Frequency of secondary intra-abdominal pathologies detected during diagnostic laparoscopy in patients undergoing laparoscopic cholecystectomy

Sardarullah[1], Muhammad Taimur[2], Muhammad Imran[2], Ume Sughra[3]

ABSTRACT

Objective: To assess the frequency of secondary intra-abdominal pathology during diagnostic laparoscopy in patients undergoing laparoscopic cholecystectomy.
Study Design: A interventional observational study.
Place and Duration: From 10th may, 2012 to 10th may 2013 at Surgery Department in Fauji Foundation Hospital Rawalpindi.
Methodology: A Total of130 patients with symptomatic gall stones were studied. Diagnostic laparoscopy was carried out before cholecystectomy and all four quadrants, pelvis and inter gut loops were look for different additional pathologies like abdominal tuberculosis, tumors, adhesions etc.
Results: Patients age range was 17 to 80 years with a mean age 46.67 years. There was no pathology noted in 76.9% of patients and adhesions were detected in 12.3%, Tumors in 6.2 % and abdominal tuberculosis diagnosed in 4.6% patients.
Conclusion: Our study concludes that a simple diagnostic laparoscopy at start of laparoscopic cholecystectomy is a valuable procedure for diagnosis of hidden secondary intra-abdominal pathologies.
Keywords: Gall stone, Cholecystectomy, Diagnostic laparoscopy, Intra- Abdominal pathology, Frequency.

How to Cite This:
Sardarullah, Taimur M, Imran M, Sughra U. Frequency of secondary intra-abdominal pathologies detected during diagnostic laparoscopy in patients undergoing laparoscopic cholecystectomy. Isra Med J. 2019; 11(1): 3-5.

INTRODUCTION

Nowadays, Minimal invasive Surgery is the term used for laparoscopic surgery. Initial work was done in early 19thcentuary by DimitriOtt, George Kelling and Hans Christian Jacobeous. George Kelling invented Koelioscopie and Jacobeous introduced laparothorakoskopie. Kelling's has the honor to perform first diagnostic laparoscopy on a dog in 1901[1]. In later years many surgeons used laparoscopy for diagnosis in Europe and United States.In General surgery diagnostic laparoscopy was initially used in trauma abdomen and liver disorder patients[2]. Lukichev in 1983 and Muhe in 1985 started laparoscopic cholecystectomy but it was a French Surgeon Mouret who performed definitive laparoscopic cholecystectomyin1987[3]. Nowadays laparoscope use is common and its advantages are shorter hospital stay, less post-operative pain and better cosmesis. We can use diagnostic laparoscopy for diagnosis of intra-abdominal pathologies as it is a safe, minimally invasive, more sensitive and specific procedure than imaging modalities e.g. (Ultrasound, CT scan and MRI)[4]. Other intra-abdominal lesions could be missed if diagnostic laparoscopy were not added to laparoscopic cholecystectomy[5]. Retrospective studies showed that patients presented with different intra-abdominal Pathologies soon after laparoscopic cholecystectomy which was overlooked during incomplete laparoscopy[6]. Laparoscopic cholecystectomy is the gold standard treatment for symptomatic gall stones. Now laparoscopic cholecystectomy is performed routinely at many centers in the big cities of our country[7].

If diagnostic laparoscopy is not performed before laparoscopic cholecystectomy there is a great potential for other intra-abdominal pathologies to be missed[8]. Jain N carried out a studyin 2006 on 46 patients of symptomatic gallstones upon whom they operated laparoscopically. The results of study showed that 13.04% patients presented post-operatively within 2-8 months after laparoscopic cholecystectomy and diagnosed as cases of intra-abdominal tumor, operated for missed tumors

1. Medical Officer
2. Assistant Professor of Surgery

   Fauji Foundation Hospital, Rawalpindi.

3. Associate Professor
   Al-Shifa School of Public Health & Research Centre, Pakistan Institute of Ophthalmology, Rawalpindi.

