EARLY APPENDICECTOMY IN APPENDICULAR MASS—A LIAQUAT UNIVERSITY HOSPITAL EXPERIENCE

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Objectives: Appendicular mass is a well-known complication of acute appendicitis. It is conventionally treated conservatively followed by interval appendectomy. This study aimed to determine the feasibility and safety of an early appendectomy in these cases. **Study Design:** Descriptive and comparative. **Place and Duration:** Department of Surgery Liaquat University Hospital, Jamshoro/Hyderabad from March 2003 to December 2007. **Methods:** One hundred and seventy six (176) patients with appendicular mass were included in this study. Patients were conveniently divided into two groups, A and B with equal distribution of cases (88 Patients each), regardless of age and sex. Immediate appendicectomy was performed in group A patients after preliminary investigations, where as patients in group B were initially treated conservatively followed by interval appendicectomy. **Results:** A total 114 (64.8%) males and 62 (35.2%) females with a mean age of 25.09 years (Range 8–44 years) are included in the study population. Post-operative wound sepsis occurred in 17 (19.31%) patients in group A. Treatment failure, patient compliance, re-admission and overall expenses are main limitations in group B population. **Conclusion:** Early appendicectomy is a safe and superior option in patients with appendicular mass compared to conventional treatment.

Key Words: Acute appendicitis, Appendicular Mass. Conservative management. Early Surgery.

INTRODUCTION

Acute appendicitis remains the commonest cause of acute abdomen in teenagers requiring surgical intervention.[1] Patients presenting late in the course of acute appendicitis are complicated by the development of an inflammatory mass in right iliac fossa.[2] This inflammatory mass is composed of the inflamed appendix, omentum and bowel loops. The treatment of appendicular mass is controversial, however, there are several management options for appendicular mass.[2-5] Traditionally, these patients are managed conservatively followed by interval appendicectomy 4-6 weeks later, believing that an early appendicectomy in these cases is hazardous, time consuming and may lead to life threatening complications such as faecal fistula.[6,7] The need of interval appendicectomy has also been questioned.[8,9] Advocates of initial conservative approach claim lower rate of complications compared to early operative approach.[10] The studies favouring immediate appendicectomy claim an early recovery and complete cure during the same admission.[11–13] The present study was designed to evaluate the feasibility and safety of immediate appendicectomy in appendicular mass in our population by comparing the results of an equal number of patients treated conventionally.

PATIENTS AND METHODS

This descriptive comparative study is conducted at department of surgery, Liaquat University Hospital, Jamshoro/Hyderabad from March 2003 to December 2007. One hundred and seventy six patients with an appendicular mass were included in the study. On admission, all of these patients were clinically evaluated and subsequently investigated by blood chemistry, ultrasound of abdomen, urine analysis and plain x-ray of the abdomen. The patients were conveniently divided into group A and group B. Both treatment options were explained to every patient and a well informed consent was taken from each patient. The patients in Group A were operated within 24 hours of admission. Meanwhile, patients in group B were initially kept on conservative treatment comprising hospitalization with intravenous fluids, broad-spectrum antibiotics like Cefuroxime, Meteronidazole and analgesics. The progress of the mass was observed and the vitals were recorded regularly to monitor the response to conservative treatment. The patients in group B were discharged after complete resolution of the acute inflammatory mass and re-admitted after 6–8 weeks for interval appendectomy. The variables studied in both groups included operative difficulties, total operating time, operative and post-operative complications, total duration of hospital stay and patient compliance.

The data were evaluated through SPSS version 11.0. The Chi-square and Fisher's Exact Test was applied to carry out the results among the groups.

RESULTS

The study included 114 (64.8%) males and 62 (35.2%) females with a mean age of 25.09±8.45 year with a range of 8–44 years. The major clinical features included tenderness in the right iliac fossa, vomiting, palpable mass in right iliac fossa, anorexia and diarrhoea. Tachycardia and fever were other important signs observed. Eighty five percent of the patients had a leucocytosis of more than 12000/cmm, while a neutrophilia of >75% was

present in 90% cases. Ultrasound of abdomen detected a mass in right iliac fossa in 133 (75.56%) patients while remaining 43 (24.43%) cases were identified at operation. A simple mass, composed of inflamed appendix, caecum and bowel loops was found in 113 (64.20%) cases. The pattern of operative findings and operative problems differed significantly in both groups as shown in Table-1.

Interval appendicectomy needed lengthening of incision to overcome the difficulty in dissection due to firm adhesions in 12 (21.05%) patients. Pattern of post-operative complications in both groups is shown in Table-2.

The total operative time and post-operative hospital stay were significantly shorter in Group A patients as shown in Table-3.

The total hospital stay in group A patients included only one hospital admission compared to group B patients who were admitted twice Table-4.

Of the total patients treated conservatively, 57 (64.77%) were successfully operated after a period of 4–8 weeks. Seven patients refused interval appendicectomy and in 13 patients we had to stop the conservative treatment and to resort to operation because of deteriorating condition of the patients. Five of these patients had perforated appendix which led to spreading peritonitis. Eleven patients were lost to follow up and never returned for interval appendicectomy. Patients on conservative management remained hospitalized for 7–10 days during their first admission and for another 4–8 days after interval appendectomy.

