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Case Report

Septate gall bladder: a surgical surprise with review of literature

Kaptan Singh[1]*, Atul S. Joshi[1], Agrawal K. Khemchand[2], Hariom Sheoran[1], Priti Rabadiya[1], Meenakshi Malhotra[3]

[1]Department of Surgery, Fortis hospital, Mohali, Punjab, India
[2]Department of Casualty in Emergency, Postgraduate Institute of Medical Education and Research, Chandigarh, Punjab, India
[3]Department of Laboratory Medicine, Fortis Hospital, Mohali, Punjab, India

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***Correspondence:**
Dr. Kaptan Singh,
E-mail: kaptanpgi2k12@gmail.com

ABSTRACT

Septate gallbladder is a rare congenital anomaly, which can present a challenge for the surgeon who performs laparoscopic cholecystectomy. The common first line modality for screening in symptomatic gallbladder pathology is still ultrasonography. Preoperative diagnosis of this anomaly is not common. Pre- operative diagnosis and being acquainted with this anomaly decreases the possibility of injury to the biliary tract, the number of postoperative complications and the possible need for further surgical procedures. We present a case of septate gallbladder, which was diagnosed during the operative procedure. Despite the finding of a septate gallbladder, the performance of laparoscopic cholecystectomy was uneventful.

Keywords: Septate gall bladder, Double gall bladder, Laparoscopic cholecystectomy

INTRODUCTION

Congenital anomalies of the extra hepatic biliary system are important in the clinical setting as they can cause diagnostic and surgical problems.[1] They are also associated with an increased incidence of intraoperative bile duct injuries.[2] Septated gallbladder has not been well documented because it is usually asymptomatic or discovered accidentally during the evaluation of abdominal pain. Anticipation and recognition of this anomaly and its various types are important to avoid surprises. Pre-operative diagnosis plays a crucial role in planning surgery and preventing possible surgical complications. We present a case report of a young gentleman with incidentally detected septated gall bladder during laparoscopic cholecystectomy, which was managed successfully. The aim of this paper is to increase awareness in the surgical society regarding anatomical variation and present ways of diagnosis and treatment during surgery to those encountering it first time during the procedure.

CASE REPORT

A 37-year gentleman presented to out-patient department with complaints of pain abdomen for 3 months. He was apparently well 3 months before when he started having mild to moderate intensity pain abdomen mainly in right upper quadrant. Pain was associated with nausea and occasional vomiting. There was no fever or jaundice. On general physical examination abdomen revealed slight tenderness in right upper quadrant (RUQ) without any lump. On subsequent abdomen sonographic study, gall bladder showed multiple mobile calculi, largest being 1.5 cm with normal gall bladder wall thickness and common bile duct (CBD) diameter. There was no mention of any anomaly associated with gall bladder on sonographic imaging. Patient was planned for laparoscopic cholecystectomy in view of symptomatic gall stone disease. All relevant blood investigations were done and patient was sent to pre anesthetic clinic. After clearance from anesthesia team, patient was dated for a routine

elective surgery. Patient underwent standard laparoscopic cholecystectomy in American style. On entering the telescope, gall bladder visualized as distended, slightly folded upon itself with minimal peri cholecystic adhesions. Calot's triangle anatomy was defined and cystic artery and cystic duct were clipped and transected once the critical view of safety achieved. It was during the extraction of gall bladder through epigastric port when the silence broke. When the gall bladder was not emptied even after repeated suctioning and extraction of multiple stones, presence of another cavity was suspected. The suction instrument inserted to another cavity with slight manipulation, which sucked out all bile and sludge leaving behind a single calculus of approximately 1.5 cm, which was extracted after breakage. The gall bladder easily came out now. On cut section gall bladder showed two cavities with a complete septum in between. Cavity containing multiple calculi showed cholesterotic mucosa while another cavity containing single calculus showed normal mucosa. There was no wall thickening on either side. Post-operative course was uneventful and patient was discharged in stable condition.

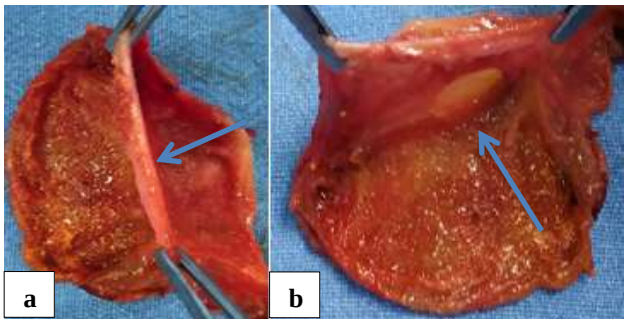

Figure 1: (a) and (b) Macroscopic specimen - cut section of gall bladder showing a septum in between.

