ORIGINAL ARTICLE

Laparoscopic Cholecystectomy in septuagenarians and above: a comparative analysis from Pakistani population

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Abstract:

Introduction: Laparoscopic cholecystectomy is a well-known and safe procedure to perform but when it comes to elderly there has been marked differences and its course is riddled with pre and post-operative complications. In this study we have reported our results of Laparoscopic cholecystectomy comparing the 70 years and above individuals with the younger.

Material and Methods: We retrospectively studied cases of Laparoscopic cholecystectomy performed at our institute between June 2015 till march 2018 with age group being taken as independent variable.

Results: This study had 24 patients with ages 70 years and above and 320 patients 69 years and younger. The former group showed had higher ASA scores, comorbidities, operative times, conversion rate, in hospital stay, post-operative complications and mortality when compared to younger group.

Conclusion: Elderly patients need vigilant care and higher level of management when undergoing laparoscopic cholecystectomy.

Keywords: Cholecystectomy, Laparoscopic, Frail Elderly, post-operative complications

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Introduction:

Geriatric population need special care than young individuals when it comes to surgical procedures and management of peri-operative problems. However, it is still common in our region of the world to defer surgical interventions in the very elderly due to high risks of post-operative morbidity and mortality unless an emergency. Patients and their families are not convinced to give a consent for a surgical procedure as the operating surgeon is himself not very confident about the results of the intervention due to the fact that the evidence of outcomes is mostly based on western literature which are not directly comparable to our population.

Laparoscopic Cholecystectomy (LC) although a time-tested procedure and very commonly performed in the young and middle-aged patients;[1] still suffers from the same fate in Pakistan when it comes to population that are 70 years and above. Most of these patients are those who have not sought medical help due to fear of their age or have been denied treatment from other centers. Hence it is not uncommon that these patients present morein anacute or emergent setting.[2] Extensive data on LC from Pakistan is already presented in literature,[3] but none have addressed the age factor. At our center we have been routinely performing LC in patients in all age groups. Here we are presenting our data and its analysis with respect to age group and comparison of various surgical parameters and complications.

Materials and Methods:

This was a retrospective study conducted at the General surgical department of Creek General Hospital Karachi. Patients who underwent standard 4 port LC during June 2015 till March 2018 were included in the study. Patients who had any previous abdominal surgery were ex-

Table-1: Comparison of patient characteristics and various parameters according to age groups

Characteristics	Group A (24)	Group B (320)	P value*
Gender ratio (Male: Female)	5:19	57:263	
Age (Min-Max) years	70-92	19-69	
Comorbid conditions			
Ischemic heart disease	11 (45.8%)	52 (16.2%)	<0.05
Diabetes mellitus	5 (20.8%)	49 (15.3%)	
Asthma / Pulmonary disease	1 (4.1%)	16 (5%)	
Chronic renal failure	1 (4.1%)	3 (0.9%)	
Surgical Indication			
Acute calculous Cholecystitis	6 (25%)	42 (13.1%)	
Chronic calculous Cholecystitis	16 (66.7%)	253 (79.1%)	
Acute acalculous Cholecystitis	2 (8.3%)	25 (7.8%)	
ASA scores			
ASA – I	3 (12.5%)	200 (62.5%)	
ASA – II	9 (37.5%)	98 (30.6%)	
ASA – III	12 (50%)	22 (6.9%)	<0.05
Mean operative time (minutes)	62.4±18.5	48.6±15.2	
Conversion to open procedure	3 (12.5%)	14 (4.3%)	
Mean hospital stay (days)	11.5±3.2	4.6±1.7	<0.05
Post-op Complications			<0.001
Deep Venous Thrombosis	0	3 (0.9%)	
Wound problems / infection	1 (4.1%)	10 (3.1%)	
Atelectasis / Pneumonia	1 (4.1%)	4 (1.2%)	
Myocardial infarction / ischemia	1 (4.1%)	3 (0.9%)	
CBD injury	1 (4.1%)	1 (0.3%)	
In hospital mortality	2 (8.3%)	2 (0.6%)	<0.05
Pathological findings			
Gallstone Cholecystitis	21 (87.5%)	281 (87.8%)	
Acalculous Cholecystitis	1 (4.1%)	18 (5.6%)	
Mucocele	1 (4.1%)	7 (2.1%)	
Polyp	0	3 (0.9%)	
Empyema gall bladder	1 (4.1%)	8 (2.5%)	
Gall bladder carcinoma	0	3 (0.9%)	

**only significant values have been mentioned*

cluded from the study. Patients were divided in two groups according to their age. Group-'A' included patients who were 70 years and above while group-'B' included patients who were 69 years or younger. The patient characteristics analyzed were gender, comorbidities, indication for surgery and American Society for Anesthesiologists (ASA) score. Surgical parameters such as operative time, common bile duct (CBD) injury, conversion to open procedure, mean hospital stay, in hospital mortality, post-operative complications and pathological findings of gall bladder specimens were also compared. Mann Whitney U and Pearson Chi square tests were used to compare the results between the groups. A p-value of less than 0.05 was considered significant.

