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Incidental finding of complete situs inversus in a polytraumatized adult

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Abstract

Background: Situs inversus is a rare abnormality typically posing a diagnostic dilemma during routine evaluation of acute abdominal emergencies such as in acute appendicitis and cholecystitis. It is rare to detect such in the setting of trauma.

Objective: To report an incidental finding of complete situs inversus in a poly-traumatized adult.

Methods: The clinical records of the patient including preoperative evaluation, intra-operative findings and postoperative care were reviewed.

Result: A 53 year old man presented with difficulty breathing, left sided chest pain, generalized abdominal pain and distension 18 hours after a vehicular road traffic accident. Examination revealed features of left sided haemothorax, absent heart sounds, generalized peritonitis and limb injuries. Plain chest radiograph confirmed left haemothorax with dextrocardia. He had a left closed thoracostomy tube drainage and exploratory laparotomy which revealed complete situs inversus of intra-abdominal organs alongside a jejunal perforation which was repaired. Postoperative recovery was uneventful.

Conclusion: Complete situs inversus is uncommon and may not be anticipated in evaluation of trauma patients. Preoperative clinical and radiological evaluation may however be helpful in making a pre-operative diagnosis and further management.

Keywords: *Dextrocardia, situs inversus, trauma.*

Résumé

Introduction: Le *situs inversus* est une anomalie rare généralement posant un dilemme de diagnostic pendant l'évaluation de routine de abdominales aiguës les urgences comme dans une appendicite aiguë et cholécystite. Il est rare de détecter de telles dans le paramètre de traumatisme. Cette étude fait état d'une découverte fortuite de *situs inversus* complet chez un adulte de polytraumatisés.

Méthodes: Les dossiers cliniques du patient, y compris l'évaluation préopératoire, les résultats intra-opératoires et des soins postopératoires ont été examinés.

Résultats: Un homme de 53 ans présentait des difficultés respiratoires, des douleurs à la poitrine gauche, généralisé, une distension et des douleurs abdominales, 18 heures après un accident de la circulation routière. L'examen a révélé des caractéristiques de hémothorax gauche, l'absence de bruits, péritonite généralisée et les traumatismes des membres.La radiographie de la poitrine a confirmé hémothorax gauche avec dextrocardie. Il avait une thoracotomie de drainage gauche fermé et une laparotomie exploratrice qui a révélé complète situs inversus des organes intra-abdominaux à côté d'une perforation jéjunale qui a été réparé. Les suites opératoires ont été sans incident.

Conclusion: Le situs inversus complet est rare et ne peut pas être attendu dans l'évaluation des traumatismes chez les patients. L'évaluation clinique et radiologique peut être utile dans la réalisation d'un diagnostic préopératoire et en outre la gestion.

Introduction

Situs inversus is a rare congenital abnormality characterized by transposition of abdominal organs. It is referred to as situs inversus totalis when it is associated with dextrocardia which is a transposition of thoracic organs. It is a rare condition with an incidence of about 0.01% in the population [1]. Most individuals with this anomaly are asymptomatic throughout life with majority of them diagnosed when treatment is sought for other unrelated medical conditions. This anomaly may constitute a diagnostic dilemma particularly in emergency abdominal conditions. Such confusing presentations have been reported in patients with acute cholecystitis and appendicitis [2-4]. There have been only few reports of isolated thoracic or abdominal injuries in patients with situs inversus [5].The setting of trauma is particularly challenging as the patient is being quickly evaluated and any deviation from the normal clinical finding may cause misdiagnosis or delay in initiating treatment.

We present the case of a poly-traumatized adult patient with complete situs inversus who sustained both

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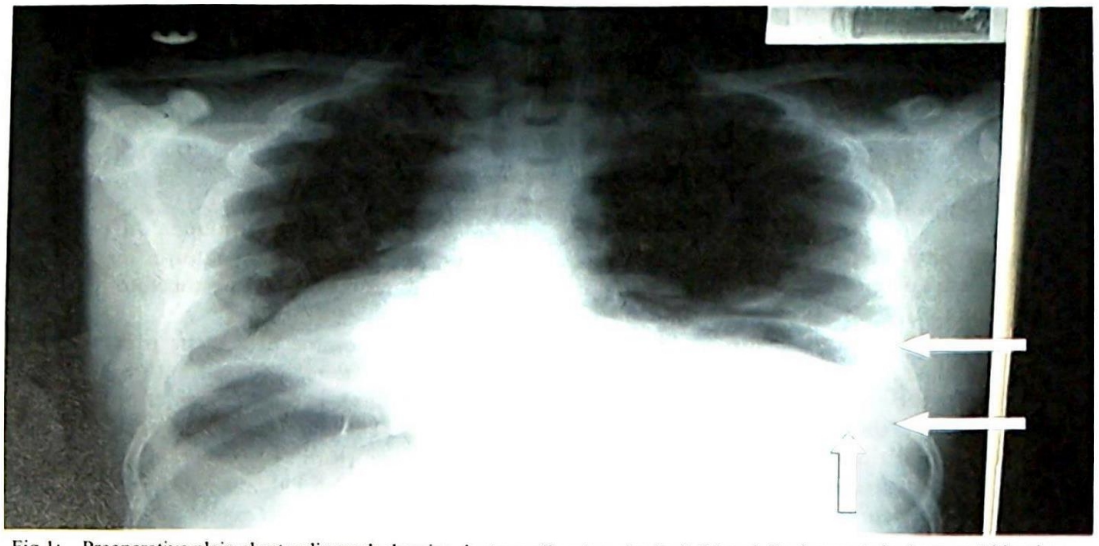

Fig.1: Preoperative plain chest radiograph showing dextrocardia, air under the left hemi-diaphragm (single arrow) blunting of the left costo-phrenic angle and left sided rib fracture (double arrows) and the gastric bubble on the right.