Correspondence to:
Dr. Muhammad Taimur
Assistant Professor of Surgery,
Fauji Foundation Hospital, Rawalpindi.
Email: drmtaimur@yahoo.com

Received for Publication: 25-02-18
1st Revision of Manuscript: 21-07-18
2nd Revision of Manuscript: 12-12-18
3rd Revision of Manuscript: 14-02-19
Accepted for Publication: 21-02-19

later on. During review of literature, they found colorectal cancer (32.90%) and cancer head of pancreas (24.70%) has highest incidence among missed tumors in the world at laparoscopic cholecystectomy. So they emphasized in the study to perform diagnostic laparoscopy at the time of laparoscopic cholecystectomy[9]. Hamaloglu in his study accentuated that Laparoscopic Cholecystectomy has a potential to miss intra-abdominal malignancies. In this study 6 patients had colorectal carcinoma and 3 had pancreatic carcinoma. They concluded that "Elderly patients, atypical biliary pain and associated symptoms must draw attention to the possibility of malignancy"[10]. Krishnan P. in his study found 25.19% incidence of abdominal tuberculosis in patients undergoing diagnostic laparoscopy[11]. Karvande performed a study on diagnostic laparoscopy and found 21.2% incidence of intra-abdominal adhesions in his study population[12].

This would be the first study of its kind that would demonstrate the added benefits of performing diagnostic laparoscopy at the time of laparoscopic cholecystectomy. Performing general diagnostic laparoscopy prior to laparoscopic cholecystectomy would enable us view whole abdomen and detect any co-existent intra-abdominal pathologies at early stage that we cannot achieve with open cholecystectomy. We can also take biopsies at an early stage and collect peritoneal fluid for examination and cytology at the same time in case of any suspicions. This will help us in providing quick and safe therapeutic interventions to patients before these pathologies become complicated. The objective of our study is to assess the frequency of secondary intra-abdominal pathology during diagnostic laparoscopy in patients undergoing laparoscopic cholecystectomy.

METHODOLOGY

This interventional observational study was conducted in General Surgery Deptt., Fauji Foundation Hospital, Rawalpindi from May 10th, 2012 to May 10th, 2013. A total of 130 patients included in study through Non probability/ convenient sampling technique. Patients with symptomatic gall-stones undergoing laparoscopic cholecystectomy, above 15 years of age were included in study. Patients who were already diagnosed as having intra-abdominal pathologies on investigations, age below 15 years and patients having hepatitis B or hepatitis C serology positive were excluded from study.After getting approval from hospital ethical committee for this study, all patients fulfilling the above mentioned criteria were included .An informed written consent was taken regarding the procedure from all patients prior to inclusion in the study. The protocol of surgical procedure following our study was also thoroughly explained and prior permission was also sought from patients for any possible biopsies that we could have taken during procedure for diagnosis purposes.Each patient was evaluated pre operatively thoroughly as per protocol. All patients' undergone general laparoscopy and then laparoscopic cholecystectomy by consultant surgeon. After pneumoperitoneum with open technique, two ports (umbilical, epigastria) were used for initial thorough inspection whole abdomen; another port of 5mm was added in selected cases according to the region involved with pathology. Whole the abdomen along with all four quadrants and inter gut loops looked for abnormal findings by consultant surgeon. Any pathology detected was noted. Biopsy and peritoneal fluid was taken where felt necessary for confirmation of diagnosis. Diagnostic laparoscopy was followed by conventional laparoscopic cholecystectomy. Findings and data of the general laparoscopy e.g (Abdominal tuberculosis, Adhesions and Tumors) was noted. Patients were discharged on the following day. Diagnostic bias was controlled by applying standard histopathology report.

Data Analysis: Data analysis was done by using SPSS version 16. The data of all 130 patients was transferred to the data sheet IV of SPSS 16. Quantitative variable like age was analyzed by mean and standard deviation while qualitative variables like sex, tumors, adhesions and abdominal tuberculosis were analyzed by frequency. Chi-square test was applied on qualitative variables.

