

## Laparoscopic Management of Double Gallbladder

Jha AK,<sup>1</sup> Saboo RK,<sup>2</sup> Taparia S<sup>2</sup>

<sup>1</sup>Department of General Surgery, Janaki Medical College Teaching Hospital, Janakpurdham, Nepal, <sup>2</sup>Department of General Surgery, Biratnagar Aspatal, Biratnagar, Nepal, <sup>3</sup>Department of Radiology, Biratnagar Aspatal, Biratnagar, Nepal.

### ABSTRACT

Double gall bladder is a rare congenital anomaly and is challenging to the surgeons due to increased risk of post-operative complications. We present a case of double gall bladder that was successfully managed laparoscopically. Preoperative ultrasonography showed one vesicle of the gall bladder had thick wall with multiple calculi while the other had normal thickness without calculus. Both the gallbladders were connected to the common bile duct with a single cystic duct.

**Keywords:** cholelithiasis; cholecystectomy; double gallbladder; laparoscopy.

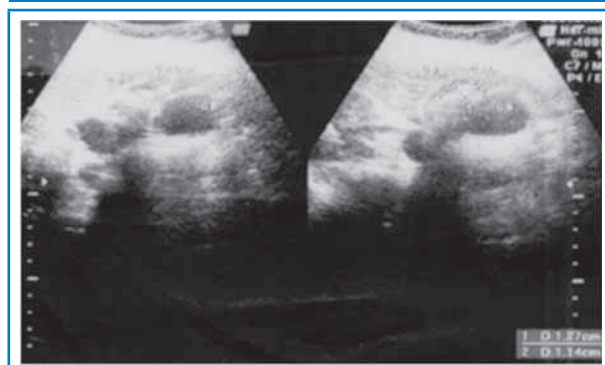
### INTRODUCTION

Double gallbladder is an uncommon embryological abnormality with a reported incidence of 1:4000 in autopsies.<sup>1,2</sup> Its importance is higher in clinical practice because it may cause clinical, surgical and imaging problems. Congenital anomalies of the gallbladder with anatomical variations of their positions are associated with more risk of complications after laparoscopic cholecystectomy.<sup>3</sup> Most of the cases of gallbladder duplication are asymptomatic and may be missed during investigation.<sup>4</sup> Failure to detect the accessory gall bladder has been reported as resulting in repeated episodes of cholecystitis in the remaining gall bladder after cholecystectomy.<sup>5</sup> In English literature only 13 cases of successful laparoscopic cholecystectomy for double gall bladder have been reported.<sup>6</sup> We present a case of double gall bladder that was managed laparoscopically.

### CASE REPORT

A 36 years old lady presented in out patient department with a history of intermittent pain in epigastrium and right hypochondrium for three months. The pain was associated with nausea and occasional vomiting. She didn't have any past medical or surgical illness. There was mild tenderness in right hypochondrium. Laboratory investigations of complete blood count, blood sugar, blood urea, serum creatinine, serum electrolyte were

normal. Liver function tests (Total bilirubin, conjugated and unconjugated bilirubin, SGOT, SGPT, Alkaline phosphatases, Total Protein, Albumin) and serum amylase were normal. Abdominal ultrasonography showed double gall bladder. One gall bladder contained multiple calculi and had thick wall while the other had normal wall thickness with no calculus. Both the gallbladders were connected to the common bile duct with a single cystic duct (Figure 1). Ultrasonic murphy's sign was negative.



**Figure 1.** Ultrasonograph showing double gall bladder.

The patient was admitted to department of general surgery for laparoscopic cholecystectomy and had undergone operation on 2<sup>nd</sup> day of admission after getting clearance from anaesthetist. A standard four port laparoscopic access was used. Grossly laparoscopic

**Correspondence:** Dr Ashwini Kumar Jha, Department of General Surgery, Janaki Medical College Teaching Hospital, Janakpurdham, Nepal. Email: drashwinikumarjha@gmail.com, Phone: 9842494827.

examination of the abdomen showed no abnormality, except two distinguished fundus of the gallbladder. The area of Calot's triangle was similar to that of single gall bladder (Figure 2). On moving towards body and fundus, two gallbladders were found attached to each other and were draining with single cystic duct, as seen on abdominal ultrasonography (Figure 3). Dissection was started on the calot's triangle. Single cystic duct and cystic artery was detected during dissection. No anomalous vascular or biliary structures were found during dissection. Both the gallbladders were attached only at neck and draining through single cystic duct. Both gallbladders were removed laparoscopically with no spillage of bile or stones.

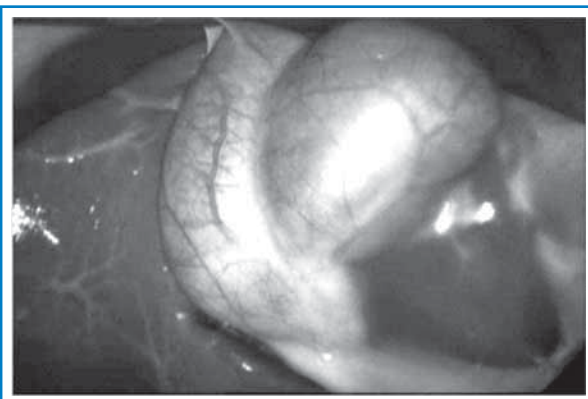


Figure 2. Laparoscopic view of gall bladder showing two funduses.