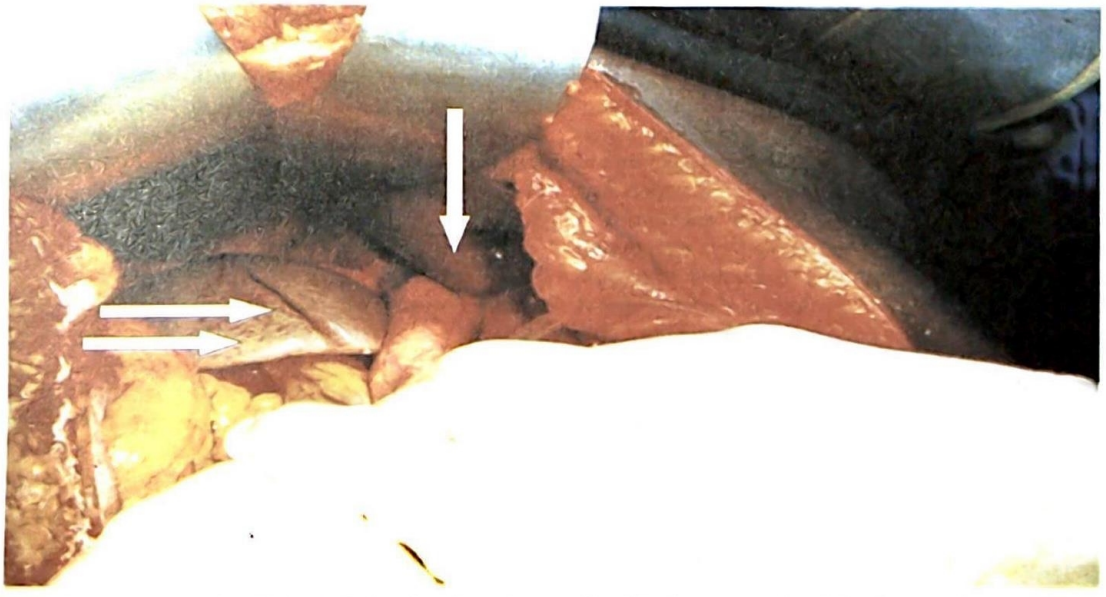

Fig. 2: Intra-operative photograph showing the spleen on the right (two arrows) and the liver on the left (single arrow).

thoracic and abdominal injuries following a vehicular road traffic accident.

Case Report

A 53 year old man was admitted into the accident and emergency department 18 hours after a vehicular road traffic accident. He was initially resuscitated and stabilized at a district hospital following the accident and was subsequently referred to our hospital on account of worsening difficulty with breathing, left sided chest pain as well as generalize d abdominal pain and distension. He was found to be tachypnoeic and tachycardic with stony dull percussion notes and absent breath sounds in the left lower lung zone. Heart sounds were absent in the precordium. The abdomen was distended with features of generalized peritonitis. There was swelling and tenderness over the lower third of the arm. Plain chest X-ray showed multiple left sided rib fractures (5^{th} to 7^{th} ribs), left sided pleural

