

An Audit of Gall Bladder Surgery and its Implications on Resident Training

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ABSTRACT

Objective: To find out the tier of surgeons performing most of surgery on the gall bladder and imply the results for improving the outcome of gall bladder surgery.

Study Design: Retrospective review.

Place and Duration of Study: This study was conducted at the South Surgical Ward, Mayo Hospital, Lahore from December, 2015- 30th November, 2016

Materials and Methods: This was carried out on the hospital record in order to find out number of gall bladder surgeries whether open or laparoscopic performed by a surgeon. We found out a total of 124 patients were operated for gall bladder removal.

Results: Our study shows that out of 124 patients, 95 (76.6%) patients had laparoscopic cholecystectomy and 29 (23.3%) patients had open cholecystectomy. 74.7 % (n=71) patients of laparoscopic surgery were performed by consultants, 23.1% (n=22) by senior registrars and 2.1% by the residents. 13.7% (n=4) of the open cholecystectomies were done by the consultants, 34.4 % (n=10) by senior registrars and 51.7 % (n=15) by the residents

Conclusion: We are performing laparoscopic cholecystectomy three time more often than the open cholecystectomy. The residents are the most frequent operating surgeons for open cholecystectomy. This has helped us improve the open surgery skills of residents.

Key Words: Laparoscopic, Open cholecystectomy, Surgeon, Resident, Audit

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INTRODUCTION

Gall stone disease is a very common problem in our part of the world as is in developed world. Around 10-30% of the patients with gall stones become symptomatic and will eventually need treatment. The common incidence of the gall bladder disease is denoted by the presence of gall stones in 36% of the autopsies performed in UK.¹ The incidence of the disease increases with age and this increased incidence also makes cholecystectomy a commonly performed procedure.² The introduction of laparoscopic cholecystectomy since 80s have made this the procedure of choice and very few patients end up with the alternatives.^{1,3} Now this is the most commonly performed laparoscopic surgery worldwide. The incidence of the open cholecystectomy has been reduced to less than 20% in the developed countries.⁴

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This shift towards the laparoscopic treatment regimen for gall bladder has also affected our country positively and now we are performing far more laparoscopic cholecystectomies than ever. The indications of open cholecystectomy are now left only to the expected cases of gall bladder cancer, converted cases, training purposes⁵ of the residents and patient's wishes. Now-a-days residents learn laparoscopic cholecystectomy even before the open cholecystectomy⁶ and this is the case with our surgical unit as well. Our local literature shows a lot of work on the complications, difficulties, conversion rate and feasibility of laparoscopic cholecystectomy but does not give clear evidence on the total number of patient being operated by laparoscopic cholecystectomy at any hospital. This study might represent an audit of our surgical unit for one year. Audit is a continuous process and has to go on and on for improving the health care of any health unit.⁷ To improve in our work and training we have to reflect upon our own doings.⁸ It has helped us as surgeons and doctors to make up our deficiencies and improve our patient outcomes. This ongoing exercise has helped us to improve ourselves as better surgeons in the area of gall bladder and produce a better progeny surgeons with ability to perform safe gall bladder surgery.

MATERIALS AND METHODS

This was a retrospective review was carried out at South Surgical Ward, Mayo Hospital, Lahore from the

record of the year 2015-2016 in order to find out number of gall bladder surgeries whether open or laparoscopic performed by a surgeon. One hundred and twenty four undergoing gall bladder surgery were included. Since this is a descriptive study so all the patients who got operated whether open or laparoscopically were included. We divided these patients in to two groups. The laparoscopic surgery patients were grouped into Group A and open surgery patients were grouped into Group B with 95 and 29 patients in each group respectively. Data Analysis was done using SPSS version 22.

