Chula Med J Vol. 51 No. 5 May - June 2007

Is interval appendectomy necessary for appendiceal mass ?

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Prasertsuntarasai S, Prichayudh S. Is interval appendectomy necessary for appendiceal mass ?. Chula Med J 2007 May - Jun; 51(5): 273 - 9

Objective : *This study aims to investigate long-term outcome of non-operative management on patients with appendiceal mass.*

Methods : *Medical records of patients with appendiceal mass admitted to KCMH during 1998-2007 were reviewed. Masses were confirmed by ultrasonography or CT scan. Data and time to recurrent appendicitis were obtained.*

Results : *Of 35 patients, 17 underwent non-operative and 18 underwent interval appendectomy at mean duration of 3 (1-10) months. Mean follow-up time was 40 (1-112) months. Of 17 patients, 4 (23.5 %) had recurrent appendicitis within 6 months and underwent appendectomy. Two of these 4 patients had postoperative complications including gut obstruction and reappendectomy. Appendix could not be demonstrated by pathological examination in 8 out of 18 (44 %). Five of 18 patients (27 %) had postoperative complications including wound infections and intraabdominal collection.*

Conclusions : *Non-operative management can be performed. Appendectomy should be done when recurrent symptom occurred. Further investigation with larger population should be obtained.*

Keyword : *Appendiceal mass.*

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Received for publication. May 15, 2007.

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ศิริพงษ์ ประเสริฐสุนทราศัย, ศุภฤกษ์ ปรีชายุทธ. การศึกษาผลระยะยาวของการรักษาผู้ป่วยโรคก้อนไส้ติ่งอักเสบด้วยวิธีการไม่ผ่าตัด 2550 พ.ค. - มิ.ย; 51(5): 273 - 9

วัตถุประสงค์ : *เพื่อศึกษาถึงผลระยะยาวของการรักษาผู้ป่วยโรคก้อนไส้ติ่งอักเสบด้วยวิธีการไม่ผ่าตัด*

วิธีการ : *ผู้วิจัยใช้การเก็บข้อมูลแบบย้อนหลัง โดยทบทวนจากเวชระเบียนผู้ป่วยโรคก้อนไส้ติ่งอักเสบ ที่เข้ารับการรักษาตัวที่โรงพยาบาลจุฬาลงกรณ์ ระหว่างปีพุทธศักราช 2541 - 2550 สำหรับก้อนไส้ติ่งได้รับการตรวจสอบโดยวิธีอัลตร้าซาวด์ หรือการทำเอ็กซ์เรย์ คอมพิวเตอร์ นอกจากนี้ยังมีการศึกษาถึง ภาวะแทรกซ้อน และระยะเวลาในการเกิดโรคซ้ำด้วย*

ผลการศึกษา : *จากจำนวนผู้ป่วยโรคก้อนไส้ติ่งอักเสบทั้งหมด จำนวน 35 คน 17 คนไม่ได้รับการผ่าตัด 18 คนเข้ารับการผ่าตัด โดยระยะเวลาการรักษาเฉลี่ยประมาณ 3 (1-10) เดือน สำหรับระยะเวลาติดตามผู้ป่วยแต่ละรายอยู่ที่ 40(1-112) เดือน*

ในจำนวนผู้ป่วย 17 รายที่รักษาโดยไม่ผ่าตัด มีเพียงผู้ป่วยจำนวน 4 ราย (23.5 %) ที่เกิดโรคซ้ำในช่วงระยะเวลา 6 เดือน และเข้ารับการผ่าตัดในเวลาต่อมา ซึ่ง ภายหลังการผ่าตัดปรากฏว่า 2 ใน 4 รายนี้เกิดภาวะแทรกซ้อน ทั้งการเกิดภาวะอุดตันของลำไส้ และผ่าตัดซ้ำอีก สำหรับผู้ป่วย 18 รายที่เข้ารับการผ่าตัด มี 8 ราย (44 %) ที่ไม่สามารถแสดงผลชิ้นเนื้อได้ และ อีก 5 ราย (27 %) เกิดภาวะแทรกซ้อนหลังการ ผ่าตัดทั้งการติดเชื้อที่บาดแผล และเกิดของเหลวในช่องท้อง

สรุป : *การรักษาผู้ป่วยโรคก้อนไส้ติ่งอักเสบโดยวิธีการไม่ผ่าตัดสามารถทำได้อย่างปลอดภัย ในขณะที่การรักษาโดยการผ่าตัดควรสงวนไว้เฉพาะในกรณีผู้ป่วยเกิดอาการซ้ำเท่านั้น และในการศึกษาวิจัยครั้งต่อไปควรเพิ่มประชากรกลุ่มตัวอย่างให้ใหญ่ขึ้น*

