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Research Article

**OUTCOMES OF LAPAROSCOPIC APPENDECTOMY AS  
COMPARED TO OPEN APPENDECTOMY**<sup>1</sup>Sameen Maqsood Khan, <sup>1</sup>Samrah Fatima, <sup>2</sup>Dr Muhammad Saeed<sup>1</sup>Lahore General Hospital, Lahore, <sup>2</sup>Federal Government Polyclinic Hospital Islamabad.

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**Abstract:****Background:**

Appendectomy is the commonest surgical procedure performed in general surgery, and is done by both open and laparoscopic methods because of absence of consensus as to which procedure is most appropriate procedure. We decided to evaluate the outcomes of the 2 procedures to share our experience with the international community.

**Methods:**

Patients with suspected acute appendicitis who underwent laparoscopic (LA) (n=25) and open (n=25) appendectomy (OA) over a duration of 6 months from July 2020 to December 2020 were analyzed. Clinical results were compared among the 2 groups in relation to operative time, length of hospital stay and postoperative complications.

**Results:**

Mean age of patients was 28.2±4.3 years in the laparoscopic and 27.3±3.7 years in the open group. Patient demographics were similar in both groups. There was short hospital stay (1.1±0.3 in LA and 3.2±0.6 days in OA). Operative time was short (36.8 ± 22.3 in LA and 28.9 ± 18.3 minutes in OA) in the open group. Total number of complications was less in the laparoscopic group; however, there was no statistically significant difference.

**Conclusion:**

The laparoscopic appendectomy is a safe and less morbid procedure. It provides many advantages over open appendectomy, including short hospital duration and earlier return to normal activities. Where available, laparoscopic appendectomy should undertaken as the initial operation of choice for most cases of suspected appendicitis.

**Key Words:** Laparoscopic appendectomy, Suspected appendicitis.**Corresponding author:****Sameen Maqsood Khan,**

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**INTRODUCTION:**

Appendicitis is one of the commonest surgical emergency condition that requires prompt intervention i.e., appendectomy. The overall death rate for an open appendectomy is approximately 0.3% and morbidity around 11%. Open appendectomy was the management of choice for more than 100 years since it was introduced by McBurney in 1894. Kurt Semm was the first surgeon who described laparoscopic appendectomy (LA) in 1983. With a significant success in laparoscopic cholecystectomies, that became the gold-standard treatment for symptomatic gallstones disease in very less duration, laparoscopic surgeries gained popularity and found useful in almost all of the surgical specialties. Laparoscopic appendectomy has been shown to be feasible and safe in various RCTs as compared to open appendectomy. It has enhanced diagnostic accuracy along with advantages in terms of fewer wound infections, decrease pain, enhanced recovery and earlier return to normal activity. [2-4] In contrast to this, laparoscopic appendectomy require more operating duration [2,3] and is associated with increased hospital costs. [4] Even with these disadvantages laparoscopic approach has been established as an alternate to open appendectomy. [5] Few researches failed to explain clear benefits for laparoscopic over open appendectomy. [6,7] However no consensus present as to whether laparoscopy should be done in select patients or routinely for every patient with suspected acute appendicitis. Keeping in mind this background this prospective study was carried out to compare the postoperative outcomes of both open versus laparoscopic appendectomies in terms of duration of hospital stay, operating duration, postoperative morbidity, and time to resume normal activity.

**PATIENTS AND METHODS:**

This prospective comparative study was performed in the Department of Surgery, Lahore General Hospital, from July 2020 to December 2020. All patients between 20 and 40 years of age and were admitted through the A&E department with a clinical

diagnosis of acute appendicitis. All those patients in whom a palpable mass in the right lower quadrant, suggesting an appendicular abscess /mass and those who did not give consent were excluded from the study. Informed written consent was obtained from every study subject, and data were collected in a specifically designed questionnaire.

Clinical outcomes were recorded in questionnaire regarding total operative duration, hospital stay, and time to resume oral intake. Dosages of parenteral and oral analgesics given were recorded by the researcher herself. A standardized analgesic regimen was prescribed to all patients and included paracetamol 500 mg tablets and shots of ketorlac infusions. Return to normal activity was recorded as time taken to resume work and other activities of social life. Patients were observed for developing any complications in postoperative period.

**Follow-up**

At the time of discharge patients were asked to visit in outdoor department at weekly interval for 4 weeks. Stitches were removed on the first visit at OPD, and patients were observed for developing any complication till 4<sup>th</sup> appointment.

**Statistical Analysis**

The data was analyzed with SPSS version 23.0. Frequencies and percentages of categorical parameters were calculated on 95% confidence interval.  $P < 0.05$  was considered statistically significant.

