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Technical difficulties and its remedies in laparoscopic cholecystectomy in situs inversus totalis: A rare case report

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ABSTRACT

INTRODUCTION: Laparoscopic cholecystectomy is considered to be the gold standard surgical procedure for cholelithiasis and is one of the commonest surgical procedures in the world today. However, in rare cases of previously undiagnosed situs inversus totalis (with dextrocardia), the presentation of the cholecystitis, its diagnosis and the operative procedure can pose problems. We present here one such case and discuss how the diagnosis was made and difficulties encountered during surgery and how they were coped with.

PRESENTATION OF CASE: A 35 year old female presented with left hypochondrium pain and dyspepsia, for 2 years. A diagnosis of cholelithiasis with situs inversus was confirmed after thorough clinical examination, abdominal and chest X-rays and ultrasonography of the abdomen. Laparoscopic cholecystectomy, which is the standard treatment, was performed with numerous modifications in the positioning of the monitor, insufflator, ports and the position of the members of the surgical team and the laparoscopic instruments. The patient had an uneventful recovery.

DISCUSSION: Situs inversus totalis is itself a rare condition and when associated with cholelithiasis poses a challenge in the management of the condition. We must appreciate the necessity of setting up the operating theatre, the positioning of the ports, the surgical team and the instruments.

CONCLUSION: Therefore, it becomes important for the right handed surgeons to modify their techniques and establish a proper hand eye coordination to adapt to the mirror image anatomy of the Calot's triangle in a patient of situs inversus totalis.

1. Introduction

Situs inversus is a rare autosomal recessive disorder in which the organs are transposed from their normal location to the opposite side of the body. The known human case was reported by Fabricius in 1600.[1] When involving both the abdominal and thoracic viscera including dextrocardia it is referred to as situs inversus totalis. When present, it may be associated with several other abnormalities including bronchiectasis, sinusitis, deficient tracheo-bronchial cilia, known as Kartagener's syndrome. In such patients, the clinical diagnosis of cholelithiasis becomes more difficult because the clinical presentation is confusing, especially because of the pain localized to the left hypochondrium.

The mirror image anatomy not only demands greater surgical skill but also requires careful pre-operative planning for setting up the operation theatre, the positioning of the surgical team, the ports and instruments. Difficulties are encountered by the right-handed surgeon who must show care not to cross arms to retract Hartmann's pouch for skeletonization of Calot's triangle.[4]

We report a case of a 35 year old female with situs inversus totalis with cholelithiasis with history suggestive of chronic cholecystitis managed by laparoscopic cholecystectomy.

2. Case description

A 35 year old female presented with recent intermittent pain in the left hypochondrium occasionally radiating to the back and dyspepsia often associated with episodes of vomiting. She reported similar episodes in the last 2 years relieved on intravenous antacids and analgesics. There was no history of fever, jaundice, altered bladder or bowel habits, abdominal distension or weight loss. She underwent open tubal ligation at the age of 27 years and had an uneventful recovery following that. She had no other ailments or symptoms.

On clinical examination, there was no jaundice or fever. The abdominal examination revealed mild tenderness in the left hypochondrium, a linear scar in the midline in the infra-umbilical

