



ROUVIERE'S SULCUS--A USEFUL LANDMARK IN LAPAROSCOPIC CHOLECYSTECTOMY

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ABSTRACT

BACKGROUND: Rouviere's sulcus is a lesser known, but important anatomic landmark for safe cholecystectomy and avoiding common bile duct injury during laparoscopic cholecystectomy. The identification this important landmark was done by Henry Rouviere in 1924. He used as a reference point to guide the commencement of safe liver dissection. The Rouviere's sulcus is a fissure in the liver between the right lobe and caudate process and is clearly seen during a laparoscopic cholecystectomy during the posterior dissection in majority of patients. **MATERIAL AND METHOD:** The study was done in two hundred patients of symptomatic cholelithiasis admitted for laparoscopic cholecystectomy. The standard four ports technique was used for laparoscopic cholecystectomy. Rouviere's sulcus was looked for behind the infundibulum and its presence or absence. If present, it was observed whether the sulcus was represented only as a scar or as a slit or as a deep sulcus. Observation was also made if the Rouviere's sulcus was closed or open towards the porta hepatis. **RESULT:** Out of these 200 patients, the Rouviere's sulcus was absent in 10% of patient, 7% had a scar, 48 patients had a slit, 118 patients had a deep sulcus. **CONCLUSION:** We recommend that identification of Rouviere's sulcus should be done before dissection in Calot's triangle is started as a safeguard to extra hepatic biliary injuries as porta hepatis.

KEYWORDS : Rouviere's Sulcus, Calot's Triangle, Laparoscopic Cholecystectomy, Bile Duct Injury.

INTRODUCTION:

Laparoscopic cholecystectomy is now the gold standard treatment for symptomatic cholelithiasis [1,2]. Laparoscopic cholecystectomy was first performed by Professor Erich Muhe of Germany, on September 12, 1985, [3]. The most feared complication of this surgery is injury to the bile ducts or hepatic arteries. Many strategies have been proposed to avoid this serious complication of the procedure. [4,5,6]. One of these is the of anatomical landmarks as reference points. [2,7,8].

Rouviere's sulcus used as a reference point to guide the commencement of safe dissection. Laparoscopic cholecystectomy has introduced complication which are more complex than open surgery [1], worldwide incidence of common bile duct injury has remained consistent around 0.5% as reported in literature.

To reduced rate of complication, safe dissection of Calot's triangle has been suggested. Rouviere's sulcus is used as reference point to facilitate identification and dissection in Calot's triangle. Hence we try to identify the presence and type of Rouviere's sulcus and assess whether it helps to lessen the incidence of biliovascular injury.

MATERIAL AND METHODS:

This prospective study was conducted in patients who underwent Laparoscopic cholecystectomy for symptomatic cholelithiasis, calculus cholecystitis during the period from December 2017 to December 2019 at Department of Surgery, Central Hospital, Dhanbad(BCCL). Frequency and type of Rouviere's sulcus was documented.

TYPE OF ROUVIERES SULCUS:

Observation	No. of Patient	(%)
ABSENT	32	16
SCAR	12	6
SLIT	44	22
SULCUS	112	56

RESULT

A total of 200 patients who underwent laparoscopic

cholecystectomy where included in the study. Out of 200 patients Rouviere's sulcus was visualized in 168 (84%) patients. Out of these maximum number of patient had sulcus type 112 (56%) while slit type was present in 44 (22%) patients.

DISCUSSION:

Rouviere's sulcus sometime also called as 'Incisura hepatica dextra' was first identified and introduced by Henry Rouviere, a French anatomist in 1924 [9]. This sulcus usually indicates the plane of common bile duct precisely. The importance of identifying rouviere's sulcus lies in the fact that cystic duct and cystic artery lay invariably anterosuperior to the sulcus confirming the anatomy of calot's triangle [8,10].

Rouviere's sulcus now considered to be the first landmark that should be guide to start the dissection of calot's triangle during laparoscopic cholecystectomy and said to help in preventing bile duct injury (BDI). The sulcus has been an important anatomical landmark while performing right hepatectomy as well [11,12].

Duhmane-et-al described Rouviere's sulcus to be present in 82% of normal liver [13]. It represents a cleft, anterior to the traditionally described segment 1 of liver which has more recently been described by Couinaud as segment IX [14]. Gens described that sulcus is an extension of the Porta Hepatics [15]. Reynaud-et-al noted this sulcus in 73% of liver [15]. Hugu-et-al found the sulcus in 78% in liver [17].

In our sample study population open Rouviere's sulcus was commoner than fused type, whereas study done by Muhammad Z-et-al, in Pakistan population fused type [55.96%] was commoner than open sulcus type (44.04%). [18].

Study done in Slovenia by Raja Dahmane showed that frequency of the Rouviere's sulcus was 82%, open type sulcus identified in 70% of the liver, fused type was seen in 12% of cases and in 18% there was no sulcus [13].

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