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Case Report

Complex duplication anomalies of the gall bladder

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ABSTRACT

We discuss two patients of complex duplication of gall bladders with variants which have not been described earlier so far. The duplication of gall bladder is an uncommon type of anomaly with incidence of 1 in 4000 patients. Two classification systems by Harlafti and Gross are used to describe the type of anomalies. In this paper we describe two types of duplications of gall bladder one having left double sided gall bladder and the second with asymmetric small size gall bladder with absent cystic duct both of which pose not only diagnostic but surgical implications. The knowledge of both these types is important to both the diagnostician as well as the surgeon in order to prevent complications and obtain accurate results.

Keywords: Gall bladder duplication, Sonography, MRCP

INTRODUCTION

Duplication anomaly of the gall bladder is a rare type of anomaly of gall bladder with reported incidence of 1 in 4000 people.[1] Harlaftis classification is commonly used to classify these duplications of the gall bladder.[2] Pre-operative diagnosis of the anomaly is important in not only apprising the surgeon of the presence of the anomaly but also in surgical planning. We would like to report two such cases with complex duplications of the gall bladder which have not been described so far.

CASE REPORT

Case 1

A 26-year-old female presented with history of recurrent attacks of pain epigastric region accompanied by nausea and vomiting. Ultrasound examination of the abdomen revealed duplication of the gall bladder with two asymmetric size gall bladder with smaller size gall bladder draining directly into common bile duct (Figure 1). Magnetic resonance imaging (MRI) along with MRCP was done to confirm the above findings (Figure 2a and b). Laparoscopic resection was done which showed a small size gall bladder which got ruptured at the neck while separating it from the liver bed as there was no cystic duct with neck opening into common duct (Figure 3).

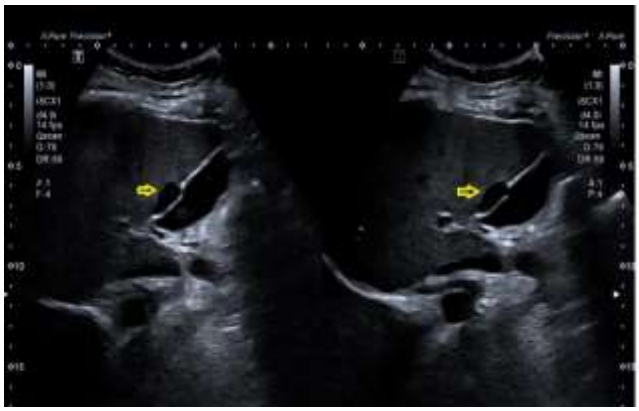

Figure 1: Ultrasound image case 1 showing double gall bladders with asymmetric small size of second gall bladder (arrow).

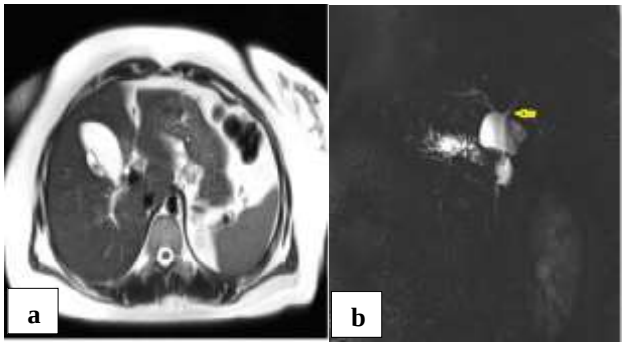

Figure 2: (a) Axial T2W image showing double gall bladder with small filling defect, and (b) MRCP coronal view showing small double gall bladder with small cystic duct (arrow).

Figure 3: Per-operative view showing normal size first gall bladder (black arrow) with a ruptured small gall bladder at the neck which was adherent to common duct with absent cystic duct (yellow arrow).

