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*Case Report*

# Management of the left sided Gallbladder with abnormal cavity of cystic duct: A rare occurrence

**Muhammad Samit[1], Ahmad Akram[1] and Anurag Jalal[2]**

[1]Department of Anatomy, Rama Medical College Hospital and Research Centre, Mandhana, Kanpur, India.
[2]Department of Surgery, M.M. Institute of Medical Sciences and Research, Mullana, (Distt - Ambala), Haryana, India.

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**Left sided gallbladders without situs inversus viscerum are a very rare occurrence with few cases reported in the literature. These gallbladders are situated between Segments III and IV or on Segment III to the left of the falciform ligament. Routine preoperative studies usually do not detect this anomaly and there is no difference in clinical presentation from normal situated gall bladders. Awareness of the unpredictable confluence of the cystic duct into the common bile duct and selective use of intraoperative cholangiography aid in the safe management of this unusual problem.**

**Key words:** Left sided gallbladder, situs inversus, medioposition, sinistroposition

## INTRODUCTION

Left sided gallbladders are usually seen in cases of situs inversus viscerum which is a very rare but well known entity. Although in situs inversus, there is transposition of both the thoracic and abdominal viscera to the opposite side of the body, a left-sided gallbladder in the absence of such malformation is very rare and routine preoperative investigations usually do not detect this anomaly. Moreover, there is no difference in the clinical presentation of such anomaly from normal situated gall bladders. This study reports one such rare case of left sided gall bladder with cystic duct opening on the left side of common hepatic duct.

## CASE REPORT

This study reports a 35 year old male presented with the chief complaint of intermittent epigastric pain for the last three months. The pain usually aggravated on taking fatty meals, however it was not accompanied by nausea, vomiting, diarrhea, shoulder pain, jaundice or urinary symptoms. Past history was insignificant. Abdominal examination did not reveal any pathology. Cardiovascular, respiratory, genitouri-nary and neurologic systems were all within normal limits. Ultrasonography revealed cholelithiasis. No other abnormalities were noted. Routine laboratory investigations including complete blood count (CBC) and liver function tests were all within normal limits. Open cholecystectomy was planned via a transverse subcostal incision and the liver was exposed. However, the gallbladder was not seen in the usual anatomic location. Further exploration revealed the gall-bladder to lie to the left of the round ligament (Figure 1). Careful dissection revealed the cystic duct to open on the left side of common hepatic duct. The cystic artery was identified and transected in the usual fashion and the remainder of the operation proceeded in a normal fashion. Histopathological examination of the specimen revealed chronic cholecystitis with cholelithiasis. Nonetheless, the postoperative period was uneventful.

## DISCUSSION

Situs inversus is a well known entity and is defined as the transposition of both the thoracic and abdominal viscera to the opposite side of the body, but a left-sided gallbladder in the absence of such malformation is very rare (Gui et al., 2002).

Left-sided gallbladders arise embryologically in 3 possible ways. In the first way, the gallbladder develops

