



# Laparoscopic Appendectomy in Common Surgical Practice and Our Experience in a Tertiary Level Hospital in Bangladesh



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## Abstract

**Background:** In the very recent years, laparoscopic appendectomy is widely accepted for the surgical procedure of acute appendicitis. It is not clear whether laparoscopic appendectomy is more appropriate in terms of complications, post-surgical pain, conversion rate and duration of hospital staying. Though, the application of laparoscopic technique for appendectomy is expanding very rapidly and now performed in almost all major cities and tertiary level hospitals in our country, but in our surgical practice, the reports are scanty and conflicting.

**Objective:** To assess the operative profile of laparoscopic appendectomy in common surgical setup.

**Methodology:** 93 patients of laparoscopic appendectomy for clinically diagnosed acute appendicitis were included in this prospective study on the basis of convenient purposive sampling from a period of 01.04.16 to 30.08.17 in BIRDEM General Hospital, Dhaka, Bangladesh.

**Result:** The results of this study suggest that 65.6% cases were male and 34.4% patients were female. In male group, most of the patients (40.9%) were in 20-30 years of age group, whereas among the female patients it was 22.6%. Out of total 93 clinically diagnosed cases of acute appendicitis, the prevalence rates of negative laparoscopy and open conversion were 6.5% and 9.7% respectively. Average pain following appendectomy falls gradually and after 24 to 36 hours, it is usually below 2 using pain scale. In this study, bleeding from port site was the most frequently observed complication (4.3%) and the prevalence rate of port site infection was 2.1%. Visceral bleeding & injury, subcutaneous emphysema, mortality rate were found to be nil. And approximately 87.1% patients were discharged following laparoscopic appendectomy within 72 hours.

**Conclusion:** Laparoscopic appendectomy is a relatively safe and resilient procedure for acute appendicitis in terms of operative complications, postoperative pain, conversion rate and duration of hospital staying.

**Keywords:** Laparoscopic appendectomy; Outcomes; Complications; Open conversion rate; Postoperative pain; Duration of hospital staying; Negative laparoscopy

## Introduction

The laparoscopic surgery technique has rapidly spread because of its several advantages over conventional open surgery. The diminishment of postoperative pain provided positive human impact, and the reduction of length of hospital stay as well as the earlier return to work generated a positive socioeconomic impact. However, despite being minimal invasive this surgical method, postoperative complications and open conversion cannot be disregarded [1].

Acute appendicitis is the most common indication for abdominal surgery with a life-time incidence between 7 to 9

percent [1,2]. Appendectomy is one of the operations which are most commonly performed by the general surgeons. Open appendectomy (OA) has been the gold standard for the treatment of acute appendicitis since its introduction by Burney [3]. Unfortunately the diagnosis of acute appendicitis is often difficult, mainly clinical and always challenging. An accepted negative appendectomy rate for presumed appendicitis ranges from 15% to 20%, even higher in women of childbearing age (20% to 30%) [4,5].

Laparoscopic appendectomy (LA) has evolved since the first performed by a German Gynaecologist Semm [6].

Laparoscopic appendectomy has gained acceptance as a diagnostic and treatment method for acute appendicitis with the technological advances of the past two to three decades. Since then, this procedure has been widely used. In spite of its wide acceptance, there remains a continuing controversy in the literature regarding the most appropriate way of removing the inflamed appendix because of a set of new operative complications relating to laparoscopic surgery [5,6].

Minimal access surgery has been proved to be a useful surgical technique. The application of the recent technology and skills can now provide a better and a cheaper choice of treatment. Despite a lot of randomized trials which have compared laparoscopic and open appendectomy, the indications for laparoscopy in patients with suspected appendicitis remains controversial and clinical trials comparing LA versus OA, a consensus concerning the relative advantages of each procedure has not yet been reached [3,7-9]. The present study was designed to assess the operative complications, postoperative pain, conversion rate and duration of hospital staying of laparoscopic appendectomy in our surgical practice.

**Material and Methods**

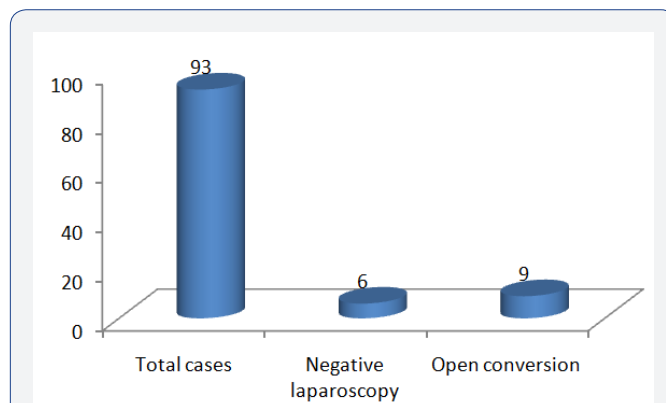
This prospective study was carried out in Department of Surgery of BIRDEM General Hospital, Dhaka, Bangladesh from 01.04.16 to 30.08.17 with the patients of laparoscopic appendectomy for acute appendicitis. Respective patients of 16-60 years age group with ASA I, II or III included as study population. Different pathology (for which operation was done), BMI, co-morbidity were confounding variable here. Patients with congenital anomaly and morbid obesity were excluded from study population. Convenient purposive sampling was used as the sampling technique. Data were processed, presented in tabulated form and discussed with compare & comparison on the basis of statistical analysis.

**Results**

The age and sex distribution of the study population is presented in Table 1 which suggest that majority of the patients (65.6%) were male (61). Mean±SD of age was 22±1.5 and 20±1.5 in case of male and female patients respectively (Table 1).