Case 2

A 55-year female with recurrent history of pain right hypochondrium and heaviness and bloating after meals came to us for ultrasound examination of the abdomen. Ultrasound of the abdomen revealed presence of two fusiform shaped cystic structures lying close to each other in right hypochondrium with the lumen showing presence of echogenic areas of shadowing. Both showed a common cystic duct. The left sided structure was seen extending across the fissure for ligament venosum (Figure 4).

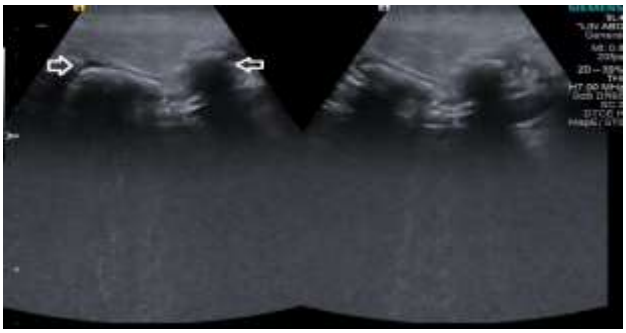

Figure 4: Ultrasound image of case 2 showing double gall bladders with luminal calculi with left side location of second gall bladder.

MRI of the abdomen with MRCP confirmed the above findings of duplication of gall bladder with cholelithiasis in both the gall bladders with left sided ectopic gall bladder (Figure 5). Surgical resection was done using laparoscopy with 5 port technique with a 5 mm extra port in left hypochondrium. The pre-operative findings were confirmed and the double gall bladders were successfully removed (Figure 6).

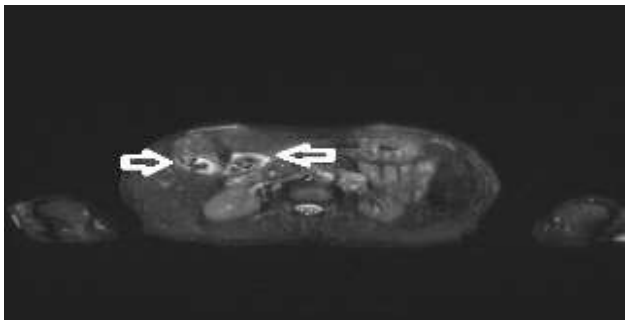

Figure 5: Plain MR axial T2W image confirming the ultrasound findings of case 2.

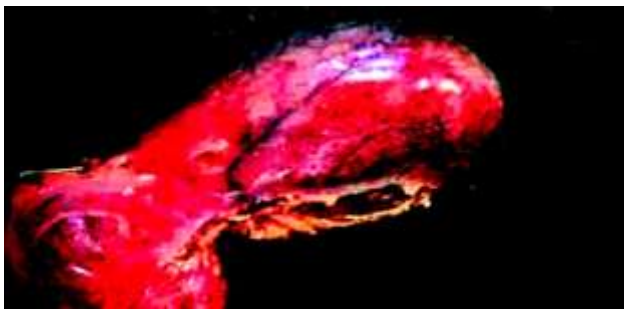

Figure 6: Per operative specimen showing double gall bladders with a left sided gall bladder.

DISCUSSION

The commonly used classification for gall bladder duplication is modified Harlafti classification which classifies the anomaly into three types type I i.e. split primordial type based on presence of a single draining cystic duct type II is accessory gall bladder type with two well defined gall bladders with separate well defined cystic ducts and Type III is combined type (Figure 7a). Our both the cases show findings which are not described in the above commonly used classification i.e. left sided duplicated gall bladder and duplicated gall bladder with absent cystic duct in the second case and both these have not been reported in literature so far. Another commonly used classification is by Gross et al (Figure 7b) which describes the duplication anomalies of gall bladder into A to F types based on insertion of cystic duct patterns.[3] Our case 1 morphology does resemble type F of Gross classification however the cystic duct was present in latter type and was not seen in our case. We therefore feel that it was worthwhile reporting both these complex types of double gall bladders since they pose a diagnostic and therapeutic challenge. To address to the diagnostic

challenge sonography still remains the modality of choice in the detection of the gall bladder congenital anomalies.[4] However, use of MRCP or MRI abdomen is a useful adjunct to confirm them and adds confidence to surgeon to provide a preoperative road map to treat them.[5] It is prudent for the surgeon to know preoperatively the type of duplication of gall bladder and its variants which will help him avoid surgical complications and improves operative results.

