ISSN (Print): 2663-9491 ISSN (Online): 2789-6897

Original Article

Early Versus Interval Appendisectomy in Cases of Appendicular Mass Surgery

DOI: dx.doi.org

Eyakub Hossain[1*], Salim[2]

Received: 24 November 2024
Accepted: 30 November 2024
Published: 15 December 2024

Published by:
Gopalganj Medical College,
Gopalganj, Bangladesh

*Corresponding Author

This article is licensed under a Creative Commons Attribution 4.0 International License.

ABSTRACT

Introduction: *Acute appendicitis is one of the maximum not unusualplace surgical emergencies worldwide. An appendiceal mass is observed in about 10% of sufferers with acute appendicitis. Inflammatory loads are the end result of untreated appendicitis and may constitute a spectrum.* ***Objective:*** *To assess the early versus interval appendicectomy in cases of appendiceal mass hernia surgery.* ***Methods & Materials:*** *This hospital based prospective study includes 50 consecutive cases diagnosed with appendicular mass admitted in Dept. of Surgery, Cox's Bazar Medical College Hospital, Cox's bazar, Bangladesh from January to December 2023.* ***Results:*** *Total 50 cases, the mean age of patients was 27.58 (SD 8.11) years ranging from 13 to 48 and majority of patients (50%) belonged to age group of 21-30 years. There was male preponderance (70%) with male to female ratio of 2.33:1. In group I, the operative finding in majority (68%) of the patients was simple mass, 7 had adhesions and loculated pus in 1. In group II the operative finding in majority (54.5%) of the patients was a normal finding, 3 had simple mass, 5 had adhesions, 1 had loculated pus and adhesive intestinal obstruction in 1. Abdominal pain was the most common symptom presented by patients. There are no significant differences in operative problems between the two treatment methods reviewed here.* ***Conclusion:*** *In conclusion, low morbidity, short hospital stay, low cost, and patient compliance argue for surgical treatment of appendicular mass by experienced surgeons, thus making unnecessary the traditional practice of conservative treatment followed by interval appendectomy.*

Keywords: *Appendicular Mass, Interval Appendicectomy, Ochsner Sherren Regimen, Early Appendicectomy*

(The Insight 2024; 7(1): 233-239)

1. *Associate Professor, Dept. of Surgery, Cox's Bazar Medical College, Cox's Bazar, Bangladesh*
2. *Associate professor, Dept. of Surgery, Rangamati Medical College, Rangamati, Bangladesh*

INTRODUCTION

Acute appendicitis is one of the most common surgical emergencies worldwide. An appendiceal mass is found in approximately 10% of patients with acute appendicitis[1]. Inflammatory masses are the result of untreated appendicitis and can represent a range of conditions from cellulitis (a collection of inflamed appendix, adjacent viscera, and omentum) to periappendiceal abscess[2]. An appendiceal mass is a site of infection that develops 3 to 5 days after an acute attack of appendicitis. This inflammatory mass consists of an inflamed appendix, omentum, and intestinal loops. The treatment of appendiceal tumors is controversial. Traditionally, these patients are treated conservatively with interval appendectomy after 4-6 weeks (Ochsner-Scheren therapy), as early appendectomy in these cases is considered risky, time-consuming, and may lead to life-threatening complications such as fecal fistula. Treatment of appendiceal tumors and abscesses is either surgical or conservative. More evidence is needed to determine which approach is superior[3]. Immediate appendectomy can be technically challenging due to distorted anatomy and the difficulty in closing the appendix stump due to tissue inflammation. According to the above, surgery may be completed with colectomy (ileectomy or right hemicolectomy)[4-6]. Surgical treatment of appendiceal tumors remains controversial. The first non-surgical treatment, introduced in 1901 by Ochsner[7], has been established for many years. This approach includes intravenous fluids and administration of broad-spectrum antibiotics. Non-surgical treatment of appendiceal tumors requires continuous evaluation of the patient's progress. Appendiceal abscesses should be drained during follow-up. Elective appendectomy is recommended after the appendix mass has dissolved. An interval of approximately 4-8 weeks is usually recommended. Early surgical intervention is considered an effective alternative to prolonged conservative treatment, as it significantly shortens the overall length of hospital stay and eliminates the need for re-admission. There is indeed controversy regarding the best approach to this problem, and it is clear that opinions are divided regarding the treatment of appendiceal masses. The aim of this study is to evaluate the feasibility and safety of immediate appendectomy for appendiceal tumors in our institution by comparing the outcomes of a similar number of patients who underwent conservative treatment.