**Table 1:** Age and sex distribution of study population.

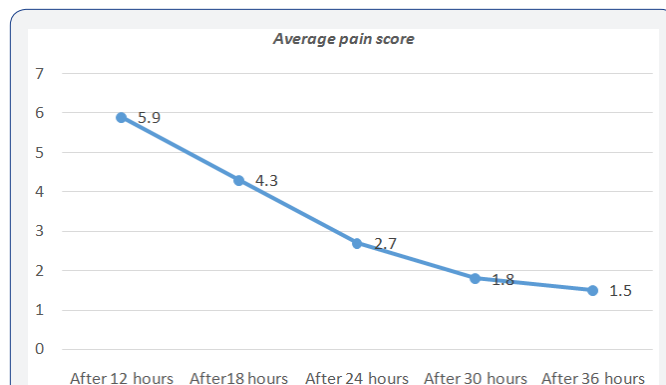
Age in Years	Male	%	Mean±SD	Female	%	Mean±SD
<20	11	11.8	22±1.5	6	6.5	20±1.5
20-30	38	40.9		21	22.6	
31-40	07	7.5		04	4.3	
41-50	02	2.2		01	1.1	
51-60	03	3.2		00	00	
Total	61	65.6		32	34.4	



**Figure 1:** Negative laparoscopy and conversion to open surgery.

Figure 1 suggests that out of total 93 clinically diagnosed cases of acute appendicitis, in case of 06(6.5%) patients, laparoscopic findings were negative for the diagnosis of acute appendicitis and in case of 09(9.7%) patients, conversion to open surgery was required.

The findings of this prospective study suggest that postoperative pain on an average falls gradually (Figure 2) and after 24 to 36 hours, it is usually below 2 (using pain scale: 00 to 10, where 00 reflects no pain and 10 signify severe intractable pain).



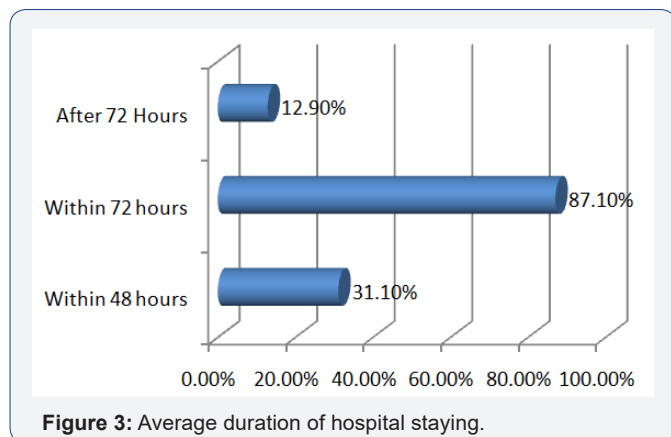
**Figure 2:** Average post-surgical pain (using pain scale- 00 to 10).

**Table 2:** Complications of laparoscopic appendectomy.

Complications	n	%
Port site bleeding	2	4.3
Visceral bleeding	0	0
Visceral bleeding	0	0
Port site infection	1	2.1
Subcutaneous emphysema	0	0
Mortality	0	0

Port site bleeding was found to be the most frequent complication (4.3%) in the study followed by port site infection (2.1%). Other complications like visceral bleeding & injury, subcutaneous emphysema, mortality rate were nil (Table 2).

The result of this study suggests that about 31.1% cases, discharge was given with 48 hours of surgery. In majority of cases (approximately 87.1%), patients were discharge from the hospital following laparoscopic appendectomy within 72 hours whereas only 12.9% patients required hospitalization after 72 hours (Figure 3).



**Figure 3:** Average duration of hospital staying.

### Discussion

Laparoscopic Appendectomy (LA) is relatively a new procedure as compared to laparoscopic Cholecystectomy (LC). A lot of analysis being performed throughout the world regarding laparoscopic versus open appendectomy. Unlike LC, LA has not universally accepted as “Gold standard” because of controversy regarding exact benefit. Despite the high success rate of conventional appendectomy, the most important drawback is negative appendectomy rate, still in the range of 20% to 30% [10,11].

In this study, among total 93 patients of laparoscopic appendectomy, 65.6% cases were male and 34.4% patients were female. In male group, most of the patients (40.9%) were in 20-30 years of age group followed by 11.8% were in <20 years age group, whereas among the female patients it was 22.6% and 4.3% respectively. Mean±SD of age was 22±1.5 and 20±1.5 in case of male and female patients respectively (Table 1). Out of total 93 clinically diagnosed cases of acute appendicitis, in case of 06 patients, laparoscopic findings were negative for the diagnosis of acute appendicitis and in case of 09 patients, conversion to open surgery was required. The prevalence rates of negative laparoscopy and open conversion were 6.5% and 9.7% respectively (Figure 1). Open conversion is not always due to a complication rather most often it reflects the good & judicious judgement of the operating surgeon.

Average postoperative pain falls gradually (Figure 2) and after 24 to 36 hours, it is usually below 2 (using pain scale: 00

to 10, where 00 reflects no pain and 10 signify severe intractable pain). Maximum pain was observed at 12 hours (average pain score approximately 5.9) and it was minimum after 36 hours (average pain score approximately 1.5).

In this study, port site haemorrhage was frequently observed complication (4.3%) followed by port site infection (2.1%). The prevalence of visceral bleeding & injury, subcutaneous emphysema, mortality rate were recorded to be nil (Table 2). Most of the patients (87.1%) were discharge following laparoscopic appendectomy within 72 hours whereas only 12.9% patients required hospitalization after 72 hours (Figure 3). Most often discharge was delayed in the remaining cases due to postoperative complications and co-morbidities.

### Conclusion

Laparoscopic appendectomy is a relatively safe and resilient procedure for acute appendicitis in terms of operative complications, postoperative pain, conversion rate and duration of hospital staying.

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