, Konaté I, Dieng M, Ka O, Touré FB, Dia A, Touré CT: Appendicular peritonitis in situs inversus totalis: a case report. J Med Case Rep; 2010; 4: 134.

3. Ucar AE, Ergul E, Aydin R, Ozgun YM, Korukluoglu B: Left-sided acute appendicitis with situs inversus totalis. Internet J Surg; 2007, Volume 12, Number 2.

4. Golash V: Laparoscopic management of acute appendicitis in situs inversus. J Minim Access Surg; 2006; 2:220-227.

5. Gibbons JRP: Acute appendicitis in situs inversus. Br Med J; 1962; 1 (5284): 1073.

6. O'Connell PR: The vermiform appendix. In: Russel RCG, Williams NS, Bulstrode CGK, eds: Short Practice in Surgery. 23rd ed. London: Arnold; 2000, pp. 1079-92.

7. Naaeder SB: The Acute abdomen. In: Badoe EA, Archampong EQ, da-Rocha-Afodu JT, Eds: Principles and Practice of Surgery including Pathology in the tropics. 3rd Ed. Accra: Assemblies of God Literature Centre Ltd; 2000, pp. 500-503.

8. Ngim OE: The pattern of presentation, management and outcome of acute abdomen at the University of Calabar Teaching Hospital (UCTH), Calabar: A 12-month prospective study. National Postgraduate Medical College of Nigeria, Part 2, Dissertation in Surgery; 2008; 22: 77-78.

9. Ngim OE, Essiet A, Efem SEE, Bassey OO: Presentation and management of acute appendicitis in the University of Calabar Teaching Hospital, Calabar, Nigeria. Int J Trop Surg; 2009; 3: 36-39.

10. Celik F, Gülec S, Gökcora IH: A case of acute appendicitis with situs inversus totalis simulating ureteral colic. Turkiye Klinikleri; 1986; 4: 147-8.

Author Information

OE Ngim
Department of Surgery, University of Calabar Teaching Hospital
Calabar, Nigeria
ogbungim@yahoo.com

LM Adams
Nigerian Navy Hospital
Calabar, Nigeria

AM Achaka
Nigerian Navy Hospital
Calabar, Nigeria

OO Busari
Nigerian Navy Hospital
Calabar, Nigeria

OY Rahaman
Nigerian Navy Hospital
Calabar, Nigeria

I Ukpabio
Department of Anaesthesia, University of Calabar Teaching Hospital
Calabar, Nigeria

DU Eduwem
Department of Radiology, University of Calabar Teaching Hospital
Calabar, Nigeria