INTRODUCTION

Triplication of gallbladder is a very rare congenital anomaly of biliary tract and is unlikely to be revealed unless there are associated symptoms. The modern imaging techniques usually fail to define the exact anatomy. Pre-operative awareness of this anatomic variation can minimize the chances of any damage to the biliary tract. This case report describes a patient with cholelithiasis diagnosed to have double gallbladder on pre-operative ultrasound.

CASE REPORT

A 30-year-old lady from Azad Kashmir reported in surgical outpatient department with history of recurrent attacks of pain in right upper abdomen associated with nausea and dyspepsia for the last 04 years. There was no associated bowel or urinary complaints. She was carrying an ultrasound (Figure 1) which revealed double gallbladder, both containing stones. No comment was made on cystic duct(s). Common bile duct was however, normal in size. She was admitted for further evaluation.

On physical examination, her pulse was 80 beats per minute; blood pressure was 120/75 mmHg; and temperature was 37°C. There was no jaundice, and the abdomen was soft with mild right upper quadrant tenderness. No mass was palpable, and there was no hepatosplenomegaly. Her complete blood cell count, liver function tests, and amylase levels were within normal limits. A diagnosis of gallbladder duplication with stones was made. She was planned for open cholecystectomy and pre-anaesthesia assessment was carried out.

Abdomen was opened through right upper transverse incision. The fundus of gallbladder was unusually large. There were minimal adhesions around the neck of gallbladder, both containing stones. No comment was made on cystic duct(s). Common bile duct was however, normal in size. She was admitted for further evaluation.

On gross examination of specimen, it appeared that two equal size gallbladders were joined together on one side but on rotating 180° axially, a third smaller projection was seen beginning lower down the fundus of two gallbladders and extending distally (Figure 2). The three gallbladders were successively opened. There was no communication between them. The two normal size gallbladders contained multiple large size faceted stones. The third smaller size gallbladder contained sludge and small stones. The necks of three gallbladders opened into common infundibulum which contained a large stone (Figure 3). The histopathology confirmed 3 gallbladders and 2 cystic ducts.
DISCUSSION

Three types of gallbladder triplication are described, depending on the anatomic variation of the cystic duct. Three cystic ducts form one common cystic duct before entering the common bile duct. Two cystic ducts may join before entering the common bile duct whilst the third duct joins the common duct separately. All 3 cystic ducts may empty separately into the common bile duct. Type-2 was found in this patient.

Embryologically several rudimentary vesicle like outpocketings of the bile duct buds are situated along the bile ducts during embryologic life. One of them develops into gallbladder and others regress. Failure of these rudimentary bile ducts to regress, eventually leads to formation of accessory gallbladder (double or rarely triple).

The relationship of the gallbladder to the cystic duct and to the common bile duct seems to be determined by the location of these buds: if the persistent bud originates from the hepatic duct or common bile duct, the gall bladders will have separate cystic ducts; if it arises from the cystic duct, the gallbladders will share single common cystic duct draining into a normal common bile duct.

Until early eighties the pre-operative imaging of biliary tract was limited to oral or intravenous cholecystography, fat meal studies or conventional tomography. Now biliary tract imaging can be performed with high resolution imaging techniques such as ultrasound, spiral and multislice CT, MRC (magnetic retrograde cholangiography) and ERCP (endoscopic retrograde pancreatico cholangiography). Even in the era of modern imaging most of the recent cases of triple gallbladder are not picked up pre-operatively.

There is high prevalence of pathologic conditions found in accessory gallbladders, including sludge, cholelithiasis, cholecystitis, cellular metaplasia, and even adenocarcinoma. Pre-operative awareness of this anatomic variation can minimize the chances any damage to the biliary tract and can ensure removal of all the gallbladders to avoid persistent symptoms due to retained accessory gallbladder. Triple gallbladder has also been safely removed laparoscopically.

REFERENCES