RESULTS

A total of 130 patients were included. The age range of the sampling population (n=130) was from 17 years to 80 years. The mean age was 46.67 years, (standard deviation 1.29670 E1).Only 9 (6.9%) patients of our study population were male. Majority of the study population was female i.e. 121 (98%) patients. A total of 30 (23.07%) patients were diagnosed with different intra-abdominal pathologies, among these 16 (12.3%) patients had intra-abdominal adhesions, 8 (6.2%) patients had intra-abdominal tumors (2 (1.5%) cases of carcinoma gall bladder, 2 (1.5%) cases of fibroid uterus, 2 (1.5%) cases with hapatoma, 1 (0.7%) case with carcinoma ovary and 1 (0.7%) case of carcinoid tumor of appendix)and 6 (4.6%) patients with abdominal tuberculosis.

Table-I: Frequency of secondary intra-abdominal pathologies in patients (N=130)

Secondary Pathology	Frequency (%)
Pathology Not Detected	100 (76.9%)
Tumor	8 (6.2%)
Adhesions	16 (12.3%)
Abdominal Tuberculosis	6 (4.6%)
Total	130

Table-II: Frequency of intra-abdominal tumors in patients (N=130)

Types of intra-abdominal tumors	Frequency
Carcinoma gallbladder	2 (1.5%)
Fibroid uterus	2 (1.5%)
Hepatoma	2 (1.5%)
Carcinoma ovary	1 (0.7%)
Carcinoid appendix	1 (0.7%)

DISCUSSION

By reviewing the literature we found many studies which showed that patients have presented with other intra-abdominal pathologies after they underwent laparoscopic

cholecystectomy. Diagnostic Laparoscopy demands meticulous attention and careful handling of all the abdominal viscera's. Cholelithiasis is a disease of fourth and fifth decade of life. In our study the age range was 17-80 years. The mean age was 46.67 years. The age distribution in this study population is the same as that of western population[2]. Age of patients is significant as our study revealed that secondary pathologies like abdominal tuberculosis and intra-abdominal adhesions were diagnosed more commonly in young and married females. In our study 93.1% of the patients were females while only 6.9% patients were male. International data suggest that gallstone disease is 3 to 4 times more common in females than males[13].

Jain et.al performed a study in 2006 on total of 46 patients with symptomatic gall stone, noted 13.04% patients had intra abdominal tumors of other organs while out of total 130 cases in our study only 6.2% patients had different intra abdominal tumors (2cases of carcinoma gall bladder, two cases of fibroid uterus, two cases with hapatoma, one case with carcinoma ovary and one case of carcinoid tumor of appendix)[9]. In our study 4.6% patients were diagnosed with abdominal tuberculosis, showing low statistics as compare to a study by Tariq where they found 31.5% incidence of abdominal tuberculosis with laparoscopy[14].

Cholelithiasis is common in middle aged females. In this age group females are more prone to formation of intra-abdominal adhesions as result of abdomino-pelvic surgery like caeserian section, hysterectomy etc and pelvic inflammatory disease. Adhesions leads to distracting pain abdomen and these are not visible by imaging techniques. Diagnostic laparoscopy is very successful in diagnosing and treating intra-abdominal adhesions. Karvande in his study found 21.2% incidence of intra-abdominal adhesions[12]. Another study by Samina et.al revealed abdominal tuberculosis in 26.98% of cases and intra-abdominal adhesions in 9.52% of cases[15]. In our study the intra-abdominal adhesions were found in 16 (12.3%) of patients.

In our study all patients were investigated with abdominal ultrasonography before proceeding for surgery, but secondary intra-abdominal pathologies were not picked by radiologist. Our study showed that diagnostic laparoscopy is more sensitive and specific to diagnose second intra- abdominal pathologies and is also safe and well tolerated procedure, more sensitive and specific than imaging modalities e.g (Ultrasound, CT scan and MRI) for diagnosis of abdominal pathologies[7]. Diagnostic laparoscopy at the start of laparoscopic cholecystectomy help to diagnose other intra-abdominal pathologies and this is observed in many retrospective studies that patients presented with intra-abdominal diseases soon after laparoscopic cholecystectomy[10,11].

