

CONSERVATIVE TREATMENT OF APPENDICULAR MASS WITHOUT INTERVAL APPENDICECTOMY: IS IT JUSTIFIED?

Safir Ullah, Mumtaz Khan, Siddique Ahmad, Naeem Mumtaz

Department of Surgery
Postgraduate Medical Institute,
Hayatabad Medical Complex and Lady Reading Hospital, Peshawar

ABSTRACT

Objective: To evaluate the justification for conservative treatment of appendicular mass without interval appendicectomy.

Material and Methods: This study was conducted at the department of surgery Postgraduate Medical Institute HMC Peshawar. It was a descriptive study including all those patients who presented with appendicular mass from January 2000 to December 2005. These patients were treated conservatively. Patients who responded to conservative treatment were sent home and were followed for months for any recurrent attack. Patients who did not respond to conservative treatment, were explored after further investigation. Patients who had recurrent attack in the follow up were offered appendicectomy. No patient was offered interval appendicectomy.

Results: Total number of the patients included in the study was 125. Patients responded to conservative treatment were 88% (n=110). Failure of conservative treatment occurred in 12% (n=15). Out of these, abscess formation occurred in 8% (n=10) who responded well to open drainage with out appendicectomy while 4% (n=5) were explored after CT abdomen. Appendicitis was found in 2 cases (1.6%), ileocecal tuberculosis, colonic tumour and appendicular tumour in 1 case each (0.8%). All patients except for the 5 cases already explored were followed up for 18 months. Recurrent attack of acute appendicitis occurred only in 8.33% (n=10/120) and appendicectomy was performed on these patients.

Conclusion: Conservative management is effective in the majority of the patients. Randomized control trial is needed to study the real need of interval appendicectomy.

Key Words: Appendiceal mass, Conservative management, Appendicular Abscess, Interval Appendicectomy.

INTRODUCTION

Interval appendicectomy has been defined as "appendicectomy in asymptomatic patient after resolution of inflammatory appendix mass with conservative treatment"¹ Appendicular mass is a common surgical clinical entity encountered in 2-6% of the patient presenting with acute appendicitis. It forms a spectrum of disease ranging from an inflamed appendix walled off by the omentum (an appendicular phlegmon) to a large collection of pus surrounded by adherent and inflamed omentum (an appendiceal abscess).² Management of an appendicular mass is controversial with three general approaches.¹

- Classical management' involves initial conservative treatment with broad-spectrum antibiotics and intravenous fluid until the inflammatory mass resolves. The patient is then offered interval appendicectomy following resolution of symptoms.
- More recently the need for interval appendicectomy has been questioned, by a number of authors adopting an entirely conservative approach with out interval appendicectomy.³
- A third approach involves performing immediate appendicectomy during the initial admission prior to resolution of the mass.²

RESPONSE TO CONSERVATIVE TREATMENT

Type of response		Number of patients	Percentage
Successful response		110	88%
Unsuccessful Response	Abscess formation	10	8%
	No response	5	4%
Total		125	100%

Table 1

Advocates of immediate appendectomy describe the advantages of avoiding the need for interval appendectomy, and the exclusion of other pathologies simulating to an c mass. Advocates of interval appendectomy describe the advantages of avoiding recurrence of symptoms and the misdiagnosis of an interval appendectomy mass. They suggest interval appendectomy is less hazardous and challenging operation, compared with immediate appendectomy during the initial admission. Proponents of an entirely conservative approach claim appendectomy, whether interval or immediate, is unnecessary.³

This study was planned to evaluate the justification for conservative treatment of appendicular mass without interval appendectomy in our patients.

MATERIAL AND METHODS

This descriptive study was conducted at the department of surgery Postgraduate Medical Institute Hayatabad Medical Complex, Peshawar. It included all those patients who presented with appendicular mass from January 2000 to December 2005. The sampling was purposive. Clinical data of every patient was recorded on a proforma. Baseline investigations including ultrasound were performed. CT abdomen were done in few cases.