Results:

During the specified time frame, a total of 356 patients underwent LC in our center. Twelve patients had previous abdominal surgery and therefore the number of cases left for analysis were 344. Patients younger than 70 years were 320(93%) and included in Group-B, whereas group-A received 24 (7%) patients.

As expected, both the groups had female predominance (Table – I). Group A suffered from more comorbidities than group-B in which the most frequent being ischemic heart disease followed by diabetes. Hence the ASA score of the group-A was also higher in comparison. Acute presentations were also more common in the elderly group ($p<0.05$).

The operative times for group-B were shorter but statistically they were not significant. However, the group-A had a significant longer hospital stay than group-B which was indeed the reflection of the higher number of complications observed in group-A ($p<0.001$). Each group had one case of intra-operative CBD injury and 2 cases of in hospital mortality. Comparison of surgical pathology of gall bladder didn't reveal any significant differences.

Discussion:

As the life expectancy of population is increasing gradually, so are the associated medical conditions becoming increasingly difficult to manage in the elderly. No longer the disease of forty, female, fertile and fatty; Cholecystitis is now very common in the older age groups as well whether the cause is lifestyle or any other condition.

Although favored more against open cholecystectomy,[4] LC also carries higher operative risks

and complication rate in the elderly. This leads to an unwillingness to operate on these patients by the surgeon which has been defined as the 'shakespearian problem' by Agrusa et al.[5] But the disease as expected doesn't settles when left untreated and comes back to haunt the surgeon at a later time in a rather more horrifying emergency situation. This is also backed up the data presented by Whanbong Lee et al from Korea showing a 47.4% of octogenarian population presenting with acute symptoms compared to 23.8% of acute presentation in the rest of the patients.[6] Novello M et al have also observed the same phenomenon in their 15 years retrospective study.[7]

The basis of all the increased morbidity in aged people is due to the reduced physiological reserve that is required fight the disease.[8] Further this reserve is also utilized to shield the body against the surgical stresses. Although not presented in our data, but we also observed that Group A had lower mean hemoglobin levels than younger patients. This along with the prevalent comorbid conditions lead to very low capabilities in these individuals for recuperation from the disease conditions. Bhandari et al[9] published their data from Nepal concluding that there is no significant difference in complications for different age group patients undergoing LC, but the age limit for elderly was defined as 60 years or above. Therefore, in order to sort out the elderly patients that need special care and attention we believe to set age threshold to 70 years or above as shown by our results.

Conversion to open cholecystectomy was also higher in the older population. Age has been defined as an independent risk factor for conversion to open procedure by various studies.[10,11] Other risk factors identified are acute condition, previous ERCP, comorbidities, elevated liver enzymes, and increased white cell count; all being common in the elderly as well. So the operating team must be prepared to switch to an open procedure whenever required in these cases.

Teixeira JP et al[12] observed a mortality of 4.76% in cases of acute cholecystitis undergoing LC which is still lower when compared to our 8.3% in hospital mortality in elderly which included both acute and chronic cases. Hence it is very important for the health care providing facility to be fully equipped with all the requirements that are necessary when dealing with such geriatric population.

Conclusion:
The results of LC are inferior in the elderly when compared to the young individuals. This frail population will have pre-operative risky conditions and will develop hard to tackle post-operative complications. However, this suggests in no manner that they should be denied treatment. In fact, the elderly should undergo surgical procedure as soon as the conditions permit in order to minimize the effects of longstanding disease and age stresses. Lastly it is definitely necessary not to underestimate the scenario and always undertake such cases where all the necessary facilities are available.

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Role and contribution of authors:
Dr Shamaila Ayub, conceived the idea, collected the data and references and did writing of manuscript

Dr Aun Ali, collected the references and helped in introduction writing

Dr Ata-ur-Rehman, collected the data and references and helped in discussion writing.

Dr Umair-ul-Islam, collected the data and references and critically review the article

Dr Aqeel Jawaid, collected the references and critically review the article

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