Routine or Selective Interval Appendectomy for Non-Surgically Treated Appendiceal Mass

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Abstract

Objectives
The purpose of this study was to evaluate the need for interval appendectomy after a successful conservative treatment of an appendiceal mass.

Methods
This retrospective study was conducted on patients admitted with appendiceal mass at King Saud Medical City during between July-2004 to July-2009. Only patients who were successfully treated conservatively (non-surgical) were included in the study. Data on patient demography, clinical presentations, investigations, follow up, relapse of symptoms and/or recurrent acute appendicitis were collected and analyzed.

Results
Seventy-three patients were successfully treated conservatively for appendiceal mass. After discharge from the hospital, all were followed up in an OPD clinic. Seven patients (9.6%) developed recurrent symptoms/appendicitis and underwent appendectomy. Sixty six patients (90.4%) were discharged from the outpatient clinic as they remained asymptomatic. All were seen in OPD at least twice before discharge. At the time of data collection for this study, all of them were contacted and recalled for assessment in the outpatient department. Five patients (6.8%) had emergency appendectomy elsewhere after discharge from the OPD clinic. Overall, 12 patients (16.4%) needed appendectomy after a successful conservative treatment for appendiceal mass. Sixty one patients (83.6%) have remained asymptomatic since their discharge from the clinic.

Conclusion
Routine interval appendectomy is unnecessary after a successful conservative treatment of an appendiceal mass. It should be recommended selectively to those who develop recurrent symptom or recurrent acute appendicitis.

Key Words: Appendicitis, Appendectomy, Appendiceal mass, Interval appendectomy

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Introduction

Acute appendicitis is the most common abdominal surgical emergency. An appendiceal mass is the result of a walled-off appendiceal perforation and represents a wide pathological spectrum ranging from an inflammatory mass (a phlegmon) that consist of the inflamed appendix, some adjacent viscera, and the greater omentum to an abscess formation\(^1\,^2\). Classical management involves nothing orally, intravenous fluids, and broad spectrum antibiotics until the inflammatory mass resolves, followed by interval appendectomy to prevent recurrence. The need for interval appendectomy, after initial successful conservative treatment of appendiceal mass has recently been questioned as the risk of recurrence is relatively small\(^3\,^5\). This study presents the researchers’ experience with the follow-up of all non-surgically treated patients of appendiceal mass with an aim to evaluate the need for interval appendectomy in such patients.

Materials and Methods

This retrospective study was conducted on patients admitted with a diagnosis of appendiceal mass and successfully treated conservatively (non-surgically) between July 2004 and July 2009 in the General Surgery department at King Saud Medical City. Those who needed surgical intervention for appendiceal mass or other causes of mass in the right iliac fossa were excluded from the study. The diagnosis of appendiceal mass was based on presentation with right lower quadrant abdominal pain for more than 4 days, fever, palpable or suspicion of a mass with tenderness. The presence of mass was confirmed in all patients by ultrasound (US) or computed tomography (CT) scan. Non-surgical treatment included nil orally for initial 24-48 hours and then introducing oral feeding as tolerated, intravenous fluids and 5-7 days of broad spectrum antibiotics (metronidazole and a second generation cephalosporin). Patients were discharged from the hospital when they were pain free, afebrile and showed marked resolution of appendiceal mass on clinical examination. Those discharged from the hospital were given an outpatient department (OPD) follow up appointment. During OPD visits most patients were assessed clinically. Barium enema or colonoscopy was performed on patients above the age of 40. Patients with recurrent symptoms/appendicitis during OPD follow up were offered appendectomy. Those complaining of mild to moderate right lower quadrant recurrent abdominal pain without associated tenderness, fever or mass were labeled as having recurrent symptoms. Recurrent appendicitis was diagnosed if abdominal pain was associated with tenderness/ rebound tenderness with or without fever. Those who remained asymptomatic were discharged from the OPD. Before the commencement of this study, all those discharged from the OPD were contacted by telephone and recalled for assessment in the OPD to find out if they had any symptom or had surgery elsewhere. The data collected included patient’s demography, duration of symptoms, presenting features, investigations, treatment, OPD follow up, recurrent symptoms or recurrent appendicitis and interval appendectomy. Analysis of these data is the basis of this study. Ethical approval was obtained from the department research committee before commencement of this study.