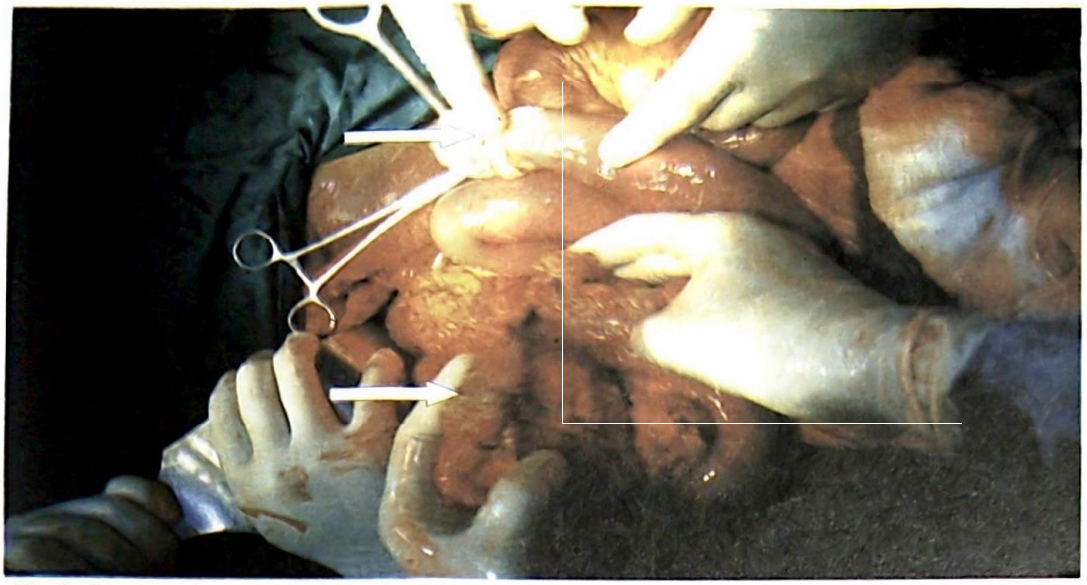

Fig. 3: Intra-operative photograph showing the area of perforation covered by a piece of gauze (single arrow) with areas of peritoneal soilage (double arrows).

collection with dextrocardia. Abdominal ultrasound showed free intra-peritoneal fluid collection with dilated bowel loops but adequate sonologic visualization of the abdominal viscera was not ascertained. Plain radiograph of the left arm showed a transverse distal humeral fracture. A diagnosis of blunt chest trauma with left sided haemothorax and peritonitis secondary to ruptured viscus and left humeral fracture in a patient with dextrocardia was made.

He had left closed tube thoracostomy drainage with initial drainage of 150mls of bloody effluent. A laparotomy was performed 4 hours after arrival in the hospital with findings of a jejunal perforation 30cm from the duodeno-jejunal junction with a complete situs inversus. The jejunal perforation was repaired in 2 layers with copious peritoneal lavage. He had no blood transfusion. The left humeral fracture was managed non-operatively with a Plaster of Paris cast. He was managed in the intensive care unit in the immediate post-operative period.

The chest tube was discontinued 7 days after insertion after chest radiograph confirmed complete drainage and adequate lung expansion. He made good post operative recovery and was discharged 10 days after surgery. He was educated on the peculiarity of his condition and asked to bring this to the notice of subsequent healthcare givers. He has been seen in the outpatient clinic 6 months after discharge in good health.

Discussion

Situs inversus is an uncommon positional anomaly, with reversal of both thoracic and or abdominal viscera [6]. This is a report of situs inversus totalis. A pre-operative diagnosis of this anomaly is important for correct interpretation of symptoms and diagnostic procedures. This report describes the nature of thoracic and abdominal injuries observed in a polytraumatized adult male patient following a vehicular road traffic accident.

From the few reported cases of thoracic or abdominal injuries in this group of patients, no definite pattern of injuries probably attributable to the mal-positioning of the various organs has been observed [5, 7]_ENREF_11. Literature search revealed only one reported case of small bowel perforation following blunt abdominal injury in this group of patients [5], while to the best of our knowledge, there is no reported case of both thoracic and abdominal injuries co-existing in a patient with complete situs inversus.

A pre-operative diagnosis was made in this index patient which aided correct interpretation of radiological findings. Intra-operative difficulties have been described in patients with situs inversus [8], but none was encountered in the management of this patient, probably attributable to the nature of the injuries sustained. Postoperative recovery was also uneventful.

Conclusion

Situs inversus is usually an asymptomatic anomaly whose significance lies largely in the alteration of clinical signs and symptoms and radiological investigations. Traumatic thoracic and abdominal injuries requiring surgical intervention can be successfully managed in this group of patients.

References

1. Le Wald LT. Complete transposition of the viscera: A report of twenty-nine cases, with remark on etiology. JAMA. 1925;84:216–268.
2. Heather Rosen, Mikael Petrosyan and Rodney J. Mason. Cholecystitis in Situs Inversus Totalis. Radiology case reports. 2008;3(4):226.
3. Adeniyi AEO, Akinsanya C.O, Akinremi T.O and Erinle C.A. Appendicitis and situs inversus viscerum in a 32-year-old female Nigerian: a case report.Annals of Ibad post grad med. 2008;6(1):84-86.
4. Joo SO, Ki WK and Hang J C. Left-sided appendicitis in a patient with situs inversus totalis. J Korean Surg Soc 2012;83(3):175–178.
5. Uludag M, Citgez B and Ozkurt H. Delayed Small Bowel Perforation Due to Blunt Abdominal Trauma and Peri-Appendicitis in a Patient with Situs Inversus Totalis : A Report of a Case.Acta Chirurgica Belgica. 2009;109(2):234-237.
6. Morelli SH, Young L, Reid B,*et al.* Clinical 6. Morelli SH, Young L, Reid B,*et al.* Clinical analysis of families with heart, midline and laterality defects. Am J Med Genet. 2001 Jul 15;101(4):388-392.
7. Rohan K, Rajveer C, Lokender K, *et al.* Splenic rupture in a patient with situs inversus. J R Soc Med Sh Rep 2012;3(3):61.
8. Oms LM and Badia JM. Laparoscopic cholecystectomy in situs inversus totalis,the importance of being left-handed. Surg Endosc. 2003;17(11):1859-1861.