

## Early Appendicectomy in Appendicular Mass: A Retrospective Study of 60 Cases

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### ABSTRACT

Acute appendicitis is the most common abdominal surgical emergency. Appendicular mass is one of the common complications seen in patients a few days after the onset of acute appendicitis. Appendicular mass is a tender mass can frequently be felt in right iliac fossa<sup>1</sup> The treatment options for appendicular mass range from conservative treatment to operation.

The aim of the present study was to do retrospective analysis of early appendicectomy versus conservative treatment followed by interval appendicectomy & to assess the outcome of appendectomy in the treatment of appendicular mass in the Department of General Surgery, VIMSAR, Burla from October 2017 to October 2018.

**Keywords:** Acute appendicitis appendicular mass; early appendicectomy

### INTRODUCTION

Acute appendicitis is a common disease in Odisha. An appendicular mass is one of the common complications seen in patients presenting a few days later the onset of acute appendicitis. This appendicular mass is composed of inflamed appendix, omentum, edematous caecal wall and loop of ileum<sup>2, 3</sup> Early appendicectomy in cases of appendicular mass is an effective treatment strategy in this era due to good patient compliance, prevention of recurrence, low cost and decreased duration of hospital stay<sup>4</sup>. But, this surgery seems to be associated with high risk of complications like wound infections, intra-abdominal abscesses, bowel injury and fecal fistulas. Conventionally these patients are managed conservatively by ochsner-sherren regime followed by interval appendicectomy 4-6 weeks later, believing that early appendicectomy in these case is dangerous, time consuming & may lead to life threatening complications. But, this treatment is not successful always. Some 15-20% of such patients fail to respond and require a delayed

and potentially more difficult appendicectomy with possible laparotomy and bowel resection. This has prompted the authors to compare results of equal no. of early appendicectomy versus conservative treatment followed by interval appendicectomy in the treatment of appendicular mass.

### AIMS AND OBJECTIVES:

To evaluate outcomes of early appendicectomy and to compare early appendicectomy versus conservative treatment followed by interval appendicectomy in the treatment of appendicular mass.

### INCLUSION CRITERIA:

1. Patients between 15-60 years of age irrespective of sex.
2. Patients with right iliac fossa mass consistent with appendicular mass.

**Case definition of appendicular mass:** A tender mass frequently felt in right iliac fossa composed of

inflamed appendix, omentum, edematous caecal wall and loop of ileum.

#### Exclusion Criteria:

1. Age below 15 years and more than 60 years.
2. Symptoms less than 72 hrs. duration.
3. Immune compromised patient.

#### MATERIALS & METHODS:

This study was conducted at the Dept. of Surgery, VIMSAR, Burla from October 2017 to October 2018. Sixty patients of appendicular mass were included in this study. Patients were divided into two groups A & B. Early appendicectomy was performed in Group A patient after resuscitation and preliminary investigations, whereas patients in Group B were initially treated conservatively with antibiotics & other drugs followed by interval appendicectomy 6-8 weeks after that.

Out of 60 cases of appendicular mass, 45 (75%) males and 15 (25%) females were included in the study population ranging in the age from 15-60 years. Patient compliance, recurrence, hospital admission and expenses are major limitations in group B population. These patients were admitted both through outdoor and emergency department. All these patients were clinically evaluated, resuscitated & subsequently undergone all basic investigations like Complete Blood Count, and specific investigations like ultrasound and Contrast Enhanced Computed Tomography of abdomen and pelvis. Both treatment options were explained to every patient and informant consent was taken from each patient. The patients in Group A were operated after resuscitation & under coverage of broad-spectrum antibiotics like ceftriaxone metronidazole and amikacin within 24 hours of admission. Patients in the Group B were initially kept on conservative treatment comprising of intravenous fluid, broad-spectrum antibiotics and analgesics. The size of the mass, blood pressure, temperature and pulse rate 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 appendicectomy. The variables studied in both groups included age, sex, duration of lump, operative findings, operative problems, total operative time,

total duration of hospital stay and post-operative complications.

#### OBSERVATION AND RESULTS:

The study included 45 males (75%) and 15 (25%) females with range of 15-60 years of age. Pain abdomen, fever palpable lump & tachycardia present in all cases. 56 patients (93%) had total WB count elevated more than  $12,000/\text{mm}^3$  while 4 patients (7%) had with normal range Leukocyte counts. The finding of both groups are given below.

**Table – I**  
**AGE INCIDENCE**

Age in years	No. of cases	Percentage
0-15	0	0
15-20	8	13
21-25	10	17
26-30	14	23
31-35	10	17
36-40	9	15
41-45	5	8
46-50	2	3
51-55	1	2
56-60	1	2

The age incidence ranged from 15-60 years. The maximum incidence was noted between 26-30 years. The average age incidence was 31 year.

**Table – II**  
**THE INCIDENCE OF SEX**

Sex	No. of cases	Percentage
Male	45	75
Female	15	25

In the present study males outnumbered females by a ratio 3:1.

