Videolaparoscopic cholecystectomy after choledocholithiasis resolved by ERCP in a patient with situs inversus totalis: case report

Colecistectomia videolaparoscópica post coledocolitiasis resuelta por CPRE en paciente con situs inversus totalis: reporte de un caso

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ABSTRACT
Situs inversus totalis is a rare congenital anomaly characterized by an inversion of the arrangement of thoracic and abdominal organs. Although many patients are asymptomatic, they can develop surgically treatable conditions such as cholecystitis. This case describes a patient with symptomatic gallstone disease who underwent laparoscopic cholecystectomy. Anatomical challenges, surgical techniques, and strategies to prevent complications are highlighted. Accurate identification of structures and meticulous preoperative planning were key to the procedure's success.

Keywords: Situs inversus totalis, cholecystectomy, laparoscopic surgery, choledocholithiasis.

RESUMEN
El situs inversus totalis es una anomalía congénita rara caracterizada por una inversión de la disposición de órganos torácicos y abdominales. Aunque muchos pacientes son asintomáticos, pueden desarrollar pataologías de resolución quirúrgica como la colecistitis. Este caso describe a una paciente con litiasis vesicular sintomática, sometida a colecistectomía laparoscópica. Se resaltan desafíos anatómicos, técnicas quirúrgicas y estrategias para evitar complicaciones. La identificación precisa de estructuras y una planificación preoperatoria cuidadosa fueron clave para el éxito del procedimiento.

Palabras clave: Situs inversus totalis, colecistectomía, cirugía laparoscópica, coledocolitiasis

INTRODUCTION

The situs inversus totalis is a congenital condition characterized by the inversion of the organ's normal disposition within the thorax and abdomen. Although this anomaly can be asymptomatic, in some cases it can cause complications which require surgical intervention.[1] Cholecystitis is one of the most common complications that can present themselves in patients with situs inversus, which poses a significative challenge in surgical practice.[2] Cholecystectomy is considered the standard treatment for cholecystitis. However, inverted anatomy in some situs inversus totalis patients requires a profound comprehension of the anatomical varieties and meticulous planning throughout the surgical process.[3] Laparoscopic surgery has emerged as a viable and safe option for cholecystectomy in these patients, offering significant benefits in terms of recovery and lesser complications. For a laparoscopic cholecystectomy in a situs inversus totalis patient, unique anatomical aspects, surgical considerations and postoperative results must be highlighted.

CLINICAL CASE

35-year-old female patient, without base pathologies, reports to the emergency service due to a week's worth of evolutive symptom, epigastrium irradiating the left hypochondrium, puncturing type which partially yields with common analgesics. Reports jaundice, choluria, denying hypocholia and fever. Physical exam yields soft depressible abdomen with slight pain in the epigastrium with defense and without irritation, normal and present hydroaerial noises. Laboratory tests yield total bilirubin increase of 2.67 at the expense of 2, other values are normal. In the thorax's anteroposterior radiography, cardiac silhouette is seen located on the right hemithorax, with the apex on the same direction *(see Figure 1)*.

Abdominal echography: Liver located on the epigastrium and left hypochondrium, homogenous, normal size and shape, normodistended gallbladder with lithiasis on the inside. Walls

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of regular thickness with lithos on the inside, cannot achieve full visualization of the common bile duct due to gas interposition. Cholangioresonance: common bile duct of 6.7 mm, three lithiasis images are seen measuring between 4 to 5 mm of diameter. Patient has an endoscopic retrograde cholangiography performed, where extraction of the lithiasis and papillotomy is done, observing exit of clear bile *(see Figure 2)*.

During exploration surgery of the cavity, the stomach is seen to be located on the right hypochondrium, gallbladder on the left side, non-distended, slim walls, chronic characteristics *(see Figure 3)*. Calot's triangle is dissected, with electrocauterization and blunt maneuvers. The large and long cyst duct and cyst artery are located *(see Figure 4)*. Distal and proximal ligature of the cyst duct is performed, the proximal ligature is clipped with Hemolok, section with laparoscopic scissors, no complications. Simple clipping and cutting of the cyst artery with electrocautery without complications. A proper cholecystectomy is performed.

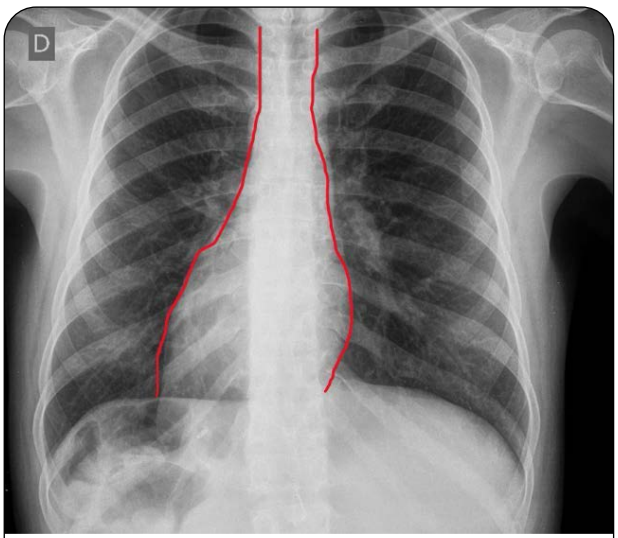

Figure 1. Anteroposterior radiography of the thorax yields cardiac silhouette on the right hemithorax, with the apex in the same direction.

