



CYSTIC LYMPH NODE - A RELIABLE LANDMARK TO AVOID BILE DUCT INJURIES DURING LAPAROSCOPIC CHOLECYSTECTOMY

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ABSTRACT

AIM: is to raise awareness among surgeons regarding important anatomical landmark that is cystic lymph node, which may help surgeons during dissection of cystic artery and cystic duct in hepatobiliary triangle during laparoscopic cholecystectomy.

MATERIALS AND METHODS: We did prospective observational study of 300 patients undergoing elective laparoscopic cholecystectomy . Intra operative the lymph node was identified. Observations were noted on the basis of lymph node position and it's relative significance to triangle of calot's.

RESULTS: We used cystic lymph node as landmark to start dissection in hepato-biliary triangle . To date we have no bile duct or cystic artery injury. The different positions of cystic lymph node and the dissection plane according to it were noted.

CONCLUSION: We conclude that a dissections using cystic lymph node as landmark will keep the artery safe , prevent intra-operative injuries and further complications.

KEYWORDS : Calot's Triangle , Lymph Node , Cholecystectomy.

INTRODUCTION

During laparoscopic cholecystectomy, surgeon is feared of bile duct injury^(1,2) which if happens may result in major reconstructive procedure, increase mortality and more utilization of financial resources. ⁽¹⁾Medico legal issues may arise for operating surgeon with negative psychological and professional impact ⁽¹⁾. Considering all these consequences, prevention of bile duct injury is important .To avoid bile duct injury during laparoscopic cholecystectomy, experts recommend to limit dissection in hepatobiliary triangle lateral and caudal to cystic lymph node⁽³⁾. Cystic lymph node which is also known as lund's and mascagni's lymph node⁽⁴⁾, is a single lymph node lying superficial to cystic artery and lateral to bile duct⁽⁴⁾. Lymph node of lund's is an important content of calot's triangle⁽⁵⁾. Few surgeons do not agree with this concept. Variation in opinion between surgeons clearly indicates that there is lack of standard method of dissection of hepatobiliary triangle during laparoscopic cholecystectomy. ⁽⁶⁾ Opinion varies between surgeons regarding dissection medial to cystic lymph node⁽⁶⁾. Aim of this paper is to raise awareness among surgeons regarding another important anatomical landmark that is cystic lymph node, which may help surgeons during dissection of cystic artery and cystic duct in hepatobiliary triangle during laparoscopic cholecystectomy, which helps in reducing bile duct injury.

MATERIALS AND METHODS

We did prospective observational study between July 2018 to October 2019 of 300 patients undergoing elective laparoscopic cholecystectomy for gall stone disease.

INCLUSION CRITERIA:

Patients with proven symptomatic gall stone on preoperative Ultrasonography, more than 18 years of age, who consented to undergo elective laparoscopic cholecystectomy were included in the study .

EXCLUSION CRITERIA:

Patients were excluded from the study on the basis of following:

- patient who required conversion of laparoscopic procedure to open cholecystectomy
- concomitant stones in common bile duct along with gall stones
- gall bladder malignancy diagnosed preoperatively
- >72 hours after the recent attack of acute cholecystitis
- less than 6 weeks time elapsed after the last attack of acute cholecystitis.

Laparoscopic cholecystectomy was performed with patient under general anesthesia. 30° (stryker) laparoscope with two dimensional video monitor used. Abdomen insufflated using veress needle, 4 ports placed in standard manner, gall bladder retracted. Before starting dissection of calot's triangle, cystic lymph node identified. Node lies reliably anterior to cystic artery, superior to the cystic duct , lateral to the common hepatic duct. Once cystic node was identified, dissection was started caudad and lateral to node. In this area operating surgeon is

away from common hepatic duct, common bile duct and right hepatic artery which lie medial to cystic node. On further dissection two structures identified which are cystic duct and cystic artery. After obtaining critical view of safety, cystic duct and cystic artery clipped and transected. Further dissection of gall bladder from gall bladder bed of liver proceeded in usual manner.