**TABLE – III**  
**DURATION OF LUMP**

Duration	No. of cases	Percentage
Within 24 hours	6	10
1-2 days	15	25
3-4 days	36	60
>4 days	3	5

All patients with mass had a history of at least 2-3 days. The longest duration was 7 days old.

**TABLE -I V  
OPERATIVE FINDINGS**

	Group A	Group B
Suppurative appendix	15(50%)	2(7%)
Gangrenous appendix	8(27%)	1(3%)
Perforated appendix & appendicular abscess	6(20%)	4(13%)
Simple mass	1(3%)	23(77%)

P value is <0.05. So it is statistically significant.

In group A, majority (50%) of lumps were suppurative. But in group B, majority (77%) were simple mass.

**TABLE -V  
OPERATIVE PROBLEMS**

	Group A	Group B
Difficult in location of appendix	12(40%)	18(60%)
Difficult in adhesiolysis	6(20%)	1(3%)
Minor trauma to bowel	5(17%)	2(7%)
Bleeding	7(23%)	9(30%)

P value is <0.05. So it is statistically significant.

In both groups, major problem was difficulty in location of appendix

**TABLE - VI  
TOTAL OPERATIVE TIME**

	Group A	Group B
30-60min	1(3%)	2(7%)
60-90min	8(27%)	4(13%)
90-120min	18(60%)	15(50%)
>120 min	3(10%)	9(30%)

P value is <0.05. So it is statistically significant.

In both groups, most of the cases were done between 90-120 minutes.

**TABLE -VII  
TOTAL HOSPITAL STAY**

No. of Days	Group A	Group B
5 – 7 days	4 (13%)	1 (4%)
7-9 days	7 (23%)	4 (13%)
9-12 days	12 (40%)	5 (17%)
12 – 15 days	6 (20%)	13(43%)
> 15 days	1 (4%)	7 (23%)

P value is <0.05. So it is statistically significant.

Total hospital stay was significantly shorter in group A patients. The total hospital stay in group A patients included only one hospital admission compared to group B patients who were admitted twice.

**TABLE -VIII  
POST-OPERATIVE COMPLICATION**

Complications	Group A	Group B
1. Wound infections	3 (10%)	2 (8%)
2. Residual Abscess	1 (3%)	0
3. Faecal Fistula	1 (3%)	0
4. Chest complication	1 (3%)	1 (3%)
5. Adhesive	2 (8%)	1 (3%)

intestinal obstruction		
Total	8 (27%)	4 (14%)

P value is <0.05. So it is statistically significant.

Post-operative complications were slightly more in group A patients.

## DISCUSSION:

The treatment strategy of appendicular mass is ranging from traditional approach of conservative in form of Ochsner-Sherren regime followed by interval appendicectomy to early appendicectomy. However, many surgeons still continue same traditional conservative approach<sup>5</sup>. They believe that many of these patients responding well to conservative management don't require interval appendicectomy at all as recurrence rate is reported to be as low as 5-20% (Tekin A, 2008)<sup>6</sup>, (Adala SA 1996).<sup>7</sup> Moreover, the recurrent disease is milder than the primary acute appendicitis. (Dixon MR, 2003)<sup>4</sup>.

The treatment of the appendicular mass is controversial as there is no consensus about the optimum approach. Currently there are four modes of treatment approach practiced all over the world.

Approach A; The conventional mode of management includes an initial conservative treatment, followed by an interval appendicectomy after a period of 6-8 weeks.

Approach B; A totally conservative treatment without interval appendicectomy.

Approach C; An early appendicectomy in appendicular mass.

Approach D; Laparoscopic management of the appendicular mass is the most recent advancement in the treatment of appendicular mass.

### A. Conventional treatment: The Ochsner-Sherren regime:

Traditionally it was thought that surgery during the phase of acute appendicitis with a mass was potentially dangerous and could lead to life threatening complications because of oedema and the fragility of important structures like the terminal ileum and caecum. The surgeon may do more harm than good considering the fact that the problem was

contained and resolution might follow. The Ochsner-Sherren regime was popularised by Oschner (Oschner AJ 1901)<sup>14</sup> the concept has followed over many years as the standard treatment for the appendicular mass.

### The components are as follows:

- Nil per oral for an initial 24-48 hours while the patient is kept on intravenous fluids.
- Intravenous antibiotics are administered with regular monitoring of vital signs and measurement of the size of the mass.
- If the patient's general condition improves, the size of the mass reduces and the fever and anorexia subside, the patient is usually allowed liquids orally and then diet. If this is tolerated discharge home is considered. After six weeks an interval appendicectomy is performed.
- Otherwise, if the condition of the patient deteriorates, the size of the mass increases, pulse rate increases or general peritonitis develops or the patient becomes septic then the conservative management is not followed and the patient is considered for operation.

