

## Case Report

### Compound type-dual blood supply to Gallbladder revealed during Laparoscopic Cholecystectomy

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#### SUMMARY

During the laparoscopic cholecystectomy, a rare variation was found in a female patient. There was a large vessel exiting from liver parenchyma to gall bladder directly. It was pulsating; so was an unusual artery. The cystic artery was present properly at its usual anatomical site in Callot's triangle. The knowledge of these vascular variations is very significant in surgical interventions involving the biliary tree. It is of key importance for laparoscopic surgeons to know like this vascular variation to avoid catastrophic bleeding.

The report emphasizes the vascular variation and the anomalous vessel to accomplish safe and uneventful hepatobiliary surgeries.

**KEYWORDS:** Callot's triangle, Cholecystectomy, Gall Bladder

#### Case Report

A 32 years female patient presented to our surgical out-patient department on 22 June 2021 with pain in right hypochondrium on and off. Ultrasound findings were of chronic cholecystitis due to cholelithiasis. She was admitted in surgical unit #1 Jinnah hospital Lahore- Pakistan. She was operated upon for the cholecystectomy laparoscopically.

During laparoscopic cholecystectomy, dual arterial supply to gall bladder was noted.<sup>3</sup> Presence of this variation is of utmost importance for surgeon to avoid unexpected bleeding during surgery.<sup>1,2</sup> The cystic artery was present properly at its usual anatomical site in Callot's triangle. In addition to this, unusual large artery about 2.5 times the diameter of cystic artery was found about 3 cm above the Callot's triangle that was pulsating.

It was arising from liver parenchyma and running transversely to enter the gall bladder wall directly. Just after entering the gall bladder, it divided into two branches: one large inferior and other small superior. As it was pulsating; so, there was no doubt for it to be an artery. It was hooked carefully and was clipped with LT-200. Then it was divided with L-Hook through cauterization. Previous researches also reported presence of aberrant vasculature in gallbladder along with the cystic artery (proper) present within the Callot's triangle.<sup>3,4</sup> The gall bladder had compound dual arterial supply. Otherwise, cholecystectomy was performed safe and sound laparoscopically.

Fig:1 Dual Artery Supply to Gallbladder



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Fig:2 Accessory Cystic Artery Clipped with LT300



## DISCUSSION

Usually, gall bladder has the single blood supply from the right hepatic artery- as a cystic artery. But in some individuals, it may have dual blood supply or blood supply from an aberrant artery.<sup>5</sup> The conversion of laparoscopic surgery to open cholecystectomy can be reduced if the surgeon has prior awareness of these anatomical variations; thus reducing the complications.<sup>6</sup> Infact, during embryonic life, the gall bladder has many blood vessels directly arising from liver into the gall bladder. But at the end of maturation, all the aberrant blood vessels regress. Sometimes, one such vessels persist as the aberrant vessels at the sphere of the norm.<sup>7</sup> A rare variation was also seen by Dolensek J where an accessory left hepatic artery and accessory right hepatic artery from which double cystic artery arose (one of which was low lying).<sup>8</sup> My presented case is like this one. During Laparoscopic Cholecystectomy, an aberrant (large) artery was seen pulsating; that was coming directly from liver parenchyma and entering the gall bladder mid body. It was about 2.5 times thicker than the cystic artery (proper) as the picture shows.

**Surgical Significance:** It was an unusual vessel that driven me to report it as a case. It was of utmost surgical importance as even a small rash handling to this vessel could cause the uncontrollable bleeding.<sup>2</sup> But it was clipped and divided safely. A surgeon should have the clean and clear concept of these vascular variations.<sup>3</sup>

## CONCLUSION

During laparoscopic as well as open procedures operated upon the biliary tract, sudden anatomical variations (especially of vessels) can be a cause of concern for surgeons. A sound knowledge of such variations is essential to prevent the iatrogenic traumas in these regions of hepatobiliary triangle.

**Conflict of Interest:** None

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## Author Contribution

All author contributed to this case report are responsible for material provided.

Date of Submission: 10-09- 20201  
Revised received: 21-11- 2021  
Accepted: 23-11-2021