**RESULTS:**

Out of 50 patients included in this analysis, 25 were in Open Appendectomy (OA) group while 25 were Lap Appendectomy (LA) group. Mean age of patients in this study was  $28.2 \pm 4.3$  years in LA group and  $27.3 \pm 3.7$  years in OA group. No significant demographic differences existed between the 2 groups in relation to age, sex, and leukocyte count, as summarized in Table 1:

**Table 1.** Demographics of Patients

Characteristics	Laparoscopic Appendectomy	Open Appendectomy
Age (Years)	28.2±4.3	27.3±3.7
Sex		
• Male	6 (24%)	8 (32%)
• Female	19 (76%)	17 (68%)
Total leukocyte count	14.3±1.4	14.8±0.9

Mean ( $\pm$ SD) white blood cell count in the laparoscopic group was  $14.3 \pm 1.4$  and  $14.8 \pm 0.9$  in the open group.

**Operating Duration:**

In our study, the mean operative duration of 36.8±22.3 mins for the LA group which was longer as compared to the mean operative duration of 28.9±18.3 mins for OA, & this difference is statistically significant.

**Hospital Stay:**

Hospital stay was significantly shorter in the LA group with a mean (±SD) 1.1±0.3 days compared with 3.2±0.6 days for the OA group, as shown in **Table 2**.

**Activity:**

A significant contrast was present between the 2 groups in time taken to return to routine daily activities, which was less in LA group 3.2±2.1 compared with 6.3±1.2 in OA group, as summarized in **Table 2**.

**Complications:**

In this study, there was no significant complication was present in all 50 patients

Characteristics	Laparoscopic Appendectomy	Open Appendectomy
Hospital Stay (Days)	1.1 ± 0.3	3.2 ± 0.6
Duration of Operation (min)	36.8 ± 22.3	28.9 ± 18.3
Return to Normal Activity (Days)	3.2 ± 2.1	6.3 ± 1.2

**DISCUSSION:**

The accomplishment of laparoscopic procedure in gallbladder diseases and numerous different fields has prompted the re-assessment of some long-accepted surgical doctrines. Acutely inflamed appendix is one of the most ordinarily experienced surgical conditions that requires emergency exploration. Laparoscopic medical procedure is a significant surgical advance over the most recent twenty years. Metaanalyses<sup>8,9</sup> have affirmed that laparoscopic appendectomy is safe and brings about a quicker return to routine life with less complications, and shorter operating duration. The discernment additionally exists in numerous quarters that laparoscopic appendectomy has minimal focal points and may not worth the trouble. [10]

As there is no consensus between both procedures that which one is better so both are still being practiced actively despite randomized trials and metaanalysis. This area of debate still needs further comparisons. Moreover, there are few analysis have been done in third-world countries where laparoscopic surgery has not been established completely. Keeping this scenario in mind, this prospective comparative analysis was conducted to compare the postoperative outcomes of both techniques in clinically diagnosed acute appendicitis. Total operative duration in this study was significantly prolonged in LA group 36.8 ± 22.3 minutes than in the OA group 28.9 ± 18.3 which was measured as actual skin-to-skin time. Our finding is similar to other studies showing the similar results.<sup>2,3,7</sup> This may be because of additional steps of procedure like insufflation, and insertion of ports under direct vision in laparoscopic surgery and

diagnostic laparoscopy. Laparoscopic working time ought to improve with expanding experience. A longer operation time brings about greater expenses that can be remunerated by short hospital stay. Various other randomized studies [2-4, 11-13] suggested this advantage by demonstrating enhanced recovery time and activity, while other studies have disprove this benefit. [7,14]

Duration of hospitalization is significant variable that straightforwardly impacts the economy and prosperity of the patient. Our study shows a significant less duration of hospital stay 1.1±0.3 days in the LA group as compared to that in OA group 3.2±0.6. Our outcomes are steady with those of early publications [15] just as ongoing studies [16] that show an essentially short duration of hospitalization. Some studies<sup>8</sup> show no huge distinction between the 2 groups. Longer duration of hospitalization remain in different European studies [3,12] could be the outcome of various social standards and insurance level<sup>5</sup>. A few authors contend that the appendiceal pathology was a significant determinant of length of hospitalization; however, in our study appendiceal pathologies were comparative in the two gatherings, and the short clinic stay is probably going to be because of utilization of an alternate surgical modality.

In this study, mean time to full recovery, ie, time to resumption of work, was 3.2±2.1 days in the LA group and 6.3±1.2 days in OA group. Our results is comparable with a similar analysis by Hellberg et al<sup>3</sup> that exhibit median duration to full recovery as 13 days in LA group and 21days in the OA group and other randomized clinical trials and meta-analysis.

[11] However, other studies [14,16,19] show no distinction with respect to returning to daily activities and time to full recovery.

For the most part, there are more desires to continue work earlier after appendectomy, particularly after LA. These desires bode well, in light of the fact that laparoscopic methods being minimally invasive ought to permit a short hospitalization, faster recuperation, and early resumption of work. We utilized the return to work as an end point, in light of the fact that in our populace bunch there was very little business heterogeneity and contribution of insurance.

### CONCLUSION:

This study has concluded that LA is a safe and beneficial operative procedure. It provides various benefits over open appendectomy that includes short hospital stay, less demand for postoperative pain killers, early food tolerance, and earlier return to routine activities. Where feasible, laparoscopy should be undertaken as the initial procedure of choice for most cases of suspected appendicitis.

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