RESULTS

Mean age of the patients who in group A was 38.91 ± 12.37 years and group B was 41 ± 15.3 years respectively. Both the groups had 14.5% males and 85.5% females (Table 1). The pre-operative diagnosis in laparoscopic and open cholecystectomy patients are shown in figures 1 and 2 respectively. The maximum cases in the group B were performed by the residents around 51% and the second major group of surgeons was senior registrars around 37% with 12% of the cases performed by the consultants (Fig. 3). The mean hospital stay in this group of patients was 1.82 days. Majority of the cases were discharged on the next day. On the other hand the majority was operated by consultant surgeons in Group A. 74.4% of the cases were performed by the consultants and 23.2% of the cholecystectomies were performed by the senior registrars and only 2.1% is the share of residents (Fig. 4). There was no mortality in Group A during the year. Mean length of postoperative hospital stay was 1 day. Only 59 cases (62.1%) were discharged on first postoperative day. 25% of the cases were discharged on second postoperative day. 13% of the patients were discharged home either on third or fourth postoperative day.

Table No.1: Frequency and percentage of males and females in open and laparoscopic groups (n=124)

Gender	No.	%
Male	18	14.5
Female	106	85.5

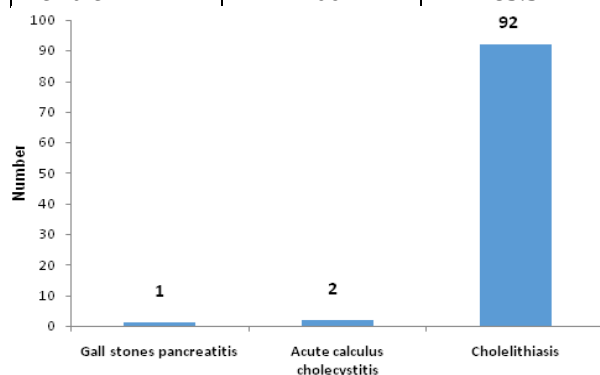


Figure No.1: Diagnosis of laparoscopic cholecystectomy

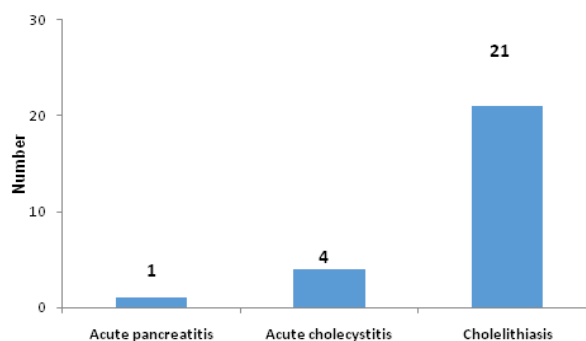


Figure No.2: Diagnosis of open cholecystectomy

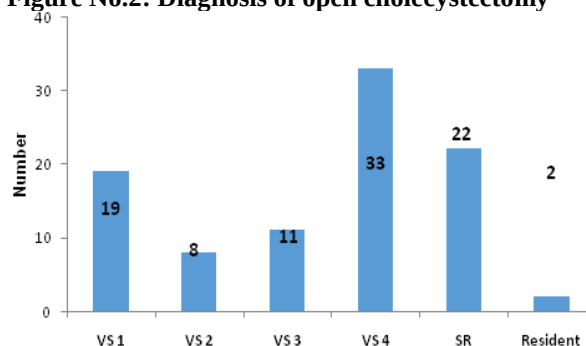


Figure No.3: Operating surgeons in open surgery

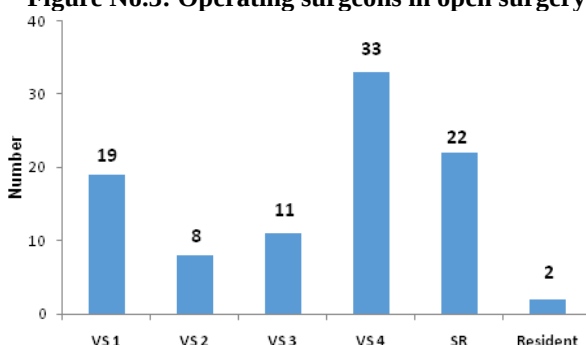


Figure No.4: Operating surgeons in laparoscopic cholecystectomy

DISCUSSION

Stones in the gall bladder constitute the major health problem worldwide. Simple cholelithiasis is more common so much so that more than 700 thousand cholecystectomies are performed in the United States. 60-70 % of the burden is shared by the American-Indian population.² The incidence of gall stone diseases is 16 % in Pakistan.⁹ The rate of gall bladder surgery is on a rise in our country as depicted by a study conducted by Channa et al¹⁰ in Hyderabad and adjoining areas. These evidences suggest the increase in the gall bladder surgery and when we further analysed our records we found that this is also true for us and most of the surgery performed for gall stone disease at our unit is laparoscopic surgery (95% vs. 29%). The most frequent surgeons were the consultant team for the laparoscopic procedures around 74.7% (n=71). The residents share was only 2.1% which is in contrast to the study carried out by Dr. Bockler where residents are