Table-1: Per-operative findings in both groups

	Type of Treatment (n= 176)		χ^2 value	*p* value
	Immediate n(%)	Conservative n(%)		
Operative findings:				
Simple mass	64 (72.7%)	21 (23.9%)	94.142	<0.001*
Perforated appendix	8 (9.1%)	0		
Loculated pus collection	7 (8.0%)	0		
Appendicular abscess	4 (4.5%)	0		
Adhesions	5 (5.7%)	67 (76.1%)		
Operative Problems:				
Difficulty in localization of appendix	41 (46.6%)	52 (59.1%)	17.071	0.001*
Difficulty in adhenolysis	23 (26.1%)	32 (36.4%)		
Minor trauma to bowel	13 (14.8%)	2 (2.3%)		
Bleeding	11 (12.5%)	2 (2.3%)		

* *p* value is statistically highly significant

Table-2: Comparison of Post-Op Complications

Post-operative complications	Type of Treatment (n= 176)		χ^2 value	*p* value
	Immediate n(%)	Conservative n(%)		
Wound sepsis	14 (15.9%)	6 (6.8%)	5.679	0.12
Partial wound dehiscence	4 (4.5%)	2 (2.3%)		
Residual abscess	1 (1.1%)	0		
Not applicable	69 (78.4%)	80 (90.9%)		

Table-3: Comparison of total operative time

Total Operative time	Type of Treatment (n = 176)		χ^2 value	*p* value
	Immediate N(%)	Conservative n(%)		
30–60 Minutes	39 (44.3%)	14 (15.9%)	43.916	<0.001*
60–90 Minutes	42 (47.7%)	38 (43.2%)		
90–120 Minutes	3 (3.4%)	36 (40.9%)		
>120 Minutes	4 (4.5%)	0		

**p* value is statistically highly significant

Table-4:Post-operative Hospital Stay

Variable	Total Hospital Stay (n = 88)			χ^2 value	*p* value
	2–6 days n (%)	7–10 days n (%)	>2 weeks n (%)		
Hospital Stay before operation:				178.34	<0.001*
2–5 days	27 (37.0%)	3 (27.3%)	2 (50.0%)		
5–10 days	38 (52.1%)	7 (63.6%)	2 (50.0%)		
10–20 days	8 (11.0%)	1 (9.1%)	0		
Hospital stay after operation				103.04	<0.001*
2–5	6 (8.2%)	1 (9.1%)	0		
5–10	31 (42.5%)	10 (90.9%)	4 (100.0%)		
10–20	4 (5.5%)	0	0		
>3 weeks	1 (1.4%)	0	0		

**p* value is statistically highly significant

DISCUSSION

The treatment of appendicular mass is taking a turn from the traditional approach of initial conservative treatment followed by interval appendectomy to immediate appendectomy.[14,15] However this change is not widely accepted and a large number of surgeons still continue to adopt the same traditional conservative approach.[16] The early surgical intervention is known to be an effective alternate to conservative therapy for a long time as it considerably reduces the total hospital stay and obviates the need for a second admission.[17] This reduces the total expenses substantially. The conservative treatment comprises hospitalization, intravenous fluids, antibiotics, analgesics and a strict watch on the vitals and general state of the patient. In 10–20% of the cases, it proves un- successful and the patients need emergency operation due to spreading infection which is comparatively more difficult.[18,19] In addition, patient may suffer a recurrence of appendicitis after being discharged from the hospital.[20,21] A large number of patients refuse re-admission for operation once their acute problem is solved and this seems to be a major disadvantage of the initial conservative approach. Another disadvantage of the conservative management is the chance of mis-diagnosis as reported by Garg P, *et al*[15] claiming that conditions like intussusception and carcinoma caecum may be treated conservatively by mistake adding considerable morbidity. The early operation on the other hand has an edge of being curative in the index admission and ensures early return to work and higher compliance. It is obvious that a true

controversy exists as to the best approach towards this problem and the opinion is divided about the management of appendicular mass. Our study highlights the feasibility and effectiveness of early appendectomy in appendicular mass and the results are consistent with a number of similar studies[22,23] claiming early appendectomy to be a more appropriate and effective way of managing appendicular mass. Advantages of early appendectomy include a total curative treatment, shorter hospital stay, minimal morbidity, and patient compliance. The earlier belief that surgery is difficult in such a state where the inflamed appendix is buried deeply in the mass and the bowel loops are friable is no more a valid argument at present due to a global improvement in anaesthesia, supportive care and antibiotics. The operative problems such as localization of appendix, adhenolysis and bleeding are more pronounced and troublesome with interval appendectomy as shown in findings of this study. Wound infection, however, remains common post-operative complication of early appendectomy in appendicular mass but the rate of wound infection is not so high as to preclude this early operative approach. The benefits of early appendectomy overweigh the results of interval appendectomy as evident from our results and also supported by many other studies referred to in comparison to our findings.

CONCLUSION

The early appendectomy in appendicular mass is a safe and effective alternate to conventional conservative treatment followed by interval appendectomy. Hence, we recommend this approach as it obviates the need of a second admission and provides curative treatment during the index admission whereby minimizing total expenses.

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