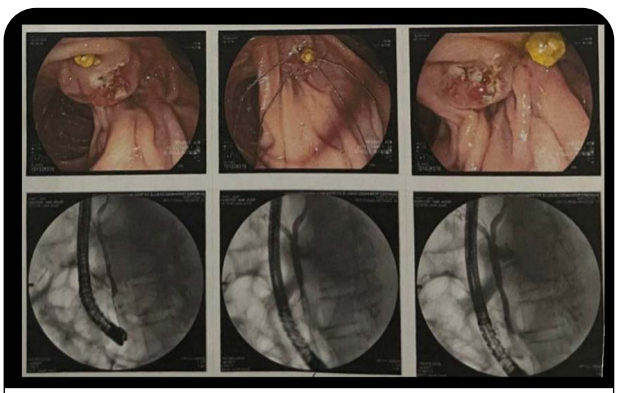

Figure 2. Endoscopic retrograde cholangiography, where the extraction of the lithiasis and papillotomy is performed.

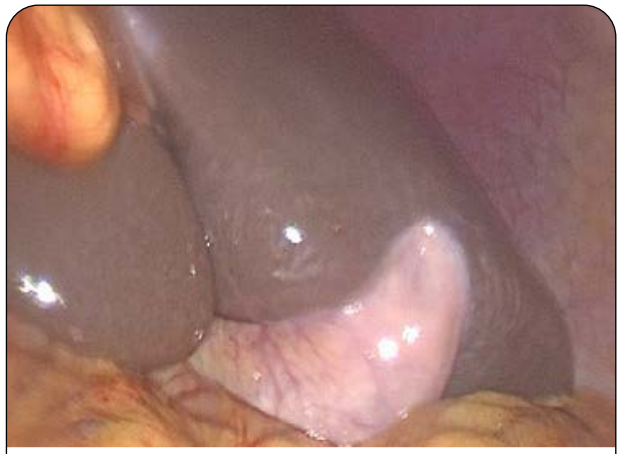

Figure 3. Left side's gallbladder, non-distended, thin walls, of chronic characteristics.

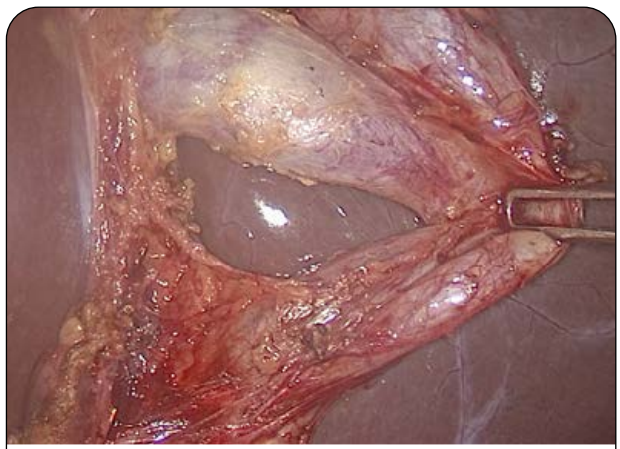

Figure 4. Calot's triangle is dissected, with electrocauterization and blunt maneuvers. The large and long cyst duct and cyst artery are located.

DISCUSSION

Situs inversus totalis, although infrequent, presents significative challenges within the surgical handling of associated conditions[4]. Proper indentification of the inverted anatomy is crucial to avoid complications and guarantee a safe surgical focus. In this case, the use of laparoscopic techniques proved to be effective, allowing adequate visualization and controlled access to the gallbladder and its adjacent structures. Previous studies have documented that laparoscopic cholecystectomy in situs inversus totalis is feasible and safe, despite the additional complexity that carries in concordance with the published work of Fernandez and collaborators [5]. The key to success falls in preoperatory preparation, which includes the use of advanced diagnostic images, such as echography and magnetic resonance, to map the anatomical disposition of the patient as mentioned by Valverde [6]. This not only helps surgeons to anticipate anatomy variations, but it also minimizes the risk of vascular structures and bile' injuries.

Author's contribution: Authors collaborated jointly in all stages of the work's research, including the study's planning, data collection and analysis, as well as the manuscript's writing and revision.

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