

## Appendicular Mass Revisited

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#### Abstract

**Background:** Management and timing of surgery for appendicular mass is controversial.

**Objective:** To audit the management of appendicular mass in Khartoum Teaching Hospital.

**Methods:** Analysis of demographic and clinical data of 280 patients in the period Jan 2000 through Dec 2006.

**Results:** Out of 280 patients 104(37.5%) were in the third decade. 204(72.9%) had pain for more than five days and 136(48.6%) had temperature  $>37.5^{\circ}\text{C}$ . Conservative management was successful in 156(55.7%) patients. 25(8.9%) patients had emergency surgery. 28(10%) patients came for follow up but refused surgery. Mucocele of the appendix and carcinoma of the caecum were found each in one patient. Emergency surgery was difficult in eight patients with failure to remove the appendix in one of them and faecal fistula developed in two.

**Conclusion:** The conservative method is safe. However, cancer caecum may be missed. In contrast emergency surgery led to faecal fistula in two patients.



#### Introduction

The periappendicular spread of infection in cases of perforated or gangrenous appendix attracts loops of small intestine and omentum to seal off the infected site from the general peritoneal cavity as a body defensive mechanism to prevent generalized peritonitis. The incidence of perforation and formation of appendicular abscess is high in children<sup>1,2</sup>. In contrast carcinoma of the caecum occurs mainly in adults.

#### Objectives

The purpose of this study is to audit the management of appendicular mass in a general surgical unit in Khartoum Teaching Hospital in the period Jan 2000 through Dec 2006.

#### Methods

Prospective collection of demographic and clinical data of all patients admitted with appendicular mass.

Exclusion criteria:

Patients with definitive diagnosis of carcinoma of the caecum (n=24), and those found to have ovarian cyst (n=1) were excluded.

The management of the patients followed these guidelines:

1- Initially fasting on intravenous fluids (i.v) and were allowed to take by mouth when pain, fever and mass regress.

2- Meronidazole 500mg i.v. 8 hourly with either Cefuroxime 750 mg i.v. 8 hourly or Gentamicin 80 mg i.v. 8 hourly.

3- Discharge when the mass regress and advised to return for regular follow up. If exacerbation occurred patients will be readmitted otherwise they will proceed for interval appendicectomy three months after discharge.

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#### Statistical analysis

Data was fed to Statistical Package of Social Sciences (SPSS). Statistical Significance was taken at  $P < 0.05$ .

#### Results

During the period of the study 2153 patients were admitted with acute appendicitis. 280(13%) of them were diagnosed to have right iliac fossa mass (RIFM). They were 195(69.7%) males and 85(30.3%) females. Mean ( $\pm$ SD) age 26.5 ( $\pm$ 9.2) range 12- 72 years (table 1).

Table 1. Age and Sex distribution

Age group	Males	Females
12-20 yrs	32(11.4%)	23(8.2%)
21-30yrs	42(15%)	26(9.3%)
31-40yrs	91(32.7%)	13(4.6%)
41-50yrs	13(4.6%)	10(3.6%)
51-60yrs	11(3.9%)	13(4.6%)
61-70 yrs	04(1.4%)	----
>70 yrs	02(0.7%)	----

89(31.8%) were students, 64(22.9%) housewives and the rest are employees and labourers. 176(62.9%) patients complained of paraumbilical pain that shifted to the right iliac fossa (RIF) and in the remainder pain started and remained in the right lower quadrant of the abdomen. The pain was persistent for five days or more in 204(72.9%) patients. 136(48.6%) patients were febrile on admission with temp  $> 37.5^{\circ}\text{C}$ . 249(88.9%) patients had palpable tender mass in the right iliac fossa and the rest were diagnosed with ultrasonic scan. Haemoglobin was less than 10 gm/dl in 75(26.8%) patients while WBC was  $>10\ 000/\text{cmm}$  in only 28(10%) patients.

219(78.2%) were started on conservative management but it was successful in 156(55.7%) patients. Urgent surgery was performed in 61(21.8%) patients (table 2). At surgery mucocele

of the appendix and carcinoma of the caecum was found in one patient each. The urgent surgery was difficult in eight patients and in one of these the appendix couldn't be removed.

Table 2. Types of management

Type of management	Number of patients
Conservative	219(78.2%)
Successful conservative	156(55.7%)
Exacerbation	28(10%)
Refuse surgery	18(6.4%)
Disappeared	19(0.6.7%)
Emergency surgery	61(21.7%)
Appendicectomy	42(15%)
Appendicular abscess	19(06.8%)

Complications of urgent surgery were injury of the terminal ileum and faecal fistula in two patients.

Interval appendicectomy was performed in 156(55.7%) patients. 19(6.7%) patients were lost during follow up and another 18(6.4%) completed the interval period but they refused surgery.