METHODS AND MATERIALS

This hospital based prospective study includes 50 consecutive cases diagnosed with appendicular mass admitted in Dept. of Surgery, Cox's Bazar Medical College Hospital, Cox's bazar, Bangladesh from January to December 2023.

Inclusion Criteria:

1. Patients admitted with signs and symptoms of appendicular mass during the study period.

2. Patients diagnosed with appendicular mass during surgery for acute appendicitis.

Exclusion Criteria:

1. Pregnant patients.
2. Patients not fit for surgery.
3. Patients with signs of diffuse peritonitis.

Collection of Data: A detailed medical history and clinical examination were taken. Complete blood count, urinalysis, urea and electrolytes tests, plain abdominal radiographs, abdominal ultrasound and other tests were done as per the patient's requirement. The patients were randomly divided into two groups of 30 patients. In group I, early appendisectomy was performed within 24 hours of admission. Preoperative preparation included ensuring that the patient did not take anything by mouth, adequate parenteral fluids to maintain fluid and electrolyte balance, as well as antibiotics and painkillers were administered. In some cases, the drain was left in place and the sutures were removed after 48 hours, and on the 7th postoperative day. Most of the operated patients recovered without complications. The postoperative period was monitored. Intake and output charts and vital charts were maintained. In group II, a conservative approach according to the Ochsner-Sherren scheme was chosen, followed by interval appendectomy after 6-8 weeks. 4,444 patients in both study groups were discharged as soon as possible, and the duration of hospital stay and the number of days of antibiotic and analgesic use were recorded. No deaths were detected in either group. Patients were followed up for different periods of time. Complete records of all patients were kept in forms created for this purpose. Statistical comparison of the results between the two groups was performed using Fisher's exact test and t-test.

RESULTS

Total 50 cases, the mean age of patients was 27.58 (SD 8.11) years ranging from 13 to 48 and majority of patients (50%) belonged to age group of 21-30 years. There was male preponderance (70%) with male to female ratio of 2.33:1 **(Table I & Figure 1).**

Table – I: Demographic Profile of Patients in Present Study (*n*=50)

Age Group	Sex		Total (%)
	Male	Female	
< 20	9	1	10 (20)
21-30	15	10	25 (50)
31-40	9	3	12 (24)
>40	2	1	3 (6)
Total	35 (70)	15 (30)	50 (100)

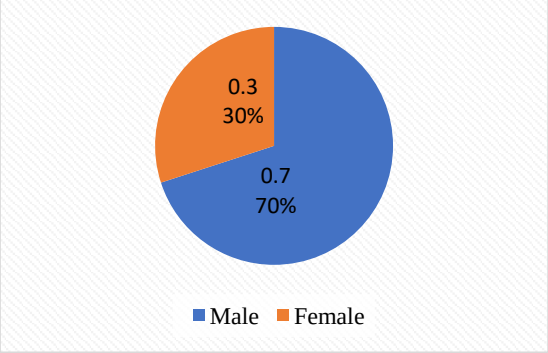

Figure – 1: Sex Distribution of the Study Patients

Table II shows symptomatology among the study population. Pain Abdomen 50 (100%), Anorexia 46 (92%), Nausea/Vomiting 40 (80%), Fever 30 (60%), Altered Bowel Habits 5 (10%) and Abdominal Distension 1 (2%).

Table – II: Symptomatology (*n*=50)

Symptoms	No. Of Cases	Percentage
Pain Abdomen	50	100
Anorexia	46	92
Nausea / Vomiting	40	80
Fever	30	60
Altered Bowel Habits	05	10
Abdominal Distension	01	2

In group I, the operative finding in majority (68%) of the patients was simple mass, 7 had adhesions and loculated pus in 1. In group II the operative finding in majority (54.5%) of the patients was a normal finding, 3 had simple mass, 5 had adhesions, 1 had loculated pus and adhesive intestinal obstruction in 1 (**Table III**).