คำสำคัญ : *ไส้ติ่งอักเสบ*

About 2-6 % of appendicites presents as a palpable mass over the right lower quadrant of the abdomen. [1] Appendiceal mass is an inflammatory tumor consisting of an inflamed appendix, its adjacent viscera, and the greater omentum. This mass may or may not contain pus (abscess versus phlegmon). If the amount of pus is large, with a thin walling-off process, it is usually called an appendiceal abscess. [2] The natural history is either gradual, complete resolution of the mass or steady progress toward appendiceal abscess formation. The primary treatment of an appendiceal mass or abscess may be either non-operative or consist of surgical drainage plus appendectomy if possible. Recent reports on operative management suggest high rate of complications. [3] Nowadays, the preferred approach appears to have changed to an initially conservative non-operative treatment, consisting of antibiotics, bed rest and bowel rest. Oral diet intake is resumed when pain and size of the palpable mass decrease. An elective appendectomy is performed approximately 6 weeks after the acute episode. Recently, more evidences in the literature is suggestive that this interval appendectomy can be omitted. [4] The purpose of our study is to determine a long term outcome of non-operative and operative management in the treatment of appendiceal mass.

Patients and Methods

Patients

We retrospectively reviewed patients admitted to King Chulalongkorn Memorial Hospital with the diagnosis of appendiceal mass between January 1998 and January 2007. A total of 42 patients were diagnosed with appendiceal mass. 17 underwent non-operative treatment and 18 underwent interval appendectomy, We excluded patients who were not diagnosed as appendiceal mass and whose diagnosis was not confirmed with ultrasound or CT-scan, 7 patients were excluded (2 patients with cecal perforation and 2 with tubo-ovarian abscess, 3 were not confirmed by imaging). Appendiceal mass patients who had been conservatively treated at first admission were included. These patients were treated with intravenous fluid administration, empiric antibiotics, and nothing per oral. Oral intake was resumed when their condition improved. The masses were confirmed by ultrasound or computed-tomography (CT) scan. Patients were discharged after abdominal pain resolved, fever subsided, and good oral intake was resumed. Post discharge status of patients was collected by OPD card review and by phone.

Statistical analysis

All medical records of these patients were reviewed and relevant variables were registered on a precoded form and entered in a computer database (Microsoft excel) . The parameters included sex, age, complication, mean follow up time, operative data in interval appendectomy group, pathological report of resected appendix etc. Non parametric comparisons between groups were made using Man-Whittney U test. Chi-squared tests were used for categorical data. Probability values of < 0.05 were considered statistically significant. The analysis was carried out using Graphpad Prism version 4.0.

Results

Of 35 patients who had been successfully treated by conservative treatment for appendiceal mass, 17 underwent non-operative treatment and 18

underwent interval appendectomy with the mean duration of 3 (1-10) months. The age of patients ranged from 16 to 70 years (average 37 years).The median age in operative group was 43.5 years and the median age for non-operative group was 32 years (P=0.133). Only 1 patient (2.86 %) >60 years presented in the operative group. In the operative group, there are 8 males and 10 females while as in the non operative group, there were 4 males and 13 females (P =0.19). Our data showed that no significant demographic data between the operative and non-operative groups. The mean follow-up time for the non operative group was 40(1-112) months and the duration for hospital stay during conservative treatment ranged from 3 to 14 days.

Of these 17 patients, 4 patients (23.5 %) who underwent non-operative treatment developed recurrent appendicitis within 6 months and had subsequent appendectomy. Two out of 4 patients (50 %) had complications (one had small bowel obstruction and the other one whose appendix had not been removed in the first operation underwent re-appendectomy). The remaining thirteen out of 17 patients (76.5 %) were followed up and had no complication. The longest follow-up time in our study was 112 months with no complication detected.

Eighteen patients underwent interval appendectomy from 4 – 40 week offer conservative treatment. Patients underwent preoperative barium enema which demonstrated no pathology (cancer, diverticulum). Five out of 18 patients (27.8 %) had complication. Four patients had wound infection and 1 patient had intraabdominal collection. Complication rate in the operative group was 27.8 % compare to 11.8 % in the non-operative group (P=0.18). The duration of hospital stay in the surgical admission range from 3 to 18 days. The duration of hospital stay in the surgical group included duration with first conservative treatment combined in this study with the duration during surgical admission. The longest one was due to wound infection which was treated by daily wound care. No death was recorded among the 35 patients. The median duration of hospital stay in the conservative group was 6 days where as in the operative group was 10.5 days (P=0.0009).

Table 1. Summarized data of patients with appendiceal mass treat with conservative and surgical management.