These patients were put on conservative treatment which included: soft diet, i/v antibiotic, i/v fluid, pulse/temperature record, marking of the mass, noting the response of the mass to treatment with daily examination. Patients who responded to conservative treatment were sent home and were followed for 18 months. Patients with abscess formation, confirmed clinically and ultrasonically, were treated with open drainage by retroperitoneal approach under general anaesthesia. These cases were also followed along with those who responded to conservative treatment. Cases who did not respond to treatment and clinical and ultrasound did not show any evidence of abscess formation, were explored after CT abdomen. Different pathologies found were dealt with accordingly. Data was collected and manually analyzed for descriptive statistics.

RESULTS

Total number of patient included in our study was 125. Female to male ratio was 2:3. Age distribution was 14 to 65 years with mean age of 31.92 ± 14.24 years. Complete resolution after conservative treatment occurred in 88% (n=110) patients. Abscess formation occurred in 8% (n=10) patients. Clinically and ultrasonically abscess formation was confirmed in these cases and was drained retroperitoneally under general anaesthesia. They made good recovery and were included in series of those who responded to the conservative treatment for follow up as shown in table no.1.

Patients who responded purely to conservative management and patients who underwent open drainage of abscess along with conservative treatment were followed for 18 months for recurrence and no interval appendectomy was offered. Recurrent attack of acute appendicitis occurred only in 8.33% (n=10/120) patients with in 1st year of follow up. Clinically the presentation was mild in these cases. Appendectomy was performed on these patients as shown in (Table-2). There was failure of complete resolution in 4% (n=5) patients. Clinical assessment including ultrasound abdomen of these cases did not show evidence of appendicular abscess. CT abdomen was performed on these cases and were explored. Appendectomy was performed in 2 cases. Peroperative suspicion of pathologies other than appendix was noted in 03 cases (2.4%). Limited right hemicolectomy was done in 2 cases (1.6%) with the suspicion of I m, leocaecal tuberculosis and carcinoid tumour of appendix and formal extended right hemicolectomy in one case (0.8%) with the suspicion of colonic tumour. Later on the suspected pathologies were confirmed by biopsy reports as shown in table No.3.

DISCUSSION

At the beginning of the 20th century, Oschner (1901) proposed non-operative management for the appendix mass.⁴ This approach involved the administration of intravenous fluids and antibiotics whilst keeping the patient starved. The aim of this approach was to achieve resolution

FOLLOW UP

Characteristics	Frequency (n=125)	Percentage
Patients responded purely to conservative treatment & were followed for 18 months	110	88%
Patients with abscess formation responded to open drainage along with conservative treatment.	10	8%
Total No. of patients who are followed for 18 months.	120	96%
Patients with recurrence of acute appendicitis.	10/120	8.33%

Table 2

of the mass and an asymptomatic patient. This has been found effective in the majority of patients.⁵ We followed the same regimen in our study and 88% (n=110) responded to conservative treatment which is comparable to Adalla⁶ study in which 87% responded but lower than Kumar et al⁷ where the response was 95%.

We noted abscess formation in 8% (n=10) while Jeffery et al⁸ found in 7.45% cases. We drained the abscess retroperitoneally under general anaesthesia. Jeffery et al⁸ performed radiological guided percutaneous drainage of abscess under local anaesthesia. They noted recurrence of abscess in 2 cases and the success rate was 90%. We found no recurrence of abscess after open drainage. Similarly Yamini et al⁹ found 97% success rate with conservative treatment associated with percutaneous drainage of appendicular abscess. In our study 4% (n=5) cases showed no response. Ultrasound abdomen and clinical assessment did not confirm abscess formation in these cases. CT abdomen was done before exploration. Two cases were found to be of acute appendicular mass and appendicectomy was done by senior surgeon. One case was found to be of ileocecal tuberculosis and limited right hemicolectomy was done. One case turned out to be right sided colonic tumour and another one appendicular tumour (carcinoid). Formal right hemicolectomy was performed for colonic tumour and limited right hemicolectomy for carcinoid tumour of appendix. Adala⁶, Nitech et al⁵, Dexon et al¹⁰ and Kaminski et al¹¹ found failure of conservative treatment in 12%, 6%, 5%, and 3% respectively in their studies. Patients of these studies with no response to conservative treatment were investigated in detail including CT abdomen before exploration. No other pathologies except appendicitis were found. Appendicectomy was performed on these cases.

