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Laparoscopic versus Open Appendicectomy in a District Hospital

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Abstract

Introduction*: Appendicitis is one of the most common clinical conditions requiring surgical intervention in day-to-day practice, which is indicated for both acute appendicitis and recurrent acute appendicitis. Appendicectomy can be performed using several surgical techniques like laparotomy (open), laparoscopic appendicectomy.* ***Materials and Methods:*** *We have done 110 cases in one year from July 2019 to June 2020.* ***Results:*** *Out of the 110 patients, 42 (38%) underwent laparoscopic surgery and 68 (62%) open appendicectomy.* ***Conclusion:*** *Female are predominant than male patients. Postoperative hospital stay, postoperative complications like wound infections are much less in laparoscopic procedure. The acceptance of laparoscopic appendicectomy gradually increases among the surgeons as well as the patients.*

Keywords: *Laparoscopic, Appendicectomy.*

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Introduction:

Appendicitis, which is the inflammation of the appendix is one of the most common conditions requiring surgical intervention. Since time immemorial the technique of choice for appendicitis has been Open Appendicectomy as described by Charles McBurney[1] in the year1894 using Gridiron incision. It was only until 1983 that the concept of using Laparoscopy for the treatment of appendicitis was brought into light by a German gynaecologist Semm[2].

Aim: This is a study to compare the outcome of Open Appendicectomy and Laparoscopic Appendicectomy both complications and management.

Materials and Methods:

All (110 cases) patients with acute appendicitis or recurrent acute appendicitis admitted in district hospital and some of private hospitals in Khulna city in one year (July 2019 to June 2020) were included in this study.

Results:

Out of the 110 patients, 42 (38%) underwent laparoscopic surgery and 68 (62%) open appendicectomy, distributed by gender and age as shown in Table I. We found a relationship of man to women.

Table-I: Prevalence of age and sex.

Type of Appendicectomy	Age	Male	Female	M:F Ratio	Total
Laparoscopic	25±11	18	24	1:1.33	42
Open	27±10	30	38	1:1.27	68
Total	26±10.5	48	62	1:1.29	110

Most of the patients present with fever, abdominal pain, vomiting, tenderness in right iliac fossa, leukocytosis (Table II).

Table-II: Presentations (Clinical signs and symptoms).

Diseases	Laparoscopic Appendicectomy	Open Appendicectomy	Total
Fever	37	55	92 (84%)
Abdominal pain	42	68	110 (100%)
Vomiting	26	34	60 (55%)
Tenderness in RIF	42	68	110 (100%)
Leucocytosis	24	42	66 (60%)

The onset of postoperative oral feeding, it was earlier in laparoscopic appendicectomy, where 20 (48%) patients received oral diet introduced in the first 12 hours, while in open surgery, the oral intake was introduced in 36 (53%) patients after 24 hours (Table III).

Table-III: Time for the beginning of postoperative oral feeding.

Surgery	12 h	24h	48h	72h	96h
Laparoscopic appendicectomy	20	14	6	2	0
Open appendicectomy	0	36	24	6	2

Mean operative time in laparoscopic surgery was 30 to 60 minutes in most 32 patients (76%). Open surgery lasting 30 to 60 minutes were performed in 44 patients (65%), significantly less when compared with laparoscopic surgery (Table IV).

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Table- IV: Operative times (minutes).

Operations	30-60	61-90	90 - 120	>121	Total
Laparoscopic appendicectomy	32	7	3	0	42
Open appendicectomy	44	22	2	0	68

Most of the patients with Laparoscopic appendicectomy leave hospital within 2-3 days. Patients with open appendicectomy leave hospital on 5- 7 days.

Table- V: Hospital stays (days).

Operations	1-2	2 - 3	3-4	5 - 6	6-7
Laparoscopic appendicectomy	5	35	2	0	0
Open appendicectomy	0	0	24	32	12

Post-operative complications resulting from laparoscopic procedure occurred in 12 (2.8%) patients, 6 patients with wound infection. The remaining 6 patients who had complications were affected by urinary infection, internal haemorrhage, port site haemorrhage. Operative complications resulting from open procedure occurred in 15 (2.2%) patients. The surgical site infection was the most frequent complication, diagnosed in 10 patients, followed by urinary tract infection in 2 patients.