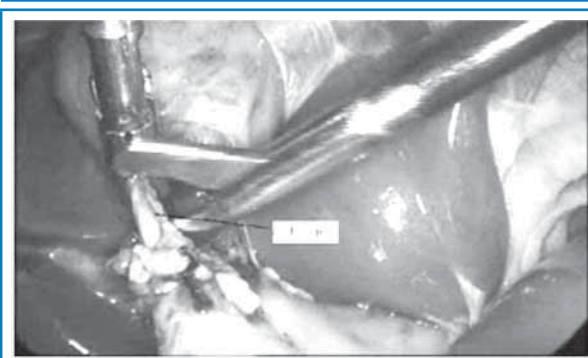


Figure 3. Showing single cystic duct after tying it (about to cut).

After extraction, examination of the specimen revealed that one vesicle had multiple stones with thick green bile while another vesicle had no stone with thick bile.

Patient made uncomplicated recovery and was discharged on the 3<sup>rd</sup> postoperative day. She was doing well when she came for follow-up after seven day for clip removal. Histopathological report showed chronic cholecystitis in both gall bladders.

## DISCUSSION

In this rare case of double gallbladder we did not encounter difficulties during laparoscopic cholecystectomy possibly because we were careful before hand with preoperative details of ultrasonography and being extra careful for the anatomic variations.

Boyden's classification of gallbladder duplication has three types: a) bilobed, incomplete gallbladder division with one common cystic duct; b) complete gallbladder duplication with separate cystic ducts that lead to a common hepatic duct; c) complete gallbladder duplication with a common cystic duct entering the common hepatic duct.<sup>7-8</sup> There are several conditions that may mimic duplication of gallbladder like: folded gallbladder, choledochal cyst, phrygian cap, gallbladder diverticula, pericholecystic fluids, focal adenomyomatosis, vascular bands across the gallbladder and intraperitoneal fibrous bands.<sup>9-10</sup> Surgically relevant Harlaftis classification includes common variety of type-1 occurring in split primordium, type-2 (often called accessory gallbladder) from double primordium during 5<sup>th</sup> and early 6<sup>th</sup> week of embryogenesis and type-3 is known as combined bladder.<sup>11</sup> In most cases of gallbladder duplication, they may remain adjacent and invariably shares the same serous coat. They may have independent or shared arterial supply and cystic duct. Ultrasonogram has high sensitivity in detecting this condition, but lacks in specificity when compared with MRCP.<sup>12</sup>

Despite of different classifications, presence of a double gallbladder is not associated with any specific symptoms and there is no known predisposition for cholelithiasis or cholecystitis in patients with multiple gall bladders.<sup>4</sup> Either one or both gall bladders may be diseased. Usually the cephalic gallbladder remains normal while the caudal one gets infected and forms stones. The likely reason is that the gallbladder lying at a lower level gets sedimentation of solid constituents and infection more frequently due to gravitation forces. When one of the two gallbladders is normal, both should be removed to prevent persistence of symptoms and need for re-exploration.<sup>12</sup>

## ACKNOWLEDGEMENTS

We acknowledge contribution of Dr. Gyanendra MS Karki, Consultant Gynaecologist and Laparoscopic surgeon the management of this patient. Special thanks to Dr. Mina Jha, MS(Anatomy) from Nepal Medical College for her help in focusing over the congenital abnormalities of biliary system and helping me to write this case report.

## REFERENCES

1. Garcia JC, Weber A, Berry FS, Tatz BT. Double gallbladder treated successfully by laparoscopy. *J Laparoendosc Surg.* 1993;3(2):153-5.
2. Miyajima N, Yamakawa T, Varma A, Uno K, Ohtaki S, Kano N. Experience with laparoscopic double gall bladder removal. *Surg Endosc.* 1995;9(1):63-6.
3. Borghi F, Giraudo G, Geretto P, Ghezzi L. Perforation of missed double gallbladder after primary laparoscopic cholecystectomy: endoscopic and laparoscopic management. *J Laparoendosc AdvSurgTech.* 2008;18(3):429-31.
4. Gross R. E. Congenital anomalies of the gall-bladder. A review of 148 cases with a report of double gall-bladder. *Arch Surg.* 1936;32:131-59.
5. Silvis R, van Wieringen AJ, van der Werken CH. Re-operation for symptomatic double gall-bladder. *Surg Endosc.* 1996;10(3):336-7.
6. Vijayaraghavan R, Belagavi CS. Double gallbladder with different disease entities. *J Min Access Surg.* 2006;2(1):23-6.
7. Lamah M, Karanjia ND, Dickson GH. Anatomical variations of the extrahepatic biliary tree: review of the world literature. *Clinical anatomy.* 2001;14(3):167-72.
8. Nouira F, Taieb C, Hela L, Ibtissem B, Beji C. Duplication of gallbladder. *La tunisie medicale.* 2011;89(10):798-9.
9. Hekimoglu K, Bayrak A, Ulu F, Coskum M. Combined use of ultrasonography, MDCT and MRCP for the diagnosis of gallbladder duplication: case report. *J Dig Dis.* 2010;11(2):115-8.
10. Desolneux G, Mucci S, Lebigot J, Arnaud JP, Hamy A. Duplication of the gallbladder. A case report. *Gastroenterol Res Pract* 2009(2009). <http://dx.doi.org/10.1155/2009/483473>
11. Ghosh SK. Laparoscopic cholecystectomy in double gallbladder with dual pathology. *J Min Access Surgery.* 2014;10(2):93-6.
12. Geol A, Srivastava KN, Rana AK. Double gallbladder – laparoscopic management. *Surg Laparosc Endosc Percutan Tech.* 2003;13(5):348-9.