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Observation of extrahepatic biliary apparatus

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Abstract
The present work extra hepatic biliary apparatus was done in the department of surgery, P.M.C.H., Patna. This work was done to find out the incidence of congenital anomalies of gall bladder, relative incidence of aberrant bile duct or cystic duct, anatomical variation of hepatic artery and cystic artery and pattern of junction of cystic duct with the common hepatic duct to form the common bile duct. In this work study was also included the case admitted and operated in operation theatre. It was observed that the capacity of gall bladder varying from 21 – 141 ml with an average of 50 ml. Incidence of different congenital anomalies of gall bladder were observed and was found one case of floating gall bladder and two cases of left sided gall bladder. No cases of double gall bladder, diverticulum of gall bladder, congenital absence of gall bladder, intra hepatic gall bladder, hour glass gall bladder, bilobed gall bladder were observed in present work. The dimension of cystic duct was variable. The average length of cystic duct was 3.0 cm in males and 2.8 cm in females. It was also observed that that the cystic duct joined on the right side of common hepatic duct in 83% of cases. 12 cases of accessory bile duct were observed. It was also observed that the aberrant bile ducts were drained into common hepatic duct in 3 cases, aberrant cystic duct draining into right hepatic duct in one case and into left hepatic duct in one case. The right hepatic artery arising from the common hepatic artery in 76% of cases, whereas 2 cases of accessory right hepatic and 1 case of replacing right hepatic artery was observed.

Keywords: extra hepatic, surgery

Introduction
The extra hepatic biliary apparatus which transports bile from the liver, stores bile in the gall bladder and transmits bile into 2nd part of the duodenum. The extra hepatic biliary apparatus consists of common hepatic duct, cystic duct and common bile duct. The common hepatic duct is formed by the union of right and left hepatic duct. The gall bladder is pear shaped and is 7-10 cm long, 3 cm wide at the widest part and 2 cm in thickness, the capacity of gall bladder is 30-50 ml. The cystic duct is 3-4 cm long. The mucosa of cystic duct bears 5-12 crescentric folds like those in the gall bladder's neck. The bile duct is formed by union of cystic duct and common hepatic duct, which measures 7.5 cm long and 6 mm in diameter. It opens in the descending part of duodenum on the summit of major duodenal papilla about 8-10 cm from pylorus. The cystic artery is usually the right branch of hepatic artery, it descends to divide into superficial and deep branches, the superficial branch ramifies on inferior surface while deep branch on superior aspect of the gall bladder. The cystic vein drains the gall bladder from the superior surface lying with areolar tissue between gall bladder and liver. The remaining one of the two cystic veins is also commonly entering the liver either directly or after joining the veins draining the hepatic duct and bile duct. Rarely single of the double cystic vein may drain into right portal branch. Venous drainage of the gall bladder and bile duct is into the cystic nodes and nodes of the anterior epiploic border. The lower part of the gall bladder is drained into inferior hepatic and upper panceato-spleenic nodes. The whole biliary apparatus is supplied by para sympathetic fibers arising from the hepatic branch of anterior vagal trunk supplying the ampullary sphincter, while the sympathetic fibers from the cell bodies in the coeliac ganglia inhibit contraction.

Methods and Materials
The work has been confined to regular search of gall bladder surgery done in the department of Surgery, PMCH, Patna. Further study of extra hepatic biliary apparatus and there anomalies were done during the surgical operation of patient in operation theatre. The patient were treated with laparoscopic cholecystectomy in the department of Surgery, PMCH, Patna. The present study also includes the cases admitted and operated. All patients with gall bladder disease were observed anatomically by CT cholengiogam during surgical operation. The present work was also included the dissection conducted on 12 cadaver in dissection hall of anatomy department, PMCH, Patna.

Observation
The present work was done on the extra hepatic biliary apparatus giving details to the valuation. In the anatomy of gall bladder, cystic duct hepatic duct and common bile duct and observation were also made on the hepatic artery, cystic artery and relation of these two other important structure in that region.

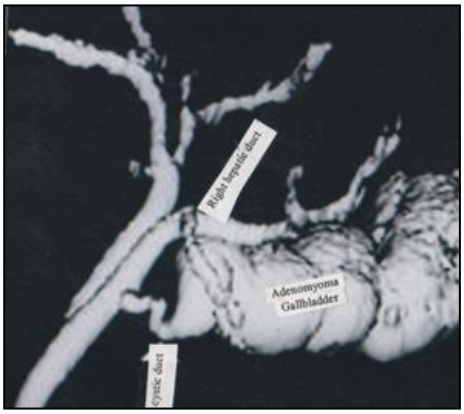

Fig 1: ct cholengiogram, abbarent cystic duct draining into right hepatic duct with cholelythiasis of gall bladder

Fig 2: ct cholengiogram, abberant cystic duct

Summery and Conclusion

Present work was done to find out the incidence of congenital anomalies of gall bladder, relative incidence of aberrant bile duct or cystic duct, anatomical variation of hepatic artery and cystic artery and pattern of junction of cystic duct with the common hepatic duct to form common bile duct. In the study it was observed that the capacity of gall bladder ranging from 21- 100ml with an average of 52 ml. in majority of the cases (66%) fundus of gall bladder is below the free edge of right lobe of liver. Incidence of different type of arterial anomalies of gall bladder were observed in present work, 1 case of floating gall bladder and 2 cases of left sided gall bladder were observed. No cases of double gall bladder, diverticulum of gall bladder, congenital absence of gall bladder, intra-hepatic gall bladder, hour-glass gall bladder and bilobed gall bladder were observed in present work. It was found that the dimension of the cystic duct was variable. The average length was found to be 3 cm in male and 2.8 cm in females. It was found that the cystic duct join on the right side of common hepatic duct in 83% of cases. In the present study the accessory bile duct were present in 12 cases, of which 8 cases were single and 4 cases were double. The aberrant bile duct were drained into common hepatic duct in 3 cases whereas the aberrant cystic duct draining into right hepatic duct in 1 incase and into the left hepatic duct in 1 case. It was found that right hepatic artery were arising from common hepatic artery in 75% cases but 1 case of accessory right hepatic artery were found and 1 case of replacing right hepatic artery was found. The average length of common bile duct was observed to be 6.4cm in both male and female. The common hepatic duct was present in all the cases observed, no cases of intra hepatic union were observed, the average length of common hepatic duct was observed to be3cm in male and 2.8 cm in female. It was also found that left hepatic duct is longer than the right. Since the advent of laparoscopic cholecystectomy in the last two decades minimally invasive surgery has evolved through advances in videoscopic technology, instrumentation and surgical technique.

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