

# Impact of Acute Surgical Unit in Appendicectomy Outcomes

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## ABSTRACT

**Objective:** To determine the impact of acute surgical unit in appendicectomy outcomes in our hospital.

**Study Design:** Prospective / cross-sectional study

**Place and Duration of Study:** This study was conducted at the SMBB Medical College and Sindh Government Lyari General Hospital, Karachi from January 2017 to December 2017.

**Materials and Methods:** The sample size of study was 100 taking prevalence to 32.5%. All patients with Age > 18 yrs, patients presenting with signs and symptoms of appendicitis in outpatient or emergency department were included. Patients with going home against advice and bleeding disorders were excluded.

**Results:** Out of 100 patients enrolled in study there were 45% males and 55% females. The mean age was  $36.9 \pm 9.67$  years. Patients were shifted from emergency to theatre in  $6.91 \pm 1.22$  hours, while the mean duration of hospital stay of patients was  $2.95 \pm 0.75$  days. The complication rate in our study was 18%. Only 10% patients presented with negative appendicectomy.

**Conclusion:** Acute surgical unit is associated with decreased patients' morbidity due to early appendicectomy with decreased length of stay and postoperative complication.

**Key Words:** Appendicitis, Acute Surgical Unit, Outcomes

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## INTRODUCTION

Appendicitis is a surgical emergency requiring hospital admission and ultimately surgery in 300,000 patients every year in US<sup>1,2</sup>. In 2015 around 11.6 million cases have occurred with around 50100 deaths reported<sup>1-3</sup>. In Pakistan studies have shown 37% incidence of appendicitis, around 22%-37% requiring appendectomy and postoperative complications developing in 33% patients<sup>4,5</sup>.

Appendectomy is standard treatment and gives rise to complications if not operated with 3% developing complication in unruptured cases and 59% in case of rupture<sup>4,6</sup>. Laparoscopic appendicectomy have been favored over the open method in terms of lesser complications, shorter hospital stay, decreased admission duration which then impacts quality of life of patients with early resumption of normal activities<sup>6-10</sup>. Different studies have been done to determine outcomes of meta-analysis. Balasubramanian et al has compared 14 comparative studies and found that acute surgical units reduce chances of complications and improves quality of care<sup>7</sup>.

Kinnear et al has also compared acute surgical unit with traditional units improved ER to OT referral time of 19.4 vs 17.9 hrs, length of stay of 2.32 to 2.06 days<sup>8</sup>. Qayyum et al has found 25% patients undergoing open appendectomy out of 26% presenting with appendicitis<sup>9</sup>. Another retrospective study by Raja et al found reversion to open appendicectomy in 3.31%, 3.9% readmissions, complications rate of 1.3%, 20-72% discharges in < 24 hours<sup>10</sup>.

The aim of the study was to determine impact of acute surgical unit in appendicectomy outcomes in our society in order to improve and decrease patient's quality of health care as well as lesser hospital stay.

## MATERIALS AND METHODS

This study is a prospective cross-sectional study conducted in SMBB Medical College Lyari and Sindh Government Lyari General Hospital, Karachi from January 2017 to December 2017. Informed consent was taken from patients or next of kin after approval from ethical committee board. The sample size of study was 100 taking prevalence to 32.5%. All patients with Age > 18 yrs, patients presenting with signs and symptoms of appendicitis in outpatient or emergency department were included. Patients with going home against advice and bleeding disorders were excluded. After admission relevant history and examination as done. The laboratory test included polymorphonuclear count, urine detailed report and ultrasound scanning and computed tomography. Finally the surgery is been performed.

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The findings at operation were uniformly described on a data collection form. All excised specimens were sent for histopathologic examination. They were reviewed by one of the authors, who were aware of the surgeon's preoperative judgment of the diagnosis or the primary pathologic report.

Patients time of arrival and operation time shift, length of hospital stay, complications rates, and ICU admissions were addressed.

Data was analyzed by statistical software package SPSS version 20.0. Continuous variable that is patient's age were expressed as mean  $\pm$  SD. Qualitative variables will be expressed as frequencies and percentages.

## RESULTS

Out of 100 patients enrolled in study there were 45% males and 55% females. The mean age was  $36.9 \pm 9.67$  years (table 1). Patients enrolled were mostly in young age with incidence nearly equal in both males and females.

Patients were shifted from emergency to theatre in  $6.91 \pm 1.22$  hours compared to patients shifted from emergency to ward and then operation theatre. The mean duration of hospital stay of patients was  $2.95 \pm 0.75$  days. The duration was lesser in patients undergoing laparoscopic appendectomy compared to open appendectomy. The complication rate in our study was 18% due to late presentations of patients with peritonitis patients requiring open laparotomy. Only 10% patients presented with negative appendectomy and were found to have ovarian cyst 6%, ureteric stone 4%. The number of patients readmitted within <48 hours were n=6 patients. Overall there was no mortality reported in our study.

**Table No.1: Patients mean age**

Variables	Mean $\pm$ SD Frequency (percentages)
1. Age in years	$36.9 \pm 9.67$ years
2. Referral to OT in hours	$6.91 \pm 1.22$ hours
3. Length of stay in hospital in days	$2.95 \pm 0.75$ days
4. Postoperative complication	18%
5. Negative appendectomy	10%

## DISCUSSION

The acute surgical unit's concept aroused due to need for blunt and penetrating trauma surgeries which needs urgent surgeries and intervention<sup>1, 2, 10-12</sup>. Emergency management has faced crisis in terms of non availability of surgeons, overcrowding, delays, delivering critical care, timely surgical evaluation by Surgeons and has led to arousal of acute surgical unit. Emergency departments unfortunately suffer increased difficulties with arrangement of surgeon's coverage on

call. The AHA survey of emergency services conducted a survey on availability of on call and thus found increased difficulty in arranging surgeons<sup>10-12</sup>. Studies have shown that with availability of acute surgical units rates of night time appendectomy and improved negative appendectomy rates.

In our study the mean age of patient was middle aged 36-37yrs. However different studies have also found similar incidences of age however on contrary to our report in which females were greater than males. Earley et al has found difference in age of patients presenting and treated by acute surgical group and the ones compared with urgent appendectomy<sup>12</sup>.

Overall decreased length of stay, decreased rates of complications have been reported by the patients underwent early appendectomy. In our study the patient's average time of shifting to operation theatre was decreased, thus decreased hospital stay have been found in patients treated by early surgical unit. Allaway et al has found statistically significant results (p value <0.001) with reduction night time surgery, similar complications rates and significant decrease in hospital stay when compared with established acute surgical unit. Different meta-analysis comparing 14 studies found statistically significant difference in decreased hospital stay, complication rates, perforation rates<sup>6, 10-12</sup>. Waqar et al has found higher rate of complication of around 48% with 30% perforation in patients presenting with acute appendicitis and doesn't seek medical attention.<sup>13</sup> Another study by Asad et al reported 23% complications rate of appendicitis misdiagnosed by physicians and thus delays in urgent medical care results in increased morbidity<sup>14</sup>.

## CONCLUSION

Acute surgical unit is associated with decreased patients morbidity due to early appendectomy with decreased length of stay and postoperative complication.

### Author's Contribution:

Concept & Design of Study: Ameer Ali Khaskeli  
 Drafting: Ishak Soomro  
 Data Analysis: Farhat Bano, Feroz Mahar  
 Revisiting Critically: Ameer Ali Khaskeli, Ishak Soomro  
 Final Approval of version: Ameer Ali Khaskeli

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

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