DISCUSSION

Recent guidelines given for laparoscopic cholecystectomy do not mention about confinement of dissection lateral to cystic lymph node. This may be because surgeons are not aware of and do not recognize the role of cystic lymph node during laparoscopic cholecystectomy as landmark of safety to avoid bile duct injury.^(7,8)

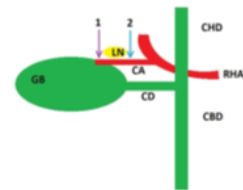


Figure a: Diagrammatic representation of gallbladder anatomy. GB: gallbladder; LN: lymph node; CD: cystic duct; CA: cystic artery; CBD: common bile duct; CHD: common hepatic duct; RHA: right hepatic artery; arrow 1: dissection lateral to LN; arrow 2: dissection medial to LN.

Variations during dissection of hepatobiliary triangle specially close to cystic lymph node are seen which are⁽⁶⁾ –

- Dissection lateral to cystic lymph node to locate cystic artery lying underneath. Cystic lymph node excision not done.
- Dissection of cystic lymph node itself to locate cystic artery lying underneath
- Dissection medial to cystic lymph node to locate cystic artery lying underneath. Lymph node excision is done here
- In few circumstances, example acute cholecystitis, surgeons may dissect high on gall bladder, thus dividing multiple branches of cystic artery. In this case cystic lymph node excision is not done.

Chances of bile duct injury are minimized by developing critical view of safety⁽⁹⁾ and by performing intraoperative cholangiogram .Aim of this paper is to raise awareness among surgeons regarding another important anatomical landmark that is cystic lymph node, which may help surgeons during dissection of cystic artery and cystic duct in hepatobiliary triangle during laparoscopic cholecystectomy, which helps in reducing bile duct injury.

According to skandalakis, “the lymph node of calot usually lies just superficial to the position of the cystic artery in the cystic triangle and can be a good guide to finding and ligating it”⁽¹⁰⁾. In study conducted by

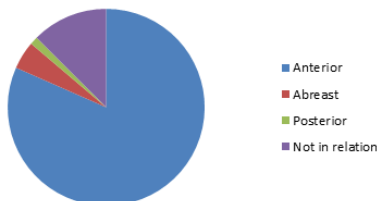
Qamar et al. It was found that in 79% cases cystic lymph node was anterior to cystic artery⁽¹¹⁾. Cystic artery is present in hepatobiliary triangle in 88% patients⁽¹²⁾.

At the commencement of surgery, and on primarily inspecting calot's triangle, lymph node may not be seen always as it is beneath peritoneum and fat. It may be visible as bulge seen through peritoneum. Once the peritoneum is opened in hepatobiliary triangle, it becomes visible. Intraoperatively cystic lymph node is identified in 53 – 88% cases⁽¹¹⁾. Usually, cystic lymph node is single in number but few patients may have more than one cystic lymph node.

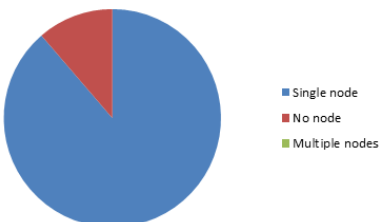
RESULTS

Our prospective observational study was done between July 2018 to October 2019. 300 patient undergoing elective laparoscopic cholecystectomy for gall stone disease were selected for study based on inclusion and exclusion criteria as mentioned in methodology. Out of 300 patients, 36 (12%) were males and 264 (88%) were females. Single Cystic lymph node was identified in 266 (88.66%) of patients. No case of multiple cystic lymph node was found. Out of 266 patients in which cystic lymph node was identified, cystic lymph node was anterior to cystic artery in 210 (78.94 %) patients , abreast in 14 (5.26%) patients, posterior in 4 (1.5%) patients and not in relation in 38 (14.28%) patients . We used cystic lymph node as a landmark during our dissection of hepatobiliary triangle. Surgery in side or posteriorly located lymph node was also uneventful. To date we have had no bile duct injury and no cystic duct leak.

1. Node in relation to cystic artery



2. Cystic lymph node



CONCLUSION:

In the end of our study we conclude that laparoscopic cholecystectomy being one of the major surgery should be done keeping cystic lymph node of lund's in mind . A surgeon should have thorough knowledge of the lymph node anatomy with relations to cystic artery and presence in calot's triangle . Dissections using cystic lymph node as landmark will keep the artery safe , prevent intra-operative injuries and further complications.

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CONFLICT OF INTEREST : None declared

ETHICAL APPROVAL: The study was approved by the Institutional Ethics Committee.

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