Table – III: Operative Findings (*n*=50)

Operative Findings	Type Of Treatment	
	Group I	Group II
Simple mass	17	3
Adhesions	7	5
Loculated Pus	1	1
Adhesive Intestinal Obstruction	0	1
Normal	0	12
Total	25	22

In our study, the major (16%) operative problem in group I patients was difficulty in localization of appendix. The major (16%) operative problem in group II patients also was difficulty in localization of appendix. Fisher's exact test was applied and the p value was found to be >0.05 which is insignificant **(Table-IV).**

Table IV: Operative Difficulties (n=50)

Operative Difficulties	Type of Treatment	
	Group I	Group II
Difficulty in Localization of Appendix	4	4
Difficulty in adhesiolysis	2	3
Minor Trauma to Bowel	1	2
Minor Bleeding	1	0
Total	8	9

In our study, the major (8%) complication in group I patients was wound infection and the overall rate of complication was 12%. The major (12%) complication in group II patients was failure of treatment and lost follow up and the overall rate of complication was 48%. One patient in group I developed a fecal fistula and was successfully treated conservatively. Four patients in group II failed conservative treatment and had to undergo emergency surgery in difficult situations. One of the four patients had adhesive ileus and underwent

laparotomy, adhesiolysis, and appendectomy and recovered postoperatively without complications. Another four patients managed successfully by Oschner Sherren regime did not return for interval appendicectomy and their fate is unknown. Fisher's exact test was applied and the p value was found to be >0.05(insignificant) while comparing individual complications but the p-value was <0.05 (significant) when the overall complication rates between the two groups was compared **(Table-V).**

Table V: Comparison of Complications (n=50)

Complications	Group I	Group II
Wound Infection	2 (8%)	1 (4)
Faecal Fistula	1 (4%)	-
Failure of Treatment	-	4 (16)
Lost Follow Up	-	4 (16)
Respiratory Tract Infection		2 (8)
Adhesive Intestinal Obstruction	0-	1 (4)
Total	3 (12%)	12 (48)

In this study, the majority (64%) of group I patients had total duration of hospital stay for </= 5 days and the mean duration of hospital stay was 5.3 days in this group. Whereas in group II only 4% of patients had total duration of hospital stay for </= 5 days and the mean duration of hospital stay was 8.5 days in them. t test was applied and the p value was calculated to be<0.05 which is significant (**Table-VI**).

Table VI: Duration of Hospital Stay (n=50)

Duration Of Hospital Stay	Group I	Group II
< 5 Days	16 (64%)	1 (4%)
6 – 8 Days	8 (32%)	12 (48%)
> 8 Days	1 (4%)	12 (48%)
Mean	5.3 days	8.5 days
SD	2.409035	1.943158
SE	0.4398276	03547704
95 % C.I.	4.400452- 6.199548	7.774413 – 9.225587

SD: Standard Deviation; SE: Standard Error; C.I.: Confidence Interval

DISCUSSION

There are three main treatments for appendiceal tumors initial conservative treatment followed by interval appendectomy[8], immediate appendectomy at the time of presentation, and a fully conservative approach without interval appendectomy. Each treatment has several advantages and disadvantages. Currently, most surgeons prefer conservative treatment of appendiceal tumors with or without interval appendectomy. Patients are treated with broad-spectrum antibiotics at presentation. Interval appendectomy is usually performed 4 to 8 weeks after resolution of the inflammatory mass.

Appendiceal tumors have an abscess component and may heal without surgery in 42-86% of cases[9-12]. If a peri appendiceal abscess does not heal despite antibiotic treatment, drainage may be necessary. Conservative treatment may fail in 10-20% of patients[13]. Persistent fever, tachycardia, signs of peritoneal inflammation, and elevated white blood cell count during conservative treatment may suggest surgery. Other ileocecal pathologies besides appendicitis are also considered, including: Some diseases, such as appendiceal malignancies and ileocecal tuberculosis, may not be diagnosed in patients treated conservatively. Recurrence of appendicitis and increased hospitalization costs are also disadvantages of the conservative approach. In our study of 50 cases, the mean age of the patients was 27.58 years (SD 8.11), with a range of 13-48 years, and the majority of patients (50%) were in the age group of 21-30 years. There was a predominance of men (70%), with a male-to-female ratio of 2.33:1. In patients in whom appendicitis is suspected because of a palpable mass or long-lasting symptoms, the diagnosis should be confirmed by imaging, especially a CT scan. The patient should receive primary nonsurgical treatment with antibiotics and abscess drainage as needed. In our study, in group I, the operative finding in majority (68%) of the patients was simple mass, 7 had adhesions and loculated pus in 1. In group II the operative finding in majority (54.5%) of the patients was a normal finding, 3 had simple mass, 5 had adhesions, 1 had loculated pus and adhesive intestinal obstruction in 1. ***Malik Arshad, et al.*** had simple mass in 72.0%[14], perforated appendix in 8.0%, loculated pus in 8%, abscess in 4.0%, Adhesions in 6.0%, in group I. In group II they had simple massin 24.0% and adhesions in 76.0%. ***Samuel M et al.*** had abscessin 80.0%, adhesionsin 82.0%, in group II[15]. In group I, abscess and adhesions were seen in all the cases. In this study, the majority (64%) of group I patients had total duration of hospital stay for </= 5 days and the mean duration of hospital stay was 5.3 days in this group. Whereas in group II only 4% of patients had total duration of hospital stay for </= 5 days and the mean duration of hospital stay was 8.5 days in them. t test was applied and the p value was calculated to be<0.05 which is significant. Relative contraindications include: Severe abdominal distension that impairs visibility during surgery or complicates abdominal access or bowel manipulation Generalized peritonitis Multiple previous surgical procedures Patients with cellulitis or small abscesses: After intravenous (IV) antibiotic treatment, interval appendectomy can be performed 4 to 6 weeks later Patients with larger, well-defined abscesses: After percutaneous drainage with IV antibiotics, patients can be discharged with the catheter in place. There was a significant difference in complications between the two groups, with more complications occurring in the group of patients who underwent interval appendectomy after Ochsner-Scheren therapy, and therefore higher morbidity. The duration of parenteral drug administration was