In our study we followed all those patients (n=120) who responded to conservative treatment including those who developed abscess and were treated with open drainage associated with conservative treatment for eighteen months. Recurrent attacks of acute appendicitis occurred in

8.33% (n=10) with in one year time. The attacks were mild. These cases underwent appendicectomy. They made good recovery. Mean incidence of recurrent appendicitis in a number of international studies was 13.7% (rang 0-20%). Most recurrence occurred with in the first two years and the attacks were mild.¹²⁻¹⁵

Analysis of our study and other available studies^{3,5,16-18} makes the role of interval appendicectomy less important. Classical management involves performing interval appendicectomy following resolution of the mass and symptoms. This approach dates to the beginning of the 20th century when Murphy¹⁷ proposed elective interval appendicectomy following successful conservative management. Recently the value of interval appendicectomy has been questioned, with the majority of authors advocating an entirely conservative approach where possible.¹⁸⁻²¹ The principal reasons for justifying interval appendicectomy are firstly to prevent recurrence of acute appendicitis and secondly to avoid misdiagnosing an alternative pathology such as a malignancy.²²⁻²⁵ Most of the studies²⁶⁻²⁹ provide good evidence, firstly, that the risk of recurrent acute appendicitis following successful conservative management is low; between 5% and 14%. Secondly in the minority of patients whose symptoms do recur, this usually occurs with in first year of the initial attack. Thirdly, recurrence of appendicitis following conservative management is usually associated with a milder clinical course amenable to both operative and non-operative approaches. Fourthly

HISTOLOGY OF UNRESOLVED MASS

Histology Report	Frequency (n=125)	%age
Acute appendicitis	2	1.6%
Ileocaecal tuberculosis	1	0.8%
Colonic tumour	1	0.8%
Appendicular tumour	1	0.8%
Total	5	4%

Table 3

there is no accurate method for predicting patients at risk of recurrence.

It is obvious from our study and most available studies^{18,26,30,31} that the incidence of misdiagnosing an appendix mass varies between 0 and 10%. Following non-operative management of an appendix mass most authors consider further investigations as mandatory.^{32,33} CT has been shown to be effective in diagnosing alternative pathologies that had clinically been thought as an appendix mass. The consequences of misdiagnosing an intra-abdominal malignancy as an appendix mass are serious. It is, therefore essential to exclude other diagnoses with investigation. Analysis of a number of studies^{3-5,32,33} shows almost similar complications of interval appendicectomy to as that of appendicectomy performed for acute appendicitis. Eriksson and styrud¹ found comparable complications rates for both types of appendicectomy (13% versus 10%).

CONCLUSION

Initial conservative management is successful in the vast majority of patients with an appendix mass. The indications for interval appendicectomy are to exclude an alternative diagnosis, following recurrence of symptoms after successful conservative management and if the patient is unwilling to take the low risk of recurrence. However randomized control trial is needed to study the real need of interval appendicectomy in patients presenting with an appendix mass.