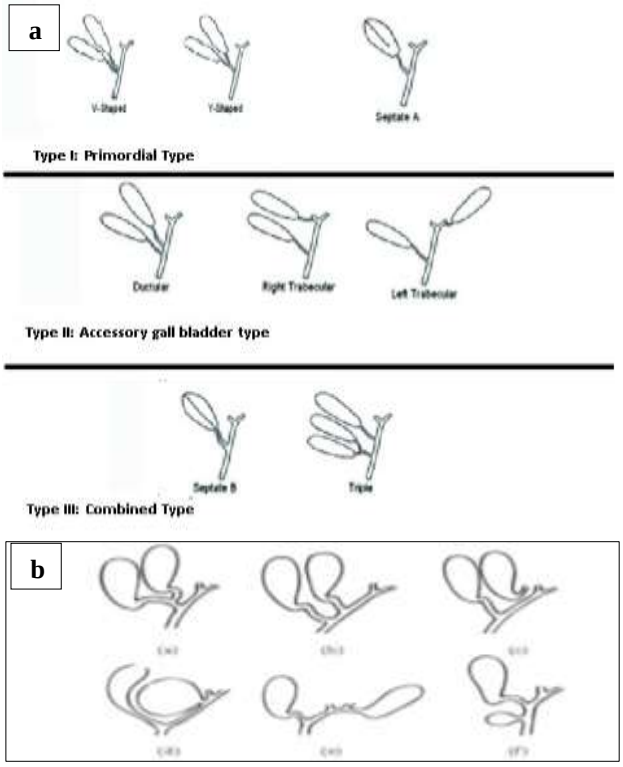

Figure 7a: Diagram chart classification of double gall bladder of (a) Harlafti classification, and (b) Gross classification.

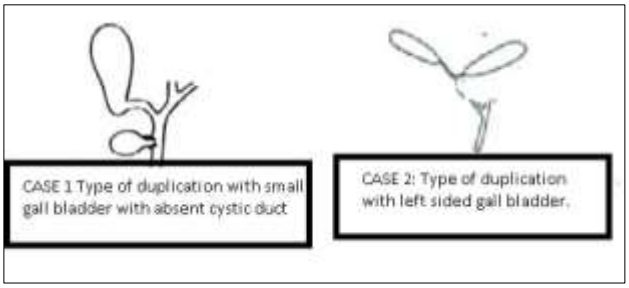

Figure 8: Line diagram of anatomy of both current cases of double gall bladders.

As mentioned by Yalagachin et al, the rate of surgical complications is more in such cases and a careful presurgical depiction of anatomy is important to prevent intra operative complications.[6] The importance of good pre-operative detection was seen in both our cases like in case 2 the laparoscopy was planned with a five port procedure keeping in view the left sided position of duplicated gall bladder while in case 1 inspite of the pre-operative information there was pre removal rupture of the small size duplicated gall bladder at the neck but injury to common duct was prevented due to careful dissection and removal of the latter. There are conditions that mimic gall bladder duplication like choledochal cyst, gallbladder diverticulum, pericholecystic fluid, phrygian cap, focal adenomyosis and must be kept in mind while making the diagnosis of gall bladder duplication.[7]

CONCLUSION

To conclude our two cases, highlight the detection of complex gall bladder duplication by accurate use of pre-operative sonography and also show the two new variants of the condition which have not been reported earlier in the current classification systems. The paper highlights their surgical importance in prevention of operative complications.

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