Table-VI: Post operative complications observed in patients undergoing laparoscopic and open appendicectomy.

Complications	Laparoscopic appendicectomy	Open appendicectomy
Wound infection	6	10
Urinary infection	1	2
Internal haemorrhage	1	0
Port site haemorrhage	2	0
Respiratory infection	2	2
Subcutaneous emphysema	0	1
Total	12(2.8%)	15(2.2%)

Discussion:

Appendicitis is one of the most common clinical conditions requiring surgical intervention in day-to-day practice, which is indicated for both acute appendicitis and recurrent acute appendicitis. Appendicectomy can be performed using several surgical techniques like laparotomy (open), laparoscopy, SILS (single incision laparoscopic surgery), transvaginal route. Of these open appendicectomy and laparoscopic appendicectomy are the more commonly being used techniques worldwide[3-4-5]. However, laparoscopic appendicectomy, a relatively easy procedure, has not gained wide acceptance among surgeons and the conventional technique remains the procedure of choice in many centers[3]. In our study the difference in the mean age group of patients undergoing laparoscopic appendicectomy and open appendicectomy was not statistically significant. There was a female predominance amongst patients with acute appendicitis in our study. There was also female predominance in another study done by Dr. Ramanuj Mukherjee et al[6]. Laparoscopic appendicectomy has largely supplanted the open technique[7]. This is because of the benefits of laparoscopic appendicectomy in respect of duration of postoperative hospital stay, shorter time of operative procedure, early recovery, less complications etc. In the present study, the duration of postoperative hospital stay for laparoscopic surgery was from 2 to 3 days in 35 patients (83.33%), and in open appendicectomy was 5 – 6 days in 32 patients (47%). The hospital stay in open appendicectomy is much more than laparoscopic procedure. Other studies showed the mean postoperative stay for an open appendicectomy has been 4.27+1.29 days compared with the 2.10+0.35 days recorded for laparoscopy[6]. The operating time for an open appendicectomy has been given as 30 to 60 minutes in 32(76%0 cases, as opposed to 30 to 60 minutes in 44(64%) cases for the laparoscopic procedure. Both perioperative and postoperative complications are thoroughly dealt with in most studies that have compared open and laparoscopic appendicectomy[8,9,10]. Usually, complications are classified as wound infection, urinary infection, internal haemorrhage, port site haemorrhage, respiratory infection, subcutaneous emphysema. Post-operative wound infection is more in open procedure. In case of children laparoscopic appendicectomy shows reduced complications[11]. Laparoscopic appendicectomy should remain an option in children with uncomplicated and complicated appendicitis[12]. Laparoscopic appendicectomy takes longer time than open procedure[13]. Laparoscopic appendicectomy has significant advantages over open appendectomy with respect to length of hospital stay, rate of routine discharge, and postoperative in-hospital morbidity[14]. Another study shows, unlike other minimally invasive procedures, laparoscopic appendicectomy did not offer a significant advantage over open appendicectomy[15]. It also took longer time to perform. The choice of the procedure should be based on surgeon or patient preference[16, 19]. A trend towards better physical activity was noted after the laparoscopic procedure[17,20]. Another review finds that laparoscopic surgery for suspected appendicitis has diagnostic and therapeutic advantages as compared to conventional surgery[18].

Conclusion:

Laparoscopic appendicectomy offers the greatest benefits to patients; it was associated with a lower rate of postoperative complications, feeding earlier and shorter average hospital stay than open appendicectomy. The operative procedures performed in government hospital were free of cost. The cost of laparoscopic appendicectomy was about the same as those of the open conventional procedure in private hospital. The difference in cost was attributable to the considerably shorter postoperative stay after the laparoscopic procedure.

Conflict of interest: None.

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