REFERENCES

- Eriksson S, Styrud J. Interval appendicectomy: A retrospective study. *Eur J Surg* 1998; 164:771-4.
- Schein M. The need for interval appendicectomy: How many times do we need to kill the gimmick? *Dig Surg* 2002; 19:221-2.
- Willemsen PJ, Hoorntje LE, Eddes EH, Ploeg RJ. The need for interval appendicectomy after resolution of an appendiceal mass questioned. *Dig Surg* 2002; 19: 216-20.
- Oschner AJ. The cause of diffuse peritonitis complicating appendicitis and its prevention. *JAMA* 1901;26:1747.
- Nitecki S, Assalia A, Schein M. Contemporary management of the appendiceal mass. *Br J Surg* 1993;80: 18-20.
- Adalla SA. Appendiceal mass: Interval appendicectomy should not be the rule. *Br J Clin Prac* 1996;50:168-9.
- Kumar S, Jain S. Treatment of appendiceal mass: Prospective, randomized clinical trial. *Indian J Gastroenterol* 2004; 23:165-7.
- Jeffrey RB, Tolentino CS, Federie MP, Laing FC. Percutaneous drainage of periappendiceal abscess: Review of 20 patients. *Am J Roentgerol* 1987;149:59-62.
- Yamini D, Vargas H, Bongard F, Klein S, Stamos MJ. Perforated appendicitis: Is it truly a surgical urgency? *Am Surg* 1998; 64:970-5.
- Dixon MR, Haukoos JS, Park IU, Oliak D, Kumar RR, Arnell TD, et al. An assessment of the severity of recurrent appendicitis. *Am J Surg* 2003;186: 718-22.
- Kaminski A, Liu H, Applebaum H, Lee SL, Haigh PI. Routine interval appendicectomy is not justified after initial nonoperative treatment of acute appendicitis. *Arch Surg* 2005;140:897-901.
- Skoubo-Kristensen E, Hvid I. The appendiceal mass: Results of conservative management. *Ann Surg* 1982;196: 584-7.
- Foran B, Berne TV, Rosoff L. Management of the appendiceal mass. *Arch Surg* 1978;113: 1144-5.
- Jordan JS, Kovalcik PJ, Schwab CW. Appendicitis with a palpable mass. *Ann Surg* 1981;193:227-9.
- Tingstedt B, Bexe-Lindskog E, Ekelund M, Andersson R. Management of appendiceal masses. *Eur J Surg* 2002;168:579-82.
- Friedell ML, Perez-Izquierdo M. Is there a role for interval appendicectomy in the management of acute appendicitis? *Am Surg* 2000;66:1158-62.
- Murphy JB. Two thousand operations for appendicitis. *Am J Med Sci* 1904;128: 187
- Verwaal VJ, Wobbes T, Goris RJA. Is there still a place for interval appendicectomy? *Dig Surg* 1993; 10:285-8.
- Marya SK, Garg P, Singh M, Gupta AK, Singh Y. Is a long delay necessary before appendicectomy after appendiceal mass formation? A preliminary report. *Can J Surg* 1993;36:268-70.
- De U, Ghosh S. Acute appendicectomy for appendicular mass: A study of 87 patients. *Ceylon Med J* 2002;47:117-8.
- Arnbjornsson E. Management of the Appendiceal Abscess. *Curr Surg* 1984;41:4-9.
- Bradley EL, Isaacs J. Appendiceal Abscess Revisited. *Arch Surg* 1978;113 (2):130-2.

23. Ahmed I, Deakin D, Parsons S. Appendix mass: Do we know how to treat it? *Ann R Coll Surg Engl* 2005;87: 191-5.
24. Lewin J, Fenyo G, Engstrom L. Treatment of appendiceal abscess. *Acta Chir Scand* 1988;154:123-5.
25. Thomas DR. Conservative management of the appendix mass. *Surgery* 1973;73:677-80.
26. Bagi P Dueholm S. Nonoperative management of the ultrasonically evaluated appendiceal mass. *Surgery* 1987;101:602-05.
27. Oliak D, Yamini D, Udani V. Initial nonoperative management for periappendiceal abscess. *Dis Colon Rectum* 2001;44:936-41.
28. Oliak D, Yamini D, Udani R, Lewis RJ, Vargas H, Arnell T, Stamos M. Nonoperative management of perforated appendicitis with out periappendiceal mass. *Am J Surg* 2000;179:177-81.
29. Bagi P Dueholm S, Karstrup S. Percutaneous drainage of appendiceal abscess. An alternative to conventional treatment. *Dis Colon Rectum* 1987;30:532-5.
30. Lasson A, Lundagards J, Loren I, Nilsson PE. Appendiceal abscess: Primary percutaneous drainage and selective interval appendicectomy. *Eur J Surg* 2002;168:264-9.
31. Oliak D, Sinow R, French S, Vikram VM, Stamos MJ. Computed tomography scanning for the diagnosis of perforated appendicitis. *Am Surg* 1999;65:959-64.
32. Brown CVR, Abrishami M, Muller M, Velmahos GC. Appendiceal abscess: Immediate operation or percutaneous drainage? *Am Surg* 2003;69:829-32.
33. Vakili C. Operative treatment of appendix mass. *Am J Surg* 1976;131:312-4

Address for Correspondence:

Dr. Safir Ullah

Department of Surgery,
Hayatabad Medical Complex,
Peshawar – Pakistan.

E-Mail : safirullah_5@hotmail.com