*Corresponding author. E-mail: muhammad123@gmail.com

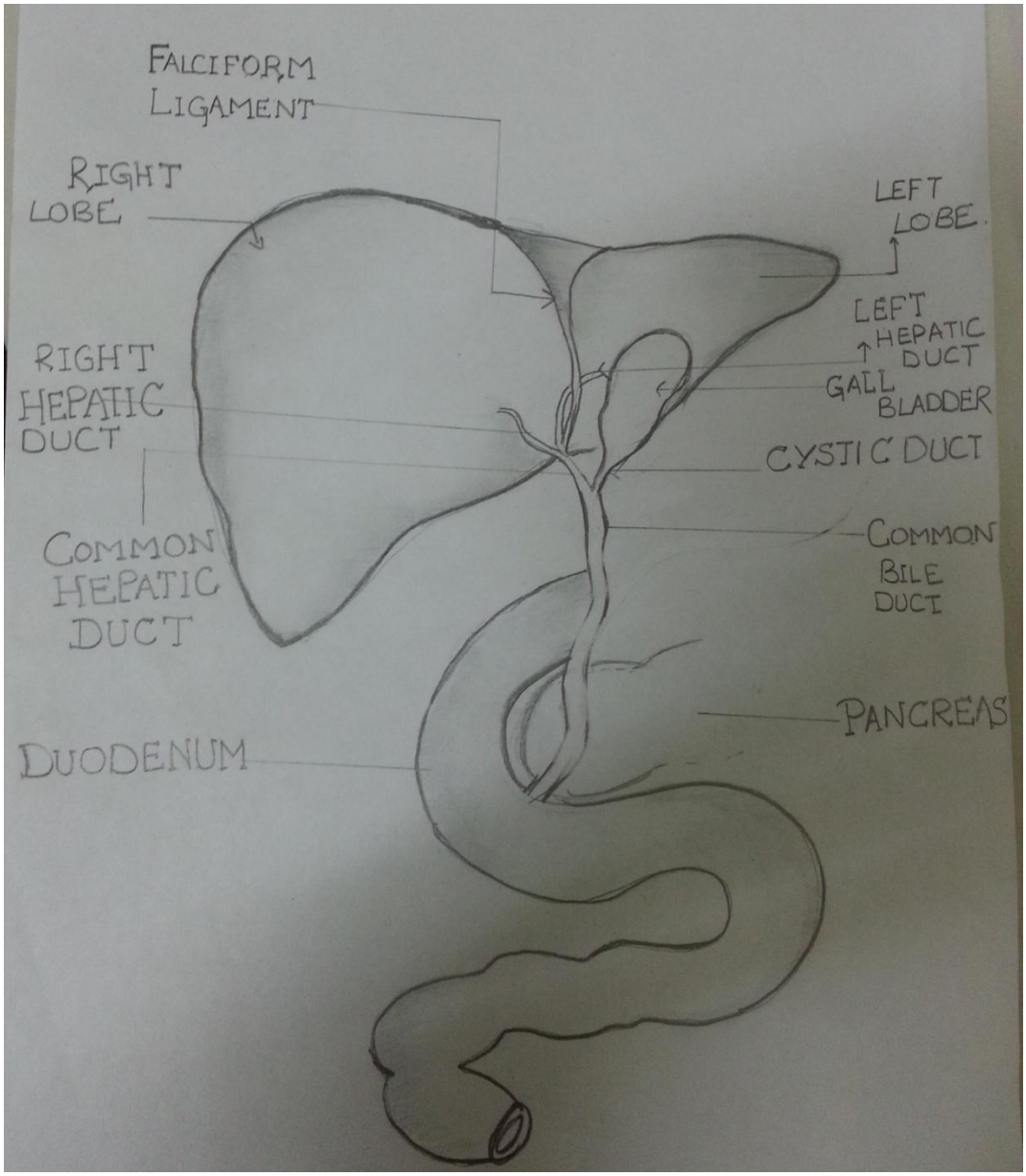


**Figure 1.** Diagrammatic representation of left sided gallbladder with cystic duct opening on the medial side of common hepatic duct.

from the normal hepatic diverticulum. However, it becomes attached to the developing left lobe of the liver and is carried across to the left side of the round ligament. The other possibility for development is that a second gallbladder develops directly from the left hepatic duct as an accessory gallbladder. The main gallbladder either regresses or fails to develop. The last pattern of development of a left-sided gallbladder may also result from the failure of the quadrate lobe of the liver to develop (Wong et al., 2001; Kimowicz et al., 1996).

Medioposition and sinistroposition are the two types of gallbladder malpositions. In the former, gallbladder is displaced medially to lie on the undersurface of the quadrate lobe (Segment IV) but is still on the right side of the round ligament. In the latter, gallbladder lies under the left lobe (Segment III) and is on the left side of the round ligament. The prevalence of sinistroposition is 0.3% and in medioposition it is even less than this percentage (Donthi et al., 2001).

In sinistroposition, the cystic artery always crosses in front of the common bile duct from right to left. The cystic duct may open on the left or right side of the common hepatic duct (CHD) or on to the left hepatic duct directly. In this study's case, it was opening on the left side of

CHD. The presence of an anomalous joining of the cystic duct with the left hepatic duct is also very rare, and the incidence of this anomaly associated with left-sided gallbladders is between 5.6 and 14.3% (Shirai et al., 1996). However, prevalence of the cystic duct opening on the left side of CHD is not known.

Furthermore, preoperative studies such as ultrasound and ERCP (endoscopic retrograde cholangiopancreatography) often do not indicate a left-sided gallbladder with duct abnormality (Shen, 2005). When such a gallbladder is discovered, the findings indicate that there may be an associated anomaly of the extrahepatic bile ducts and clinically the pain is usually on the right side only. This leads to surgical dilemma at times intraoperatively, especially in cases with dense pericholecystic adhesions.

It is suggested that careful dissection close to the gallbladder should be initiated and maintained to the left of the common bile duct, and no attempt should be made to trace the cystic artery and cystic duct to their origins. An anatomical variation of the cystic duct in left-sided gallbladders may include the cystic duct crossing the common bile duct, though dissection or clamping of the cystic duct may lead to damage of the common bile duct. If necessary, intraoperative cholangiography may be done to further define the biliary system.

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