### Discussion

Appendicitis is the commonest cause of acute abdomen requiring emergency abdominal operation in children and adolescents, and appendicectomy remains the commonest operation in the general surgical units<sup>3,4</sup>.

The diagnosis of appendicitis and appendicular mass remains essentially a clinical diagnosis that does not require sophisticated investigations. However, particularly in some patients the mass might not be felt necessitating further investigation like abdominal ultrasound and/or CT scan<sup>5</sup>. This explains the relatively high rate of requesting ultrasound i.e. 31(12%) in this cohort. When such facilities are not available in rural areas, RIF as a rule should be deeply palpated under anaesthesia before inflicting the incision<sup>6</sup>.

Quite a considerable number of patients present late with appendicular mass. In this study patients with appendicular mass constituted 13% of all patients suffering of acute appendicitis. This is in keeping with the international literature<sup>7-10</sup>. Presence of appendicular mass can not be explained by the injudicious use of antibiotics before arrival to the surgical department because similar cases were reported from developed countries<sup>11-13</sup>. Also, it can neither be explained by the far fetched decent medical facilities, nor could it be explained by the fact that patients are breadwinners and resist the idea of surgery that preclude their earning of living at least for few days, because the majority are students in near by

schools and universities. Hence, development of appendicular mass may be a function of good immunity and high pain tolerance. However, this needs to be verified in studies involving immunity and pain tolerance.

The conservative management and interval appendicectomy after 6-8 weeks was first proposed in 1904 by Murphy<sup>14</sup>. Accordingly we have adopted this conventional method and performed interval appendicectomy in 156(55.7%) patients. In contrast, proponents of emergency operation for appendicular mass claim that it reduces the hospitalization periods of conservative management and later surgery, prevents relapse of the acute phase and abscess formation<sup>15</sup>. Also, it decreases the rate of missing carcinoma of the caecum. However emergency surgery is almost always difficult, needs good surgical experience otherwise complications may ensue. In this study, we missed one case of carcinoma of the caecum which was discovered and operated two months after his initial hospital admission. Also we had two cases of faecal fistula in patients operated as emergency. This result compares well with the reported rate of complications after emergency appendicectomy<sup>17</sup>. 28(10%) of our patients had exacerbation during the interval period and this compares very well with reports of relapse in the literature<sup>16</sup> that reveal recurrence rate ranging from 7%-40%. Another support for our adoption of conservative management is result of the reported<sup>18</sup> histopathology of specimens operated after 10-15 weeks as interval appendicectomy. Such reports proved that the lumen of the appendix and its tip were still patent denoting that there is high chance for future recurrence and oppose clearly the postulation that infection obliterates the lumen, and hence eliminates chances of future recurrence and need for interval appendicectomy.

### Conclusion

The conservative method is safe. However, one case of cancer caecum was missed. In contrast two of the 25 patients operated as emergency developed faecal fistula.

### References

- 1- Puri P, O'Donnell B. Management of appendiceal mass in children. *J Pediatr Surg Int* 1989; 4: 306-4.
- 2- Puri P, Boyed E, Guiney EJ et al Appendix mass in the very young child. *J Pediatr Surg Int* 1981; 16: 55-8.
- 3- Gilmore OJA, Martin IBM and Fletcher BN. Prevention of wound infection after appendicectomy. *Lancet* 1973; i: 220-1.
- 4- Hussein DS, Balasegaram M. Acute appendicitis in West Malaysia. *Med J Malaysia* 1972; 27: 43-7.

- 5- Jeffery RB. Management of periappendiceal inflammatory mass. *Semin Ultrasound CTMR* 1989; 10: 431-347.
- 6- Vakili C. Operative treatment of appendix mass. *Am J Surg* 1976; 13: 312-313.
- 7- Mekasha A. Clinical profile and risk factors for perforation of acute appendicitis in children. *East Afr Med J*. 2006;83(8):434-9
- 8- Senapathi PS, Bhattacharya D and Ammori BJ. Early laparoscopic appendectomy for appendicular mass. *Surg Endosc*. 2002;16(12):1783-5.
- 9- Samuel M, Hosie G and Holmes K. Prospective evaluation of nonsurgical versus surgical management of appendiceal mass. *J Pediatr Surg*. 2002;37(6):882-6
- 14- Murphy JB. Two thousand operations for appendicitis. *Am J Med Sci* 1904; 128: 187-211.
- 15- Niteki S, Assalia A and Schien M. Contemporary management of the appendicular mass. *Br J Surg* 1993; 80:18-20.
- 16- Shoubo-Kristensen E and Havid I. The appendicular mass. *Ann Surg* 1982; 196: 584-587.
- 17- Jordan JS, Kovalick PJ, Schwab CW. Appendicitis with a palpable mass. *Ann Surg* 1981; 193: 227-229.
- 18- Mazzioti MV, Marley EF, Winthrop AL et al. Histopathological analysis of interval appendectomy. *J Ped Surg* 1997; 326: 608-809.