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The Use of ERCP in Patients with *Situs Inversus Totalis* Associated with Obstructive Biliary Pathologies

To the Editor

Situs inversus totalis (SIT) is a rare entity which has been estimated to occur in the range of 1:10 000 to 1: 20 000 (1). SIT is the mirror image of situs solitus which describes the normal (Figure 1a) position of thoracic and abdominal viscera.

Situs anomalies are rare, complex disorders where an autosomal recessive predisposition is inherited. It may be associated with other genetic diseases such as Kartagener's syndrome (2).

Fifty eight percent of SIT patients have intraabdominal abnormalities such as right-sided stomach, midline liver, biliary tract anomalies, intestinal malrotation and polysplenia or asplenia (3).

Early recognition of *situs inversus* is necessary for preventing surgical mishaps that result from the failure to identify reversed anatomy or an atypical history. It has been reported that the pain was felt only in the epigastrium in 30% of the cases of acute cholecystitis with *situs inversus* (4).

Although there are many reports of cholecystitis, few reports of cholangitis and biliary pancreatitis are present in these patients. The clinical presentation of bile duct stones as acute cholangitis or acute biliary pancreatitis (5-7). is very rare in patients with SIT (Figure 1b, 1c) but when occurred, the anatomic anomaly of the patients makes ERCP and operation even more challenging (Figure 1d).

ERCP is the main treatment modality in patients with biliary calculi complicated with cholangitis or pancreatitis but it is a difficult procedure demanding technical skills and it has also its own drawbacks with potentially serious complications.

The rare and undetected anatomical positions of SIT make ERCP even more challenging. The endoscopic procedures such as sphincterotomy, stent placement, stone extraction are more difficult than in the patients with situs solitus. Although the failure of treatment with ERCP was reported (6), there are also some reports of successful treatment by ERCP (7, 8).

The crucial factor for ERCP in SIT patients is to put the patients in different positions during the procedure.

Although ERCP starts with the usual left lateral decubitus position, after reaching the 2nd portion of the duodenum, the patient should be placed in the prone position. Then if the papilla cannot be identified, the patient is further maneuvered to supine position. Having succesfully cannulated, routine endoscopic management of choledocholithiasis such as sphincterotomy, stone extraction and stent placement in cases of acute cholangitis may be performed. Afterwards, patients could undergo laparoscopic cholecystectomy successfully as in our cases and in others (1, 4, 7).

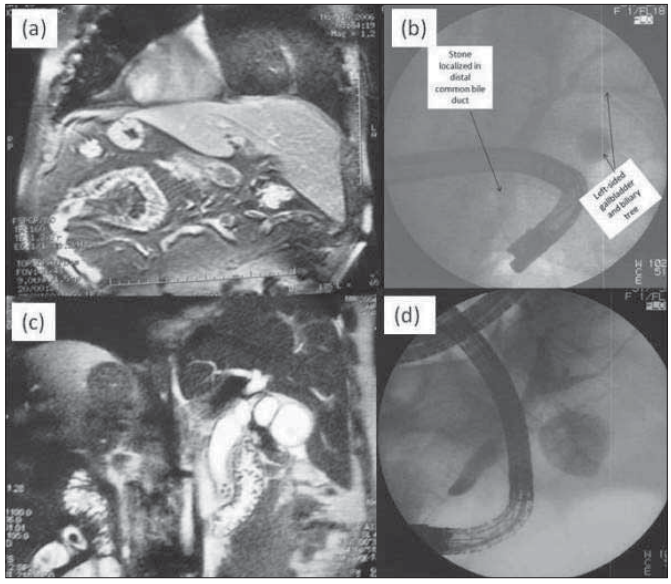

Figure 1. (a): MR imaging of left-sided position of the liver (b): ERCP imaging of the left-sided position of gallbladder and biliary tree (c): MR imaging stones in left-sided distal common bile duct (d): ERCP image demonstrating the "long scope position" of the duodenoscope and filling defects indicating stones in gallbladder

In our view, management of extrahepatic biliary stones in patients with SIT is the same as in regular patients. To overcome the obstacles during the procedure, minor changes in the position of patients and further maneuver by the surgeon may aid success of the treatment. ERCP can be performed successfully in experienced hands when indicated.

Adem Akçakaya[2], İsmail Okan[1], Mustafa Şahin[1], Atilla Karakelleoğlu[1], Gürhan Baş[1]
[1]Department of 1th General Surgery, Vakıf Gureba Training and Research Hospital, İstanbul, Turkey
[2]Department of General Surgery, Şişli Pediatric Education and Research Hospital, İstanbul, Turkey
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Address for Correspondence: *Dr. Gürhan Baş, Department of 1th General Surgery, Vakıf Gureba Training and Research Hospital, İstanbul, Turkey*
Phone: +90 212 453 17 00 E-mail: gurhanbas@yahoo.com

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