### I. Advantages of the conventional treatment:

It is the most commonly practiced treatment for an appendicular mass (Price MR 1996).<sup>17</sup> It is accepted because it can avoid the potential hazards of damage to the bowel and the development of faecal fistula (Nitecki S 1993), (Norman S William).<sup>13</sup> Surgeon preference remains a common reason (Kim JK 2010).<sup>11</sup> This conservative approach is associated with a substantially low rate of complications (Tingstedt B 2002) and is safe (Kumar S and Jain S 2004).<sup>12</sup> The rate of success is reported to range between 88-95% (safirUllah 2007). Interval appendicectomy is considered essential because the rate of recurrence of appendicitis and mass formation is high after conservative treatment a (Friedell ML and Perez-Izquierdo M 2000)<sup>9</sup>, and confirmation of the diagnosis is possible to eliminate other pathology like ileocaecal tuberculosis or malignancy. These conditions mimic acute appendicitis and conservative therapy alone should be considered (E.S Garba 2008)<sup>8</sup> (Garg. P et al 1997).

## II. Disadvantages of conventional treatment:

Poor patient compliance, a requirement for re-admission, and sometimes difficulty in finding the appendix at the interval appendicectomy or undue bleeding (Malik et al 2008) are disadvantages of conventional approach. Olika D (2000)<sup>16</sup> also reported that about 10% of patients need exploration due to deterioration on a conservative regimen. Many patients frequently do not attend for an interval appendicectomy if they have been pain free and asymptomatic. The recurrence rate is reported to be as low as 5-2% (Tekin A 2008, Adala SA 1996) and the recurrent disease is milder than the primary acute appendicitis (Dixon MR 2003). According to Hung-Wen Lai (2005)<sup>10</sup>, the effectiveness of the conservative therapy is a proven and acceptable mode of treating the mass but the need of interval appendicectomy is questioned and it may not be cost effective.

### B. Conservative treatment without interval appendicectomy:

It is argued that interval appendicectomy is unnecessary after successful conservative management of an appendicular mass (Anna Kaminski et al 2005). This approach can be applied in selected patients who do not develop recurrent symptoms (Garba ES et al 2008).

Conservative treatment alone will suffice in 80% of patients. The greatest risk of developing recurrent appendicitis after successful conservative management is during the first 6 months (Hoffman J et al 1984) and there is a minimal chance of developing symptoms after 2 years. Interval appendicectomy is considered by some to be a difficult operation and sometimes the fibrotic appendix may not be found on operation (Deakin DE et al 2007). This has led to the concept of a “wait and watch policy” after successful conservative management and has been found to be cost effective (Hung-Wen lai et al 2005). The advocates of this approach may go as far as to propose that recurrent disease is also amenable to conservative treatment and is cost effective (Willemsen PJ et al. 2002).

### C. Early appendicectomy in appendicular mass:

In 2-6% cases following acute appendicitis, appendicular mass develops. Pathologically, it may represent a spectrum of disease from phlegmon to abscess. Jordan et al, in 1974-1979 performed 42 open appendicectomies in palpable masses and recommended early surgery in patients with appendicular mass. However, he also reported a high complication rate (36%). Many surgeons will perform an appendicectomy if a small mass is felt under a general anaesthetic but a minority will wake the patient and continue with non-operative approach. It is crucial that the patient understands this option if it is a possibility when they to treat. Thus, early appendicectomy is widely performed but not when the mass is substantial and felt pre-operatively.

According to the author, during the early phase of the appendicular mass, surgery is not as hazardous, as it once was. The reasons to early surgery are good resuscitation, expert anaesthesia, broad spectrum antibiotics and an experienced surgeon (De U et al 2002). This approach obviates the need of re-admission, cures the problem totally and there is an opportunity to reach to a conclusive diagnosis at an early stage. A number of studies consider this approach to be safe, economical and time saving, facilitating an early return to work (Sardar Ali et al 2010). The experience of the surgeon plays a vital role. Some more aggressive surgeons actually go for right hemicolectomy for appendicular mass as soon as patient presents with the advent of Broad spectrum antibiotics, early appendicectomy now can be carried out without complications or minimal complications. It is said to be feasible, safe and cost effective, allowing early diagnosis and treatment of unexpected pathology. Immediate appendicectomy has the advantages of being safe, eliminates risk of recurrent appendicitis, eliminates the need for readmission for interval appendicectomy & reduces total hospital stay. Wound infection, haemorrhage remain common postoperative complication of early appendicectomy in appendicular mass but the rate of wound infection is not so high as to preclude this early operative approach. The benefits of early appendicectomy overweigh the results of interval appendicectomy.

### CONCLUSION:

It is safer for managing appendicular mass with early appendicectomy as it saves time, ensures total recovery during the initial admission and excludes



other pathology. There is a great satisfaction to the patient that the actual problems completely cured while if appendicectomy is delayed for 6-8 weeks, the patient compliance is poor and there can be mild pain for which patients usually do not come for interval appendicectomy. In this area, majority of the population are living below the poverty line early intervention is a better option as it is cost effective.

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