Misdiagnosis Of Situs Inversus Totalis As Chronic Liver Disease: A Case Report.

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Abstract.
Introduction: Situs inversus totalis is an inherited condition characterized by a mirror-image transposition of thoracic and abdominal organs or both. The variation from the norm of the sidedness of the anomalies in situs inversus is attended by differences in presentation, difficulties in diagnosis and the need for modifications in operative technique.

Case Report: U.M; is a 28year old man whose ultrasound scan done in a private hospital diagnosed a chronic liver disease. But normal hepatic indices ruled out hepatic pathology and ultrasound scan revealed situs inversus totalis. This reiterates the need for trained professional to carry out sonographic scan with a sound background of anatomy and physiology so as to avert this type of misdiagnosis.

Key words: Situs inversus totalis, Misdiagnosis, Ultrasound.

Résumé.
Introduction : Situs inversus totalis est une maladie héréditaire caractérisée par une image-miroir transposition de thoracique et des organes abdominaux ou les deux à la fois. La variation de la norme de la partialité des anomalies de situs inversus est assisté par des différences dans la présentation, des difficultés dans le diagnostic et la nécessité d’apporter des modifications au dispositif technique. Rapport de cas: U. M; un homme de 28 ans homme dont l’échographie fait dans un hôpital privé diagnostiqué d’une maladie chronique du foie. Mais hépatique normale indices exclu pathologie hépatique et l’échographie a révélé situs inversus totalis. Il réaffirme la nécessité d’une formation professionnelle qui à effectuer échographies numérisation avec un fond sonore d’anatomie et de physiologie, afin d’éviter ce type de diagnostic.

Introduction:  
Situs inversus totalis is an inherited condition characterized by a mirror-image transposition of thoracic organs and abdominal organs or both. It sometimes coexists with other anatomical variations such as a cardiorespiratory, gastrointestinal, hepatopancreaticobiliary, neurological, orthopaedic and urological anomalies.

It is estimated to occur in 1 in 5000-20,000 births. Although situs inversus on its own is not pathological, it may be associated with other disease conditions like peptic ulcer disease, renal or liver pathology. The diagnosis is often times incidental either at surgery or during radiological work up.

Thus, transposition of the organs imposes special demands on the diagnostic skill of clinicians, surgeons, Sonologist/Radiologist.

This is a case of a 28 year-old male in whom a right sided spleen was wrongly interpreted as shrunken liver and diagnosis of chronic liver disease was made is herein presented.

Case Report:  
U.M; a 28 year old man, who had 3months history of recurrent epigastric pain. Medical diagnosis of chronic peptic ulcer disease was made and treatment for same was effected at the private Hospital. Sonography at the same hospital by a sonologist however, revealed shrunken liver and splenomegaly on the basis of which an impression of chronic liver disease with suspected portal hypertension was made. However, the laboratory findings of normal liver function tests prompted a referral of the patient to our institution for further re-evaluation.

Ultrasound scan at this time showed left sided liver, gallbladder, inferior vena cava (IVC) and head of pancreas. Similarly a right sided spleen was demonstrated (Fig 1). Hence the diagnosis of situs inversus was made. Chest radiographs also

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showed the two lung fields, dextrocardia, a right sided aortic arch and stomach fundal gas shadow beneath the right hemidiaphragm (Fig2). Computed tomography of this patient confirmed the dextrocardia and mirror image of the abdominal visceral organs (Fig 3).

The confirmation of situs inversus totalis led to counseling of patient and the need to be cautious as abdominal trauma may readily predisposes him to splenic rupture.

Fig: 1. Ultrasound scan of both hypochondria, showing the spleen and the right kidney (Inferior to it) in the right hypochondrium, while the liver and the left kidney are demonstrated in the left hypochondrium.

Fig: 2. An Postero-anterior Chest radiograph also showing a dextrocardia and a right sided aortic arch.

are Kartagener's (bronchiectasis, sinusitis, situs inversus) and cardiac anomalies1.

In this patient, the mirror imaging of the organs found at ultrasonography, plain radiography and Computed tomography is dextrocardia. Other associations are right sided aortic arch, abdominal aorta, polysplenia, stomach and tail of pancreas. There were left sided liver, gallbladder, inferior vena cava (IVC) and head of pancreas. All these anomalies have a genetic predisposition and may be hazardous to surgery when not anticipated. According to Ruben and Applegate et al, intestinal malrotation is a constant feature in patients with situs anomalies3.

Sonographically normal liver has a homogenous echotexture, interrupted by the portal veins and its branches which are seen as linear tubular structures with echogenic walls. The liver is hypoechoic compared to the spleen and isoechoic or hyperechoic compared to the renal cortex. The gallbladder lies in a fossa on the undersurface of the right lobe of the liver. All this were seen in the left hypochondrium of the patient. On the other hand the spleen has a homogenous intermediate to low level echoes with no bright intrahepatic streaks. The splenic hilum is located at the centre of the inferomedial surface with the pancreatic tail reaching it4 seen in this case in the right hypochondrium.

Chronic liver disease is characterized by diffuse parenchymal destruction, fibrosis and nodular regeneration of preexisting lobular architecture. Radiologically it may appear shrunken with surface irregularity, thickening of

Discussion
In the year 1600 the first known case of situs inversus in humans was reported by Fabricius2. Situs inversus totalis is considered to be autosomal recessive and may be associated with several anomalies and syndromes among which
the fissure and porta hepatis, surface nodularity and indentations. Others include splenomegaly and ascites which is the reason why the sonologist in this case made the mistake of diagnosing a right spleen as a shrunken liver and assumed the left sided liver is an enlarged spleen. Situs inversus usually remain undiagnosed, as exemplified by the present case unless it is incidentally discovered. There has been isolated report of associated peptic ulcer perforation, amoebic abscess, acute cholecystitis, and intestinal obstruction.

There are several instances where diagnosis of associated ailments proved to be a diagnostic challenge as reported by pathak et al. Theodoros et al., Senthil et al., and Damian-McKay et al. all reported cases where patients presented with left sided upper quadrant pain radiating to the left scapula but because of the mirror imaging of the visceral organs the diagnosis was delayed and in some instances mistakes were even made in the diagnoses before radiological investigations correct the diagnoses.

The variation from the norm of the sidedness of the anomalies in situs inversus is attended by differences in presentation, difficulties in diagnosis and the need for modifications in operative technique.

References


