

# Gall Bladder Fundus in Relationship to Liver



## Anatomy

**KEYWORDS :** Fundus, liver, laparoscopy

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### ABSTRACT

*Gall bladder fundus projecting below the inferior margin of liver may have clinical implications during laparoscopy. This relationship between the two has not been well explored in the recent history. Present study was conducted on 50 specimens of liver taken enmass along with gall bladder in the department of Anatomy in collaboration with the department of Surgery and Forensic medicine in PGIMS, Rohtak (Haryana). Results showed fundus to protrude below the liver in 84% of cases. The growing importance of such association lies from the point of various diagnostic and treatment purposes.*

### INTRODUCTION

The gallbladder is a flask shaped sac located in a shallow fossa on the quadrate lobe of the liver in the right hypochondrium and is known to have a fundus, body and neck.<sup>[1]</sup> Fundus is a rounded free end of gall bladder and usually projects below the inferior margin of liver. It then continues with the body and the neck that narrows into the cystic duct.<sup>[2]</sup> It is the most susceptible part of gall bladder to get injured during laproscopic procedures.<sup>[3]</sup> There are very few studies regarding the localization of gallbladder fundus in relation to inferior margin of liver. Hence, we undertook the present study.

### MATERIAL & METHODS

The study was carried out on 50 adult human cadavers of both genders age ranging 18 years to 60 years in the department of Anatomy in collaboration with the department of Forensic Medicine and department of Surgery, Pt. B. D. Sharma PGIMS, Rohtak. Specimens of liver along with gall bladder were obtained during medico-legal autopsies done in the department of Forensic Medicine after taking informed consent. Parameter noted was whether fundus of gall bladder extending beyond the inferior margin of liver or not.

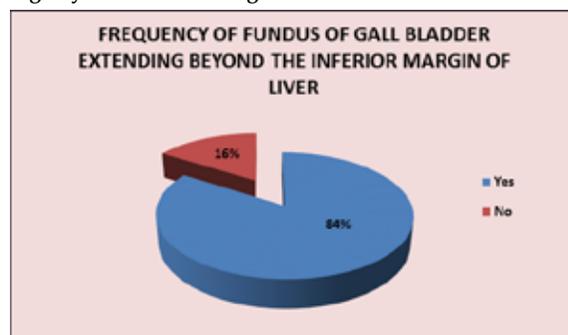
### RESULT & OBSERVATION

Table 1 shows frequency of fundus of gall bladder extending beyond inferior margin of liver. Out of total 50 specimens, fundus was identified to extend beyond inferior margin of liver in 84% of cases whereas in 16% of samples, it was within the limit of inferior margin of liver.

**Table 1: Frequency of fundus of gall bladder extending beyond inferior margin of liver**

Fundus of gall bladder extending beyond inferior margin of liver	No. of specimens	% (percentage)
Yes	42	84%
No	8	16%

**FIGURE 1: frequency of fundus of gall bladder extending beyond inferior margin of liver.**



### DISCUSSION

The fundus of gall bladder produces a cystic notch on the inferior border of the liver and projects beyond it to come in contact with the anterior abdominal wall. Due to this contact with the anterior abdominal wall, infections of gall bladder may infect the parietal peritoneum and this in turn will lead to the pain at the tip of right ninth costal cartilage where the fundus of gall bladder makes contact with the anterior abdominal wall.

Anjankar et al<sup>[3]</sup> reported the length of gall bladder below the inferior border of liver varying between 0.4 and 2.5 cm. In the present study fundus of gall bladder was not found to extend beyond the inferior margin of liver in 16% of cases and this observation was in agreement with the study done by Nayak<sup>[4]</sup> in South Indian population where the fundus of gall bladder was reported not to project beyond the inferior border of the liver in 18.18% of the cases. Vemaiah et al<sup>[5]</sup> reported the relation of fundus of gall bladder to inferior margin of liver as supra marginal in 4.7%, marginal in 3.8% and infra marginal in 26.9%. So incidence of fundus of gall bladder extending beyond inferior margin of liver as reported by him was much higher (26.9%) as compared to present study. Rajguru et al<sup>[6]</sup> reported 87% cases as inframarginal, 5% marginal and 8% supramarginal which was in accordance with the present study. Albay et al<sup>[7]</sup> and Haffajee<sup>[8]</sup> reported fundus of gall bladder protruding from inferior margin of liver in 12 % of cases and 2 cases respectively. But, these studies were done on aborted

fetuses and thus could not be compared with our study.

## CONCLUSION

To the best of our knowledge, there is not much literature available portraying the relationship of the fundus of gallbladder to the inferior margin of liver. Further, knowledge of this localization may be useful in various diagnostic and surgical interventions such as laparoscopic procedures and ultrasonographic examination. That's why this parameter was taken into consideration in the present study.

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