



Cholecystectomy for intrahepatic gall bladder with incidental subhepatic appendix: a challenge for the surgeon

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ABSTARCT

Intrahepatic gall bladder (GB) is one of the ectopic locations of GB and this anomaly makes cholecystectomy hazardous. Sub Hepatic appendix, also an unusual location of appendix, presents with the complications of abscesses and collections due to the delayed diagnosis and chronic inflammation that ensues with it. The combination of these two events is even rarer and it makes a challenging situation for the surgeon.

Key Words: Intrahepatic gall bladder; subhepatic appendix; ectopic appendix and gall bladder

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INTRODUCTION

An ectopic location of GB is very rare, incidence being 0.1 to 0.7%¹. The most common malpositions of the GB are left sided, transverse position, retroperitoneal and floating². The gall bladder is usually intrahepatic during its embryologic period and becomes extrahepatic later on its development. In adults approximately 60% of intrahepatic gall bladders are associated with gallstones. Intrahepatic GB is one of the ectopic locations and makes cholecystectomy hazardous in this anomaly. Subhepatic appendix was first described in 1955 by King, but has been rarely reported since³. Subhepatic appendix presents with the complications of abscesses and collections due to the delayed diagnosis and chronic inflammation that ensues with it. The combination of these two events is even rarer and makes it a difficult challenge for the surgeon.

CASE REPORT

55 Year old female presented with right upper quadrant pain and was admitted. After thorough investigations and ultrasonography, cholelithiasis with cholecystitis was diagnosed and patient was admitted for open cholecystectomy as favoured by the patient. After Kocher's skin incision was given and peritoneal cavity was entered. Appendix and caecum was identified lying in the gall bladder bed with extensive adhesions. After optimal adhesiolysis and dissection, appendix was freed from gall bladder bed and brought out through the incision (Fig.1). Appendix was apparently normal and had no signs of appendicitis as such. However, due to the risk of subsequent appendicitis and difficulty in diagnosis, the decision was taken to perform sub hepatic appendectomy. After appendectomy, the location of gall bladder was difficult to ascertain due to the amount of adhesions present around it. When further adhesiolysis and skeletonization was done, gall bladder was found to be embedded in the right lobe of the liver, i.e. an intrahepatic gall bladder (Fig.2). Through careful dissection and retraction we were able to extract the gall bladder through the incision (Fig.3). Extra hepatic biliary tract and cystic duct were found to be normal in both anatomy and physiology. Incision was closed in layers and patient put on I/V antibiotics for five days. Patient was discharged on the 5th day and followed for 1 year uneventfully.

DISCUSSION

In 1955, King reported one of the first known cases of sub hepatic appendicitis due to non-descent of the caecum, since this a handful of case reports have described this rare anomaly⁴. Some report

intestinal mal-rotation rather than non-descent of the caecum as a cause of this anatomical variant^{5,6}. Vermiform appendix and caecum develop from the caecal bud of postarterial segment of midgut loop. When the intestine returns to the abdomen, the caecum and appendix occupy the sub hepatic position. Later, in the eleventh week, they descend to the right iliac fossa. The development of midgut undergoes rotation and fixation of parts to assume adult position. The caecal region undergoes in the form of descent or caudal migration of caecum with the relative diminution of size of right lobe of liver so that ascending colon, hepatic flexure are defined and the caecum reaches the right iliac fossa. Derangements may occur at any stage either rotation or fixation^{7,8}.

Sub hepatic appendicitis does not present in the classical way and as such can be mistaken for biliary pathology. In many circumstances it runs a chronic course with ill-defined right flank and right upper quadrant pain, diagnosis is often made at exploration. Perforation and abscess formation are a significant complication due to late diagnosis. In contrast to the young patients that appendicitis normally affects sub hepatic appendicitis presents more often in the elderly adding further uncertainty to the diagnosis⁹. Palanivelu *et al* reported the incidence of sub hepatic appendix at 0.08% from their study of 7210 patients¹⁰. Sub hepatic appendicitis could easily mimic acute cholecystitis symptom and the presence of fecolith could be mistaken for gallstones in an ultrasound scan examination¹¹.

An intrahepatic gall bladder is one that is partially or completely embedded within the substance of the liver^{12,13}. Intrahepatic gall bladder has sub capsular locations along the anterior inferior right lobe of the liver¹⁴, occasionally a small portion of the intrahepatic gall bladder may protrude from the liver. An intrahepatic gall bladder results from a developmental anomaly or a congenital arrest which prevents the gall bladder from moving from its intrahepatic position in the 2nd month of gestation to its normal superficial location. The condition may be suspected, if the cholecystogram or USG reveals a gall bladder in an unusually high location.

An intrahepatic gall bladder has usually impaired function because it does not empty completely. This may result in gallstones formation due to stasis. Most intrahepatic gallbladders are only partially embedded within the hepatic parenchyma and then can usually be easily identified at the time of cholecystectomy. Those that are completely buried within the liver may be a challenge for the general surgeon. A completely embedded gall bladder is best approached by first identifying the

cystic duct where it joins the common hepatic duct and then following the cystic duct back to the gall bladder.

CONCLUSIONS

The combination of these two simultaneous delicate surgeries makes them extremely difficult to perform laparoscopically and we recommend open procedure for the same. To the best of our

knowledge, this is the first case reporting an intrahepatic GB with cholelithiasis and sub hepatic appendix gall bladder and sub hepatic appendix is by chance or common occurrence can only be known with further reports of this scenario in literature.

Conflicts of interest: There are no conflicts of interest.



Fig.1: Sub-Hepatic Appendix Delivered through subcostal Kocher's incision

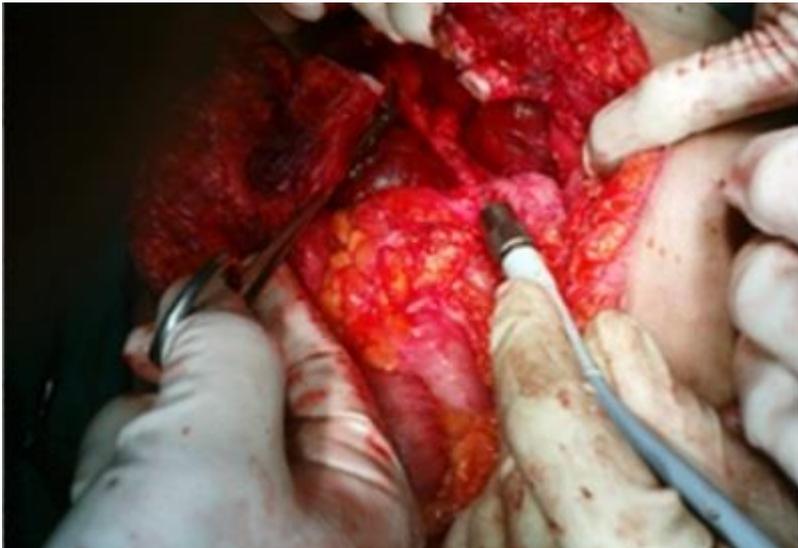


Fig.2: Intrahepatic gall bladder



Fig.3: Intrahepatic gall bladder delivered through the incision after meticulous dissection

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