A double or bilobar gallbladder as a cause of severe complications after (laparoscopic) cholecystectomy

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Abstract. A double or bilobar gallbladder is a rare congenital anomaly. If not recognized during preoperative evaluation or operation, it can cause severe complications. We describe two cases in which a second operation had to be performed because of the presence of a second or bilobar gallbladder that was not recognized in the preoperative evaluation and during (laparoscopic) cholecystectomy. The types of anomalies, the concomitant pathology, and treatment are discussed.

Key words: Double or bilobar gallbladder — Laparoscopic cholecystectomy

A double or bilobar gallbladder is a rare congenital anomaly with an incidence in autopsy series of 1 in 4,000 [3]. Congenital anomalies of the gallbladder and the cystic duct and anatomical variations of their position are associated with an increased risk of complications after (laparoscopic) cholecystectomy.

Inadequate exposure during (laparoscopic) cholecystectomy makes it more difficult to recognize these congenital anomalies.

Case reports

Case A

A 46-year-old woman underwent a cholecystectomy because of intermittent biliary colics based on ultrasonography-confirmed cholecystolithiasis (multiple small concrements). Cholecystectomy was without complication and the postoperative course uneventful. Pathological examination showed a gallbladder with signs of chronic cholecystitis; the length of the cystic duct was less than 5 mm.

Six months later she presented with the same complaints as before surgery. Ultrasonography (US) showed a cyst-like structure in the liver. The patient was referred for treatment. CT scan of the upper abdomen confirmed the US findings. ERCP showed normal pancreatic and bile ducts and an intrahepatic gallbladder with small concrements (Fig. 1).

During surgery a second intrahepatic gallbladder, with a very long cystic duct, was found and resected. The postoperative course was uneventful.

Case B

A 45-year-old male complained about biliary colics and nausea and underwent laparoscopic cholecystectomy.

Pathological examination showed a gallbladder with some cholesterolosis but no concrements or inflammation. The cystic duct was short (about 1 cm). Four days later relaparotomy was performed because of biliary peritonitis, but no bile duct lesion could be found. The same procedure was repeated 3 days later.

Sphincterotomy and stone removal was performed and the patient recovered without further complications. Six months later he presented with continuous pain in the right upper abdomen. During laparotomy a second gallbladder with a fundus fixed intrahepatically was found and removed. Pathological examination revealed a remnant of a gallbladder, with signs of chronic inflammation and erosions. The postoperative course was uneventful.

Discussion

Duplication of the gallbladder is a rare congenital anomaly.

They are thought to be remnants or modifications of development [1, 3, 11]. Congenital abnormality of the gallbladder does not indicate a higher incidence of abnormalities in other
Fig. 1. ERCP 6 months after initial cholecystectomy showing normal pancreatic and bile ducts and an (intrahepatic) second gallbladder with small concrements.

organs, but concomitance with other abnormalities has been described [6, 14].

Types

Several types are described in literature, divided in anomalies of number, form, and/or position.

- **Anomalies of number:** absence, two (vesica duplex) or three (vesica triplex) gallbladders [6, 9, 11, 14]. True duplications consist of two vesicals and two cystic ducts [3, 8] and can be subdivided into the *Y-shaped type* (with cystic ducts joining before entering the common bile duct), usually adherent and occupying the same fossa, and the *ductular type* (with two ducts ending in the common bile duct separately), usually separated.

  The first patient suffered from two gallbladders (anomaly of number) and two separated cystic ducts. (There was also anomalous position of the second gallbladder.) The second gallbladder obviously had not been shown on the preoperative ultrasound and during surgery, probably because of the intrahepatic position.

- **Anomalies of form** can be distinguished in *bilobed gallbladders* or vesica divisa (a single vesical with a cleft or longitudinal septum but with a single cystic duct), the *hourglass type* (with a septum transversely across the gallbladder resulting in a proximal and distal cavity) and the *Phrygian cap abnormality* (also two cavities, but with a much smaller proximal cavity). Partial duplication (*diverticulum type*) seldom occurs in man [1, 5, 6, 9, 11]. The diverticulum should be an abnormal development of one of Luschka's ducts. It has been described with an accessory bile duct (hepatocystic duct) connecting the right hepatic duct or liver [11].

  They are less common than anomalies of number [6] (except the Phrygian cap form, that should be more common.)

  Bile leakage in the second patient was caused by