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To compare the complications and morbidity and mortality in operative and conservatively treated appendicular mass

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Abstract

Background: The treatment of the appendicular mass is controversial and perhaps confusing as there is no consensus about the optimal approach. Currently there are 3 modes of treatment practiced all over the world with a very clear distinction between two of these schools of thought.

Methods: This study was conducted on 100 patients who presented with appendicular mass in Surgery OPD and Emergency Department of JLN Medical College and Associated Group of Hospitals, Ajmer.

Results: The overall rate of complication observed was 4% in group I and 20% in group II. 'p' value was 0.0277, which shows that there is some significant relationship exists in group I and group II based on total complication rates.The majority (60%) of group I patients had total duration of hospital stay for ≤5 days and the mean duration of hospital stay was 5.5 days whereas in group II, only 4% of patients had total duration of hospital stay for ≤5 days and the mean duration of hospital stay was 8.7 days in them, 'p' value was <0.0001, which is highly significant.

Conclusion: Low morbidity, reduced hospital stay, low cost and patient compliance favour conservative management of appendicular mass and thus obviating the traditional management by interval appendicectomy.

Keywords: Appendicectomy, Hospital stay, Treatment

Introduction

The vermiform appendix is considered by most to be a vestigial organ. Its importance in surgery results from its propensity for inflammation which results in clinical syndrome known as acute appendicitis. Acute appendicitis is the commonest cause of "Acute Surgical abdomen" in youngadults.[2]

The treatment of the appendicular mass is controversial and perhaps confusing as there is no consensus about the optimal approach.[3] Currently there are 3 modes of treatment practiced all over the world with a very clear distinction between two of these schools of thought. The conventional mode of management by oschner-sherren regime (1901),[4] it includes an initial conservative treatment assuming the patient is well and settles, followed by an interval appendicectomy after a period of 6-8 weeks to prevent recurrence with the belief that an early appendicectomy in these patients

is technically demanding and time consuming because of distorted anatomy, and may lead to complications like faecal fistula.5

A totally conservative treatment without interval appendicectomy, this approach was introduced after the need for an interval appendicectomy was questioned in a number of reports. More over, for some authors, the risk of recurrence after successful non surgical treatment was about 10 % (3%-25% in the literature) and was often associated with appendicolith. 6

An early and aggressive approach favouring early appendicectomy in appendicular mass. This may be associated with more than 3 folds morbidity compared with conservative management, and may result in an unnecessary ileocaecal resