Isolated Agenesis of the Gallbladder: A Pitfall in Laparoscopic Cholecystectomy.

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Fig_1.jpg
Fig_2.jpg
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Abstract

We report a case of isolated agenesis of the gallbladder diagnosed during laparoscopy for supposed gallstones. The incidence of this anomaly is reported and the investigation methods are discussed. It should be emphasized that abdominal surgeons operating for biliary tract disease should be aware of this rare condition to avoid injury to the bile duct.

Isolated agenesis of the gallbladder is a rare anomaly, often asymptomatic, with an incidence of 0.01-0.04% (1) reported in the literature for the first time by Lemary in 1701(2). It is an isolated finding in more than two-thirds (70%) of people. The person with isolated gallbladder agenesis is healthy. No treatment is needed, and the prognosis (outlook) is excellent.

Gallbladder agenesis occurs in association with additional abnormalities in the remaining (30%) of cases which fall into two groups: one (9%) with atresia of the bile ducts, and the other (21%) with normal bile ducts but distant abnormalities such as ventricular septal defect, imperforate anus, malrotation of the gut, renal agenesis, syndactyly. If the patients become symptomatic (in 23% of cases), the agenesis of the gallbladder will almost always be misinterpreted as cholecystitis with cystic duct obstruction or as a sclero-atrophic gallbladder, therefore leading to unnecessary surgery. We report a case diagnosed during laparoscopy for supposed gallstones.

Case Report

A 37-year-old male was referred to our surgical unit with episodic epigastric pain on whom an ultrasonographic diagnosis of gallstones was made. There was no history of jaundice or fever. Ultrasound scan showed gallstones and he was referred for laparoscopic cholecystectomy. Physical examination was unremarkable. Leukocyte count and liver function tests were within normal limits. At laparoscopy, the gallbladder was not identified on the undersurface of the liver and the biliary tract was visualized by dissecting it from the duodenum to the bifurcation of the hepatic ducts (Fig. 1). Despite the examination of other areas, such as left liver, hepatoduodenal ligament, mesocolon and within the lesser omentum, the gallbladder was not found. An intraoperative ultrasonography confirmed the absence of the gallbladder. It was concluded that the patient had agenesis of the gallbladder and the procedure was terminated. The postoperative course was uneventful and, 3 weeks later, the absence of gall bladder and cystic duct was confirmed by doing a MRCP (magnetic resonance cholangiopancreatography) (Fig. 2, 3). The patient was asymptomatic at the 18-month follow up.

Discussion

The gallbladder develops during the fourth week of intrauterine life from the caudal part of the hepatic diverticulum and failure of the cystic bud to develop results in isolated gallbladder agenesis. The incidence is equal in both sexes from studies at autopsy where as 2-3 times more common in females in clinical cases(3). Two congenital syndromes with multiple anomalies including gallbladder agenesis have been described: cerebrotendinous xanthomatosis and the G syndrome. Agenesis of the gallbladder has been occasionally mentioned with trisomy 18 and the Klippel-Feil syndrome and this anomaly is reported in children with congenital malformations caused by thalidomide (up to 10% ) (4). Agenesis of the gallbladder can present as one of three categories(5): 1) It is associated with multiple fetal anomalies leading to death in the perinatal period from causes related to not biliary abnormalities. 2) It is an asymptomatic group where the anomaly is discovered either at autopsy or at laparotomy/laparoscopy for an unrelated diagnosis. 3) It is a symptomatic group that undergoes surgery for symptoms of hepatobiliary disease where no gallbladder is found at surgery. In our case reported the patient fit a category 3 case. A correct preoperative diagnosis is difficult to establish because of the nonspecific nature of the symptoms and the relative inaccuracy of currently available diagnostic tests. Ultrasonography is actually the investigation method of choice for the diagnosis of common bile duct stones, with a sensitivity of 95-98%. In our patient the duodenum was probably misdiagnosed as an inflamed lithiasic gallbladder with thick and irregular walls and shadowy opacities misdiagnosed as stones can be due to intestinal gas artefacts or to other
structures in close proximity, such as a calcified hepatic lesion. Abdominal computerized tomography, magnetic or endoscopic retrograde cholangiopancreatography (ERCP) may fail to predict this anomaly, which may mimic obstructed cystic duct. Abdominal surgeons operating for biliary tract disease should be aware of this rare condition to avoid injury to the bile duct. Infact during laparoscopic surgery, it represents a pitfall for the surgeon: the biliary or portal structures can easily be injured during dissection as one searches for a gallbladder that does not exist. The absence of normal anatomical structures and the inability to pull on the gallbladder to dissect the triangle of Calot represent a risk of iatrogenic injury. To conclude, when a case of agenesis of gallbladder is suspected on laparoscopy extensive dissection according to Frey’s criteria(6) should be avoid for high risk of iatrogenic injuries, the surgical procedure must be terminated and agenesis should be confirmed by diagnostic modalities such as MRCP in post-operative period.

References

2. Praseedom RK, Mohammed R. Two cases of gall bladder agenesis and review of the literature Hepato-Gastroenterology 1998; 45:954-5
Illustrations

Illustration 1

Figure 1

![Image of Illustration 1]
Illustration 2

Figure 2
Illustration 3

Figure 3
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