Parameters	**Operative group (N=18)**	**Non-operative group (N= 17)**	**P-value**
Age (median)	43.5 (16 - 53)	32 (23.5 - 39)	P=0.133
Gender (M/F)	8/10	4/13	P=0.19
Complication rate (%)	27.8 %	11.8 %	P=0.18
Duration of hospital stay (median/days)	10.5	6	P=0.0009

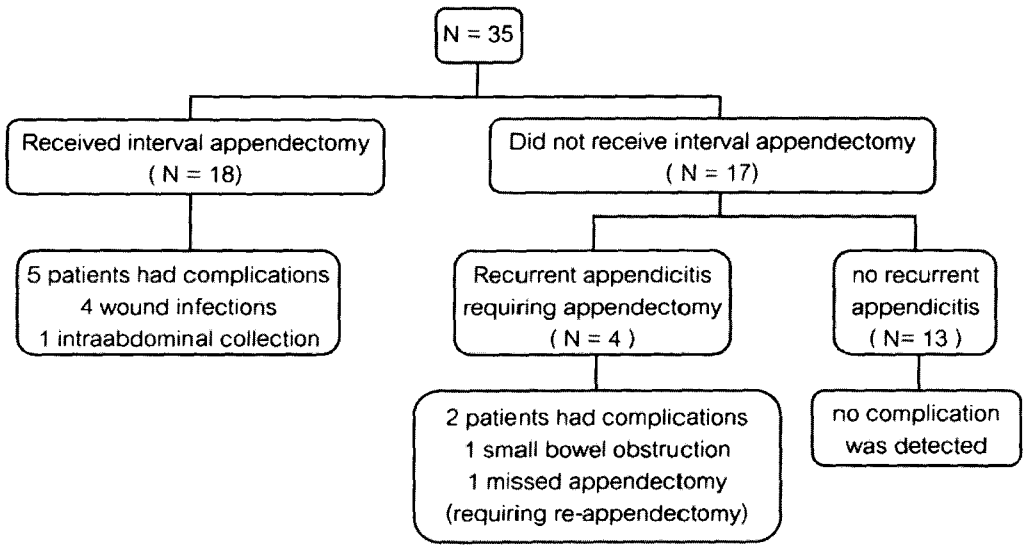

Figure 1. Patient distribution.

Microscopic examination of the removed specimens could not demonstrate the appendix in 8 out of 18 (44 %). They were classified as "lymphoid hyperplasia". The others (10 patients) were classified as "chronic appendicitis". Of the 4 patients who underwent conservative treatment developed recurrent appendicitis. Pathological reports of the removed specimen were classified as lymphoid hyperplasia in 2 patients and both of them had complication after the surgery.

Discussion

Tumor formation after appendicitis (appendiceal mass) is the end results of a walled-off appendiceal perforation. Pathologically, it may represent a spectrum ranging from phlegmon to abscess. The former is an inflammatory tumor consisting of the inflamed appendix, its adjacent viscera, and the greater omentum. The latter is a pus-containing appendiceal mass.

Ultrasound or CT scan is useful in diagnosing a space-occupying mass or an abscess in the right lower quadrant of the abdomen. [6] In 1987, Bagg et al. were the first to verify the diagnosis and nature of an appendiceal mass by ultrasound.

During the last century, the treatment of an appendiceal mass has changed several times. Early in the 20th century it was considered a good practice to hospitalize the patient and keep him/her in bed until the mass was resolved itself spontaneously. In the 1990s, the treatment of an appendiceal mass was initial conservative treatment after the diagnosis was confirmed with ultrasound or CT scan and reserved interval appendectomy only for the symptomatic patients.

In our study, 76.5 percent of the patients did well on conservative treatment which as in accordance with other investigations. A similar success rate has been reported in children. [5] No mortality rate was detected during our study. Appendectomy became

eventually necessary in 4 out of 17 patients in the non operative group (23 % recurrent rate). Most recurrences occurred within 6 months. Fifty percent of the patients suffered from complications such as small bowel obstruction and missed appendectomy. Complication rate of interval appendectomy in our study was 27.8 %. This was not low enough to suggest the use of interval appendectomy routinely. Complication rate between operative and non-operative group was not comparatively different and duration of hospital stay in the non operative group was far less than that of the operative group significantly. We suggested that routine interval appendectomy is no more benefit than conservative group.

In our study, appendix could not be demonstrated by pathological examination in 8 out of 18 (44 %) and 5 of 18 patients (27 %) had postoperative complications including wound infections and intraabdominal collection. We question the benefit of interval appendectomy due to morbidity of the operation and half of patients who performed interval appendectomy can not demonstrate the appendix.

It is difficult to define the role of interval appendectomy after conservative treatment of an appendiceal mass. A recent survey conducted with consultants and specialist registrars in general surgery in England [7,8] showed that physicians had differences of opinion on the management of an appendiceal mass in different scenarios. Less than 25 % preferred managing an asymptomatic appendiceal mass without interval appendectomy. Some investigators suggested that although interval appendectomy did benefit a substantial group of patients but it was neither routinely necessary or cost-effective. [9]

Conclusions

Initial conservative management will be successful in the vast majority of patients presenting with an appendiceal mass. Interval appendectomy is unnecessary in the majority of patients presenting with an appendix mass. Of the patients with an appendix mass whose symptoms resolve following conservative management, 76.5 % will not experience a recurrence. If recurrence happens, it is most likely to occur within 6 months. We hereby suggest that non-operative management can be performed. Appendectomy should be done when recurrent symptom occurrs.

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