

# Surgical challenges of duplicated gallbladder during cholecystectomy

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## INTRODUCTION

Duplicated or double gallbladder (GB) is a very rare congenital anomaly, that occur about one in every 4000 deliveries. This rare condition is diagnosed either incidentally or patient presents with symptomatic cholelithiasis. With the congenital anatomical variation the patients are indirectly at higher risk of developing complication associated with laparoscopic cholecystectomy.

## CASE REPORT

A 55-year-old woman presented with right hypochondriac pain for six months. The pain was colicky in nature and radiating to the back. It was not related to food intake. There was no nausea or vomiting. She had multiple visits to the general practitioner as well as the emergency department for which she was treated as acute gastritis. On examination she was obese with BMI 31kg/m<sup>2</sup>. She was not jaundiced, but per abdomen, she had tenderness over the epigastric and right hypochondrial region. Her Liver function test was normal. We subjected her for the oesophageal-gastro-duodenoscopy (OGDS) and ultrasonography of the hepatobiliary system. The OGDS examination was unremarkable, but the ultrasonography showed double gallbladder with cholelithiasis (Figure 1a).

She underwent laparoscopic cholecystectomy. The intraoperative finding was double gallbladder with single cystic duct and cystic artery, with two stone within one of the GB (Figure 1b). Postoperative period was uneventful and she was discharged on the next day. Histopathology examination revealed, chronic cholecystitis.

## DISCUSSION

Duplicated GB was first reported 31 BC by Pliny the Elder. This congenital anomaly is very rare that occur about one in every 4000 deliveries.<sup>1</sup> In terms of male to female ratio was 1:1.68; the ratio 1:1 in those found incidentally but 1:3 in those requiring surgery. We can conclude that the actual incident of this group of anomalies may be equal in both genders.

Double GB is classified according to Boyden's classification.<sup>1</sup> The two main types of duplication are (i) Vesicafellea divisa or bilobed GB, and (ii) Vesicafellea duplex or true duplications

with two different cystic ducts. The true duplication is sub classified as: (a) Y shaped type (two cystic ducts unite before entering the CBD). Usually the two GBs are adherent and occupy the same fossa. (b) H shaped type (two separate GB & cystic ducts entering separately into the CBD).

Double GB does not present with specific symptoms and incidence of the disease is similar to the normal variant. Normally one GB functions actively and the other remains as a mucocele. There is no increase in incidence of disease in the double GB, so prophylactic cholecystectomy is not recommended.<sup>2</sup>

During GB surgery, this minor group of patients actually is at high risk of developing complications. For instance, accidentally severing the anomaly duct or GB, subsequently causing bile leakage, or probably unaware of the second GB, which later patient may develop another episode of cholelithiasis or cholecystitis.

Thus, preoperative diagnosis of duplicated gallbladder is very important. It helps the surgeon to anticipate and avoid complication as mentioned earlier. In our case, we diagnosed the duplicated gallbladder by using ultrasound (US), and immediately arranged for Laparoscopic cholecystectomy.

Anatomical variation is common in hepatobiliary anatomy. Multiple anatomy variation involving ductal system and arterial supply may coexist. MRCholangiography proved to be a valid, noninvasive imaging technique for the evaluation of patients with suspected anomalies of the gallbladder after initial scanning with US<sup>3</sup> or Helical CT scan which also can do the same.<sup>4</sup> However, if none of the above unavailable in the hospital, or incidental finding during operation, then intraoperative cholangiography is highly recommended to define the anatomy. The cholangiogram will help to exclude the possibility of an injury to the bile ducts.<sup>4</sup>

## CONCLUSION

Double gallbladder is a rare anatomical variation. For safe cholecystectomy with this variation, patient should be handled by hepatobiliary team. Delineate biliary anatomy preoperative and intraoperative cholangiogram avoid intraoperative morbidities in these cases.

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Fig. 1a: Ultrasound image showing double gallbladder.

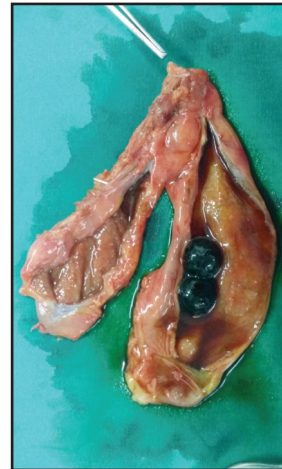


Fig. 1b: Double GB with stone within.




Vesica fellea divisa	Vesica fellea duplex	
	Y-shaped type	H-shaped type
		

Fig. 2: Boyden 's classification.

**REFERENCES**

1. Boyden EA. The accessory gall-bladder—an embryological and comparative study of aberrant biliary vesicles occurring in man and the domestic mammals. *American Journal of Anatomy* 1926; 38(2): 177-231.
2. Sahoo MR, Kumar TA. Double gallbladder masquerading as a choledochal cyst: a case report. *International Journal of Case Reports and Images* 2013; 4(5): 283-6.
3. Mazziotti S, Minutoli F, Blandino A, Vinci S, Salamone I, Gaeta M. Gallbladder duplication: MR cholangiography demonstration. *Abdom imaging.* 2001; 26(3): 287-9.
4. Özgen A, Akata D, Arat A, Demirkazık FB, Özmen MN, Akhan O. Gallbladder duplication: imaging findings and differential considerations. *Abdom Imaging.* 1999; 24(3): 285-8.