CONCLUSION

A simple diagnostic laparoscopy at start of laparoscopic cholecystectomy is safe and valuable procedure for diagnosis of hidden secondary intra-abdominal pathologies.

CONTRIBUTION OF AUTHORS

Sardarullah: Conceived idea, Data collection.
Taimur M: Formulated data, Data analysis and Results writing.
Imran M: Literature search and writing Discussion.
Sughra U: Writing Introduction and Methodology.

Disclaimer: None.
Conflict of Interest: None.
Source of Funding: None.

REFERENCES

1. Kulkarni CR, Laxminarayan B, Kudva A. Laparoscopy as a diagnostic tool in ascites of unknown origin: A retrospective study conducted at Kasturba hospital, Manipal. Open Access J Surg. 2018; 8(3):1-5.
2. Tufail A, Naheed F. Complications of Diagnostic Laparoscopy for gynecological indication. Pak J Surg. 2009; 25(3): 163-66.
3. Saeed T, Zarin M, Aurangzeb M, Wazir MA, Muqeem R. Comparative study of laparoscopic versus open cholecystectomy. Pak J Surg. 2007; 23(2): 96-99.
4. Al-Akeely MH. The impact of elective diagnostic laparoscopy in chronic abdominal Disorders Saudi J Gastroenterol. 2006; 12(1): 27-30.
5. Hsu, Tzu-Chi. Intra-Abdominal Lesions Could be Missed by Inadequate Laparoscopy. The Am Surg. 2008; 74(9): 824-28.
6. You JJ, Chen HC, Huang TM, Lin TC, Lee CH. Missed cancerous lesions in emergency laparoscopic surgery: Retrospective study of 2074 cases. Minimally Invas Ther & Allied Tech.2011; 20(4): 253- 56.
7. Zaidi AH, Haleem A, Azmi R, Rana SH, Naqvi S, Shan A. Complications in Laparoscopic Cholecystectomy. Annuals of Pun Med Coll. 2015; 9(2):57-65.
8. Heemskerk J, Zanelbergaen R, Maessem JG, Greve JWM, Bouvy ND. Advantages of advanced laparoscopic systems. SurgEndosc.2006; 20(5): 730-33.
9. Jain N, Tewari M, Shukla HS. Missed malignancies at laparoscopic cholecystectomy: A new emerging problem. Indian J Surg. 2006; 68(1): 23-26.
10. Hamaloglu, E, Yorganci K, Oner Z, Sayek I. Missed malignancies during laparoscopic cholecystectomy. Hepatogastroenterology. 1999; 46(25): 126-29.
11. Krishnan P, Vayoth SO, Dhar P, Surendran S, Ponnambathayil S. Laparoscopy in suspected abdominal tuberculosis is useful as an early diagnostic method. ANZ J Surg. 2008; 78(11):987-89.
12. Karvande R, Kamble R, Kharade M. A study of role of diagnostic laparoscopy in chronic and recurrent abdominal pain. Int Surg J. 2016; 3(3): 1336-40.
13. Bhatti AY, Waqar AB, Zia SA, Hussain N, Zulfiqar T. A cross sectional study on the risk factors of gall bladder stone. Int J Res Med Sci. 2016; 4(11):5041-5046.
14. Abdullah MT, Waqar SH, Zahid MA. Laparoscopy in unexplained abdominal pain: Surgeons perspective. J Aub Med Coll. 2016; 28(3):461-64.
15. Memon SR, MemonMR, ShaikhAA, Memon NY. Role ofLaparoscopy in the diagnosis of chronic pelvic pain.Rawal Med J. 2013; 38(4):397–400.