Rouviere’s Sulcus: An Important Landmark for Safe Dissection in Laparoscopic Cholecystectomy

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ABSTRACT

Introduction: Despite the advances in laparoscopic surgery, bile duct injuries continue to happen, and there has been no decline in the rates of injury. This study was performed to determine the frequency of demonstrable Rouviere’s sulcus.

Materials and Methods: In this prospective study, a total of 100 consecutive patients who presented with symptomatic cholelithiasis and underwent laparoscopic cholecystectomy.

Results: In the present study it was observed that out of 100 study participants, about 66% were having Rouviere’s Sulcus. Open type of Rouviere’s Sulcus was present in 19% of the study participants. About 38% of the study participants had partial type of Rouviere’s Sulcus and 9% had fused type.

Conclusion: It is important to identify Rouviere’s sulcus, as it plays an important in preventing bile duct injuries and acts as a reference point for safe laparoscopic cholecystectomy.

Keywords: Rouviere’s Sulcus, Open, Bile Duct, Cholecystitis

INTRODUCTION

Laparoscopic cholecystectomy was first performed by Professor Erich Mühle of Germany, on September 12, 1985, and has now become one of the most common operations worldwide. It remains one of the standard operating procedures taught to and performed by surgical residents. The incidence of bile duct injuries in laparoscopic cholecystectomy approaches 0.5%. Despite the advances in laparoscopic surgery, bile duct injuries continue to happen, and there has been no decline in the rates of injury. Laparoscopic cholecystectomy is associated with more biliary, vascular, and visceral complications when compared with open cholecystectomy.

In 1924, M.H. Rouviere, a French surgeon, described a fissure that now bears his name. Rouviere’s sulcus is a 2-5 cm sulcus running to the right of the liver hilum anterior to the caudate lobe. It contains the right portal toad or its branches. The sulcus identifies the plane of common bile duct accurately (a fact substantiated by cholangiographic studies).

In 1997, Hugh, et al. suggested that Rouviere’s sulcus was a useful anatomic landmark in laparoscopic cholecystectomy. This study was performed to determine the frequency of demonstrable Rouviere’s sulcus as well as to assess its different types.

MATERIAL AND METHODS

This prospective study was conducted in department of General Surgery at Krishna institute of medical sciences, Karad over a period of two years. A total of 100 consecutive patients who presented with symptomatic cholelithiasis and underwent laparoscopic cholecystectomy were included in the study.

During laparoscopy Rouviere’s sulcus was noted in the operative note. Open sulcus was defined as a cleft in which the right hepatic pedicle noted. Fused type in this the pedicle was not visualized. Partial type was sulcus present open only at its lateral end. Procedure continued in laparoscopy and dissection of Calot’s done with help of Rouviere’s sulcus.

The outcome noted as weather we can proceed with laparoscopy or to convert in open procedure. Informed consent was taken from every study participant after the Institutional ethics committee permission was obtained. The study participants were explained about the purpose of the study.

Statistical analysis was performed with data in Microsoft excel sheet and analyzed with proportions.
RESULTS

Most of the patients in the study (68%) were above 50 years old and 32% were ≤50 years (Table: 1).

64% of the study participants were females and 36% were males. As cholecystitis is very common among females so in present study maximum number of study participants were females (Table:2).

Out of 100 participants, Rouviere’s Sulcus was found in about 66 study participants. Nearly 48.4% had Chronic cholecystitis, followed by acute cholecystitis in 27.2%. Empyema of gall bladder was seen in 16.6% and mucocele of gall bladder was seen in 7.5% respectively (table:3)

Partial Rouviere’s Sulcus was more predominant amongst the patients with 38 (57.6%) of the cases showing this type, while 19 (28.8%) of the cases showed open type of Rouviere’s sulcus and 9 (13.6%) showing fused type (Table: 4).

In present study it was found that open type of Rouviere’s Sulcus was present in 19% of the study participants. About 38% of the study participants had partial type of Rouviere’s Sulcus and 9% had fused type. The sulcus was absent in 34% of the study participants. In a study by Mumtaz, et.al open type was found in 54.9% of study participants, fused type was found in 24.4% of study participants. The sulcus was not seen in 20.7% of study participants. In another study the predominant type of Rouviere’s Sulcus was of fuse type seen in 55.96% of the study participants and open type was seen in 44.04%. The sulcus was absent in 31.87% of the study participants.

CONCLUSION

Rouviere’s sulcus is a very important anatomical landmark for safe dissection in cholecystectomy. It is very difficult to identify the critical anatomy of the hepatobiliary tract during the process of laparoscopic cholecystectomy. Misidentification or lack of understanding of anatomy of hepatobiliary leads to bile duct injuries. Therefore, it is important to identify Rouviere’s sulcus.

REFERENCES


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