longer in group II than in group I, with statistical significance. The total length of hospital stay was longer for group II patients compared to group I, which increased the economic burden on the patients.

CONCLUSION

The low morbidity, short hospital stay, low cost, and patient compliance make surgical treatment of appendiceal tumors by experienced surgeons unnecessary, making the traditional practice of conservative treatment followed by interval appendectomy unnecessary. Early appendectomy avoids the need for rehospitalization and minimizes overall costs, as curative treatment is provided during the initial hospital stay. Early appendectomy can also avoid the consequences of misdiagnosis and treatment of other surgical conditions. Early appendectomy for appendiceal tumors is safer due to improved surgical techniques and improved postoperative care.

Funding

This research was funded by the authors themselves.

Conflict of Interest

The authors declare no conflict of interest.

REFERENCES

1. *Jordan JS, Kovalcik PJ, Schwab CW: Appendicitis with a palpable mass. Ann Surg. 1981; 193:227-9.*
2. *Tingstedt B, Bexe-Lindskog E, Ekelund M, Andersson R. Management of appendiceal masses. Eur J Surg. 2002; 168(11):579–82.*
3. *Tannoury J, Abboud B. Treatment options of inflammatory appendiceal masses in adults. World J Gastroenterol. 2013;19(25):3942–3950.*
4. *Kim JK, Ryoo S, Oh HK, Kim JS, Shin R, Choe EK. Management of appendicitis presenting with abscess or mass. J Korean Soc Coloproctol. 2010;26(6):413–419.*
5. *Lane JS, Schmit PJ, Chandler CF, Bennion RS, Thompson JE., Jr Ileocecectomy is definitive treatment for advanced appendicitis. Am Surg. 2001;67(12):1117–1122.*
6. *Kaya B, Sana B, Eris C, Kutanis R. Immediate appendectomy for appendiceal mass. Ulus Travma Acil Cerrahi Derg. 2012;18(1):71–74.*
7. *Erdogan D, Karaman I, Narci A, Karaman A, Cavuşoğlu YH, Aslan MK, et al. Comparison of two methods for the management of appendicular mass in children. PediatrSurg Int. 2005; 21(2):81–3.*
8. *Garba ES, Ahmed A. Management of appendiceal mass. Ann Afr Med. 2008; 7:200-4.*
9. *Bagi P, Dueholm S. Nonoperative management of the ultrasonically evaluated appendiceal mass. Surgery. 1987; 101:602- 5.*
10. *Befeler D. Recurrent appendicitis. Incidence and prophylaxis. Arch Surg. 1964; 89:666-8.*
11. *Vargas HI, Averbook A, Stamos MJ. Appendiceal mass: conservative therapy followed by interval laparoscopic appendectomy. Am Surg. 1994; 60:753-8.*
12. *Yamini D, Vargas H, Bongard F, Klein S, Stamos MJ. Perforated appendicitis: is it truly a surgical urgency? Am Surg. 1998;64:970-5*
13. *Meshikhes AW. Management of appendiceal mass: controversial issues revisited. J Gastrointest Surg. 2008; 12:767-75.*
14. *Malik Arshad, Laghari A. Aziz, MallahQasim, K. AltafHussain Talpur Early appendicectomy in appendicular mass—aLiaquat university hospital experience J Ayub Med Coll Abbottabad. 2008;20(1).*
15. *Samuel M, Hosie G, Holmes K. Prospective evaluation of nonsurgical versus surgical management of appendiceal mass. J Pediatr Surg. 2002 Jun;37(6):882-6.*