performing 37 % of the laparoscopic cholecystectomies.¹¹

Prior to laparoscopic cholecystectomy, junior residents performed 80% of all cholecystectomies but with the introduction of laparoscopic cholecystectomy the open surgery performed by residents has been reduced by 67%.¹² Though similar is the case with our residents where their share in the whole gall bladder surgery in only 13% (n=17) but our residents share in open surgery has improved and the residents have performed around 51.7% (n=15) open cholecystectomies during the same year.¹³ The Senior registrars performed 34.5% and 23.2% of open and laparoscopic procedures. This increase percentage of gall bladder surgery by the senior residents is comparable with the other teaching units and is the result of increased difficult gall bladder surgery after introduction of laparoscopic technique. As far as male to female ratio (1:6) in the open and laparoscopic surgery is concerned the two are same but we see a shift of work distribution towards the senior surgeons in laparoscopic group and more towards residents in the open group. One fourth of the cases performed by the senior registrars and residents were allocated for procedural training in the laparoscopy group under direct supervision of consultants while half of the procedures (51.7%) were allocated to residents for training purpose in the open surgery group. The senior registrars performed 34.4% of the open cholecystectomies under the indirect supervision of the consultants. It has been suggested that residents need a higher level of skill and should be more advanced in their training before being allowed to perform cholecystectomy laparoscopically.¹⁴

Traditionally the laparoscopic surgery follows the experience in the open surgery¹⁵ but this has not been proven rather many studies show that expertise at open cholecystectomy does not improve the performance at the laparoscopic surgery.^{15,16} However the residents need a higher level of skill at this time than was necessary for open cholecystectomy and have to be further advanced in their training in order to perform this operation laparoscopically as narrated by Hodgson.¹⁴ The accompanying decrease in the number of open cholecystectomies also has important implications for residency training. As with other centers, we have found that the number of open cholecystectomies has dwindled dramatically. These cases tend to be technically difficult and, therefore, usually are performed by a senior resident or consultant surgeon.¹² Although some reports contend that residents still receive adequate exposure to open biliary procedures in the era of laparoscopic cholecystectomy, we would suggest that it is becoming increasingly difficult to achieve this aim.¹⁷ So in the light of the available reference from the local and international literature as well as our own study results, we need to

redesign our curriculum in order to get better trained surgeons in two types of surgical modalities. This area of surgical training curriculum needs special attention in planning our training strategy and also incorporating the surgical simulators¹⁸ especially for the laparoscopic surgery in our training programme. This improved training regimen will not only reduce the work burden on our surgical team but in addition will have improved outcomes. This will also improve the skills at both open and laparoscopic surgery even in the initial years of training. Based on our findings we need to have a revised training schedule for our residents and an ongoing audit process to improve upon ourselves. This study has also helped us to plan and conduct a more robust study for assessing the improvement and shift in the paradigm offered by the introduction of laparoscopic surgery in our residents.

CONCLUSION

We are performing laparoscopic cholecystectomy three time more often than the open cholecystectomy. The residents are the most frequent operating surgeons for open cholecystectomy. The residents are being increasingly involved in the laparoscopic procedures in direct as well as indirect supervision. This has helped us improve the open surgery skills of residents

Author's Contribution:

Concept & Design of Study:	Muhammad Shahid Farooq
Drafting:	Rabia Altaf
Data Analysis:	Rabia Altaf
Revisiting Critically:	Muhammad Rashid Anjum
Final Approval of version:	Muhammad Shahid Farooq

Conflict of Interest: The study has no conflict of interest to declare by any author.

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