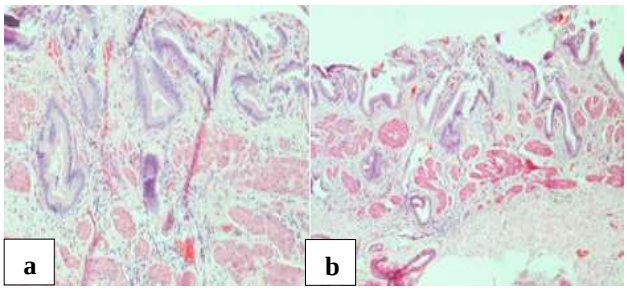

Figure 2: (a) and (b) Microphotograph (H and E stain, 40x and 100x) showing chronic cholecystitis.

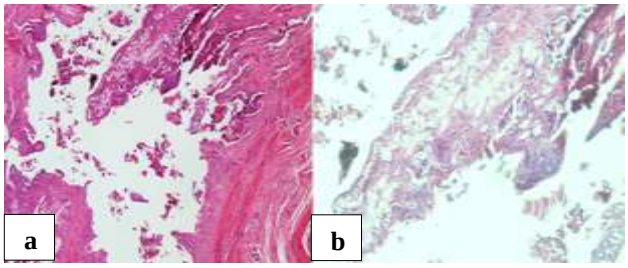

Figure 3: (a) and (b) Microphotograph (H and E stain, 40x and 100x) showing chronic cholecystitis with cholesterolosis.

DISCUSSION

Septate gallbladder is characterized by the presence of a septum that divides the gallbladder in two chambers. When the septum divides the gallbladder longitudinally it is called bilobed gallbladder and when there is a transverse septum separating the fundus from the rest of the gallbladder it is called an hour glass gallbladder.[3] Septate gallbladder most likely results from incomplete resolution of the solid stage of gallbladder development that is present before the third month of fetal development. These gallbladder septae are most commonly single but multiseptate gallbladder have also been described.[4]

In the past, several attempts have been made to classify anatomical variations of gallbladders. Boyden in 1926 described vesica fellea divisa (bilobed, double gallbladder with a common neck) and vesica fellea duplex (double gallbladder with two cystic ducts). Vesica fellea duplex was further devided into H shaped type (two separate cystic ducts enter separately into the common bile duct) and Y shaped type (cystic ducts unite before entering the common bile duct).[5] In 1936, the congenital anomalies were classified by Gross who classified double gallbladder into types from A to E, showing the positions of the accessory organ and the distribution of the cystic ducts.[6] The Harlaftis classification published in 1977 is the most comprehensive and widely accepted (Table 1).[7] This classification separates two main groups (type 1 and type 2) based on morphology and embryogenesis. In type 1 cystic primordium splits during embryogenesis, gallbladders share a common cystic duct, and in type 2 gallbladders arise from separate primordium, which means that they have individual cystic ducts.[8-10] Our case represents Harlaftis type I septate gallbladder and the septa was most probably congenital in origin.

Table 1: Harlaftis classification of duplicate gallbladder.

Type	Features
Type 1: The split primordium	Septated or bilobed (there is a single septum that divides the two gall bladder)
	V shaped (2 separate gall bladders at the fundus but join at the neck)
	Y shaped (2 separate gallbladder each with a cystic duct combine to form one cystic duct before entering the CBD)
Type 2: The accessory gall bladder	Ductular type (2 gall bladders each with a cystic duct entering separately into the CBD)
	Trabecular type (2 separate gall bladders, the superior cystic duct enters the right hepatic duct)

Pre-operative awareness of anatomical anomalies is of great importance. The most routine and readily available diagnostic procedure for right upper quadrant pain is the abdominal ultrasonography. In the absence of any suspicion of anomalies, no further diagnostic procedures are warranted, thus presenting the surgeon with the task of recognizing the anomaly and treating it intra-operatively. In this case the use of intraoperative cholangiography clarifies the anatomy. The surgeon should also always consider conversion to open surgery if in doubt. In case of any suspicion or sign of anomalies of the biliary system, further diagnostic procedures are necessary in order to delineate the biliary anatomy. In this instance magnetic resonance cholangiopancreatography (MRCP) is the modality of choice as it has the highest percentage of accuracy in visualizing the biliary system. If the anomaly is diagnosed pre-operatively, an experienced surgeon or a hepatobiliary surgeon should perform the surgery.

CONCLUSION

Septate gallbladder is a rare congenital anomaly that requires special attention. Pre-operative diagnosis can be challenging to the surgeon who should be aware of the anatomic variations of the gallbladder and biliary system. Further diagnostic preoperative imaging is important to avoid surprises and complications. MRCP should be the imaging modality of choice for suspected gallbladder anomaly. Overall, it is emphasized that the risks associated with laparoscopic cholecystectomy for septate gallbladders are comparable to those with non-septate gallbladder. However, these cases probably do better in the hand of an experienced laparoscopic surgeon or a hepatobiliary surgeon.

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