Results

There were 73 patients, 40 males (55%) and 33 (45%) females, who were successfully treated for appendiceal mass without any surgical intervention. Their mean age was 27.1 (range 13-55) years, mean duration of symptoms 5.28 (range 4-7) days and mean hospital stay of 6.4 (range 5-9) days. Their mean admission body temperature was 37.9 °C (range 37.6 - 38.9 °C) and WBC count 11.59 (range 10.8 - 15.3). After discharge from the hospital all patients were followed up in the surgical clinic. Five patients, all
above the age of 40, underwent colonoscopy (n=4) or barium enema (n=1) 6-8 weeks after discharge from the hospital. None were found to have carcinoma, or other ilio-colic pathology. Seven patients (9.6%) developed abdominal pain during the follow-up, at a mean interval of 68 days (range 47-84 days), and underwent open interval appendectomy. Histopathology showed transmural chronic inflammation, and variable degree of fibrosis. Sixty six patients (90.4%) had remained asymptomatic for 6-12 months before being discharged from the OPD. They all had at least two OPD visits after successful conservative treatment of appendiceal mass. All of them were contacted before the commencement of this study and reassessed in the OPD for any relapse of symptoms or recurrent appendicitis. Five (7.6%) of them had recurrent appendicitis and had emergency appendectomy elsewhere. The histology report of their appendix could not be obtained. Overall, twelve patients (16.4%) from the study group required appendectomy either for relapse of symptom or recurrent appendicitis. Sixty one patients (83.6%) have remained asymptomatic after a successful nonsurgical management of appendiceal mass (Figure 1).

**Discussion**

An appendiceal mass (phlegmon) is the end result of a walled-off appendiceal perforation. The classical management of appendiceal mass involves non-surgical treatment with bowel rest, intravenous fluids and broad spectrum antibiotics. Following a successful resolution of appendiceal mass, patients are advised to have interval appendectomy in 8-12 weeks to prevent recurrent appendicitis. Recently, this classical approach to managing appendiceal mass has been questioned. A
number of authors adopt an entirely conservative approach without interval appendectomy, whereas others proceed to immediate appendectomy\textsuperscript{6,7}. Patients included in this study were not recommended for routine interval appendectomy at the time of discharge from the hospital after a successful conservative treatment of appendiceal mass . The success rate of conservative treatment of appendicitis with mass formation is reported to be about 93\%\textsuperscript{8}. Determination of success rate of conservative management for appendiceal mass was not the objective of this study as only patients who were successfully treated conservatively were included. The danger of recurrence following conservative management is reported to be greatest during the first 6 months after the initial episode\textsuperscript{9}. The risk of recurrent acute appendicitis is reported to be low (5\% and 15\%)\textsuperscript{7,10}. Moreover, the recurrence is characterized by a milder course than the primary attack in most cases\textsuperscript{11}. In patients of this study, the overall incidence of relapsing symptoms or recurrent appendicitis for which interval appendectomy was performed was 16.4 \% (n= 12). More than half (n=7) of them developed symptom within 3 months and all within 2 years of initial presentation. As has been observed in this study and reported in the literature most recurrent appendicitis develops within few months of the initial episode. A reasonable period of follow up, such as 6-12 months, after the resolution of appendiceal mass is likely to identify most cases of recurrent appendicitis. All patients in this series were followed up for a minimum of six months. The timing and the rate of relapsing symptom seen among the patients in this study are not much different from that reported in the literature\textsuperscript{7, 10}. The recurrent appendicitis or relapsing symptom rate observed in this study is not high enough to justify routine interval appendectomy.

A concern with non-surgical management of appendiceal mass is the risk of missing serious underlying pathology. The risk of missing or delay in detecting an underlying cancer or Crohn’s disease is estimated to be about 2\%\textsuperscript{8}. Most of the cancer cases occur in patients over the age of 40\textsuperscript{8}. This underlines the need for a close follow up and further investigations after the successful initial conservative treatment of appendiceal mass, especially in patients over the age of 40\textsuperscript{12}. Patients in this series had ultrasound or CT evaluation at time of initial presentation. All patients (n=5) over the age of 40 were further subjected to colonoscopy or barium enema after successful conservative treatment of appendiceal mass. None were found to have any other colonic pathology. We believe that with all these investigations, a 6-12 months follow up and absence of any symptom, the risk of missing any serious pathology in these patients is unlikely.

Increasing experience in laparoscopic surgery has shown that appendectomy can be performed safely with less complications even in patients with appendiceal mass\textsuperscript{15,16}. At this stage this is not a standard recommendation for the management of appendiceal mass. Until this has been validated by many large prospective randomized trials, non-surgical management of appendiceal mass remains an acceptable management. The researchers in this study believe that patients with appendiceal mass successfully treated conservatively (non-surgically) should only be subjected to appendectomy, whether laparoscopic or open, for relapse in symptom or recurrent appendicitis.

**Conclusion**

Following a successful conservative treatment of appendiceal the mass majority of patients do not develop recurrent appendicitis. Interval appendectomy should be offered selectively to patients with
Interval appendectomy for non-surgically treated appendiceal mass

symptoms or recurrent appendicitis. Asymptomatic patients should not undergo interval appendectomy.

References