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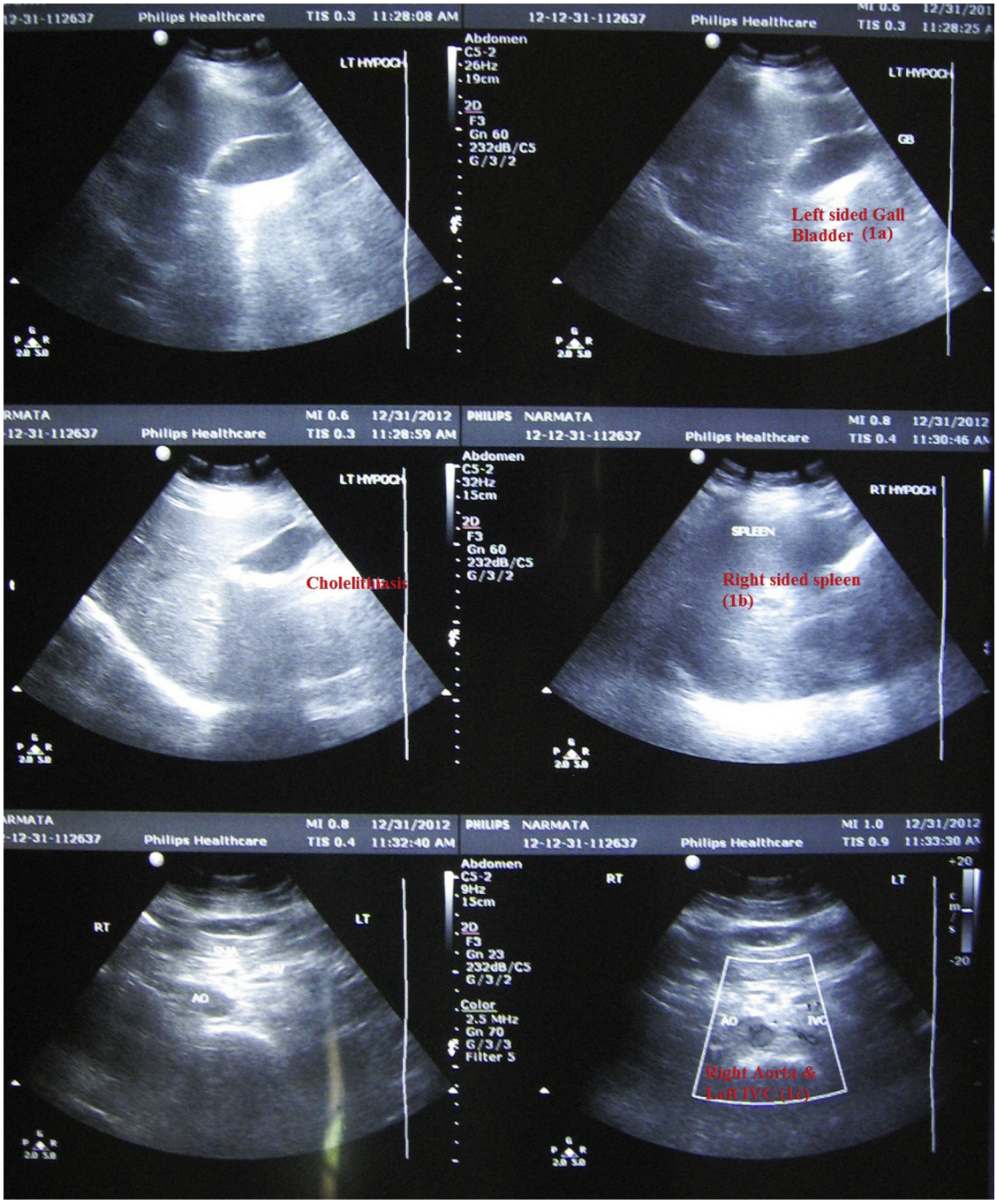

Fig. 1. Ultrasonography abdomen-left sided liver & gall bladder (a), right sided spleen (b), left sided IVC and right sided aorta (c).

region 8 cm below the umbilicus and the rest of the abdominal examination was unremarkable. The apex beat was present in the fifth intercostal space on the right mid clavicular line.

The patient's blood investigations revealed normal complete blood count, liver and kidney function tests, serum electrolytes, blood glucose. An ultrasonography of the abdomen [Fig. 1] was performed which showed the following:

1. Liver and gall bladder on the left side [Fig. 1a], gall bladder lumen filled with multiple subcentimetric calculi with posterior acoustic shadowing.
2. Common Bile Duct diameter 5 mm, portal vein normal.
3. Spleen on the right side [Fig. 1b], Inferior vena cava on the left side and aorta on the right side [Fig. 1c].

The chest radiograph of the patient showed heart shadow on the right side (dextrocardia) and the left hemi diaphragm to be raised as compared to the right side [Fig. 2].

The diagnosis of cholelithiasis with situs inversus totalis was established and decision to perform a laparoscopic cholecystectomy was taken after admitting the patient electively.

In order to conduct the surgery, the theatre equipment including the monitor, CO_2 insufflator and diathermy were positioned in the mirror image of their normal position on the left side of the patient. The patient was positioned in the reverse Trendelenberg position with the right side slightly inclined up. The difficulty of