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CASE REPORT

Left Sided Gallbladder - Case Report

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Left sided gallbladder is a rare anomaly that is often associated with other abnormal anatomy in the hepatobiliary system. One left positioned gallbladder was found in a consecutive series of 3290 patients undergoing laparoscopic cholecystectomy for gallstone disease in the Mure County Emergency Hospital's 2nd Surgery Clinic between 2005 and 2015, a prevalence of 0.03 per cent. In case of left sided gallbladder the cystic artery always crosses in front of the common bile duct from right to left. The cystic duct may open on the left or right side of the common hepatic duct. Anterograde cholecystectomy is the best choice for precise exploration of the cystic duct and cystic artery.

Keywords: left sided gallbladder, laparoscopic cholecystectomy, hepatobiliary system

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Introduction

Classical description of the anatomy of the arteries and extrahepatic bile ducts corresponds to only one third of patients. There are important abnormalities of shape and position of the gallbladder, but the left-sided gallbladder is extremely rare. In a multicentric series of laparoscopic cholecystectomies, the prevalence of this malformation is between 0.04-0.3% [1,2]. In these cases, the gallbladder is always located under the left lobe of the liver between segments IV and III, or on segment III to the left of the falciform ligament [1].

Case report

We describe the case of a 27 years old patient, complaining about right upper quadrant discomfort associated with nausea. Abdominal ultrasonography showed multiple hyperechogenic structures in the gallbladder, but there was no mentioning about the presence of any kind of malformations of the biliary system. The laparoscopic cholecystectomy was performed using four ports. After introducing the laparoscope, the gallbladder was found to the left of the falciform ligament. (*Figure 1)*

The operation begun with the exposure and dissection of Calot's triangle components, but because the infundibular part of the gallbladder was completely covering the hepatic pedicle, dissection of this structure has been abandoned. Anterograde cholecystectomy has been performed, releasing the gallbladder from the visceral side of the liver. After that the gallbladder was positioned to the right side of the hepatic pedicle. The cystic artery was located below the cystic duct. (*Figure 2)*

Both elements have been dissected, clipped and sectioned. (*Figure 3)*

The gallbladder has been removed through the supraumbilical incision, and it underwent histopathology examination, which demonstrated chronic inflammation.

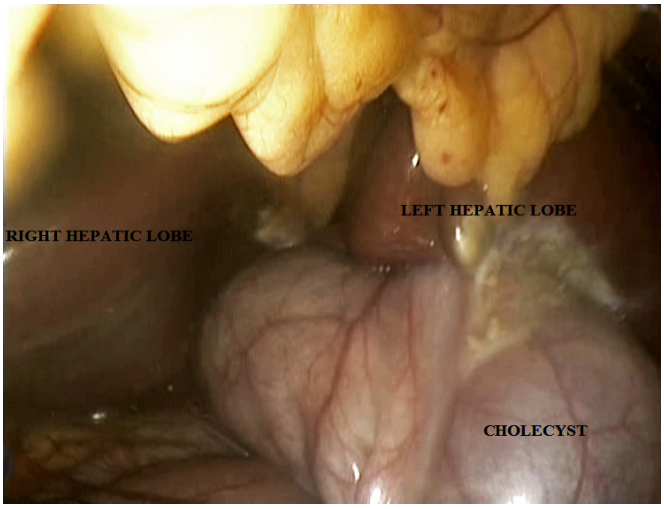

Fig. 1. The gallbladder situated left of the falciform ligament

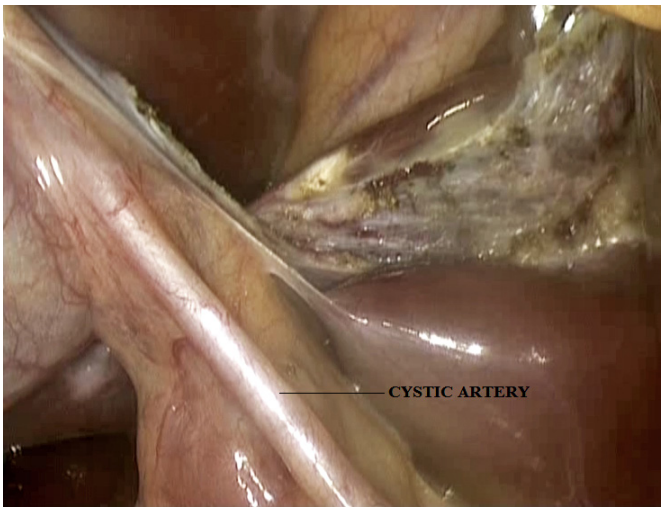

Fig. 2. Visualization of the cystic artery after anterograde preparation

The patient was discharged on postoperative day one.

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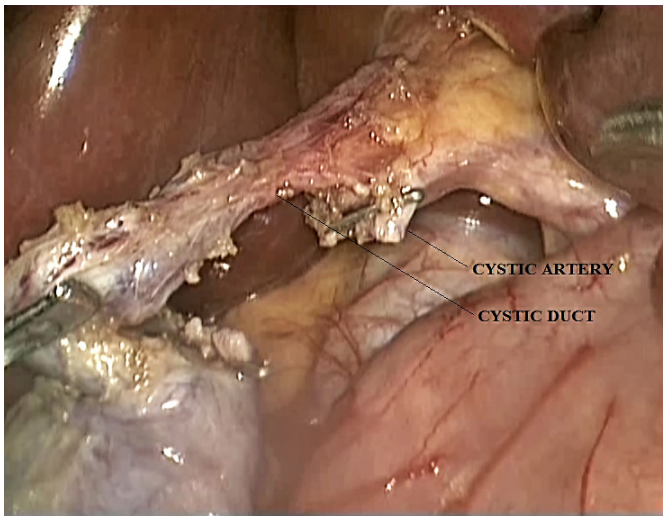

Fig. 3. The cystic duct and the clipped artery

Discussion

One left positioned gallbladder was found in a consecutive series of 3290 patients undergoing laparoscopic cholecystectomy for gallstone disease in the Mures County Emergency Hospital's 2nd Surgery Clinic between 2005 and 2015, a prevalence of 0.03 per cent.

The primary liver located at the caudal region of the cephalic intestine, the future descending portion of the duodenum, appears in the 3rd week of fetal life as a ventral diverticulum, the hepatocystic bud. The free end of the hepatocystic diverticulum will give rise to two full epithelial buds: cranial – precursor to the liver bud, from which the liver and intrahepatic bile ducts will develop, and caudal - the origin of the cystic duct and gallbladder. In 2nd month of intrauterine life, the gallbladder comes in relation with the liver. After the 3rd month the gallbladder tunics and parietal glands differentiate [3,4]. A left sided gallbladder is a rare congenital anomaly, and can arise in four different ways: gallbladder migration toward the left side of the liver, development of a second gallbladder with atrophy of the original [5], development failure of the quadrate lobe of the liver [1], anomaly associated with a right sided falciform ligament during development. During normal development, the right umbilical ligament becomes atrophic, and the left side becomes dominant. In rare instances, the left ligament becomes atrophic, and the right ligament becomes dominant. The gallbladder in such anomalies is located in its normal site, but the rare right sided falciform ligament makes the gallbladder appear aberrant beneath the left lobe of the liver [6].

In case of these malformations the cystic artery usually crosses above from left to right the common hepatic duct. In the case presented by us, the cystic artery was located inferior to the cystic duct. The cystic duct crossed above the common hepatic duct and united with it on its right side. The cystic duct may open on the left or right side of the common hepatic duct [2]. Preoperative diagnosis of this malformation is difficult; in most cases it is an intraoperative surprise. Ultrasound or ERCP are often not able to identify the gallbladder located on the left side [7]. If an ectopic gallbladder is encountered, the surgeon should be aware of the possibility of the anomalies of the cystic artery and ductal system [8]. During dissection of these elements we encountered major difficulties involving the risk of damaging the elements of the hepatic pedicle. By releasing the gallbladder from the visceral surface of the liver, and positioning it on the right side of the hepatic pedicle, the normal anatomy can be almost completely re-established. The anterograde gallbladder extirpation provides a better visualization of the anatomical structures and this approach is god alternative when the anatomy is unclear [5]. The anomaly does not preclude a safe laparoscopic cholecystectomy but demands exercising surgical prudence, limiting the use of diathermy, and avoiding the division of structures until a clear picture of the bile duct and blood vessels is obtained [9]. If necessary, intraoperative cholangiography helps to further define the anatomy of the biliary system [10].

Conclusions

The left sided gallbladder is a rare malformation of the extrahepatic bile ducts, an intraoperative surprise during laparoscopic cholecystectomy. Anterograde cholecystectomy is the best choice for precise exploration of the cystic duct and cystic artery. When the anatomy remains unclear, open surgery should be considered before undesirable complications occur.

Conflicts of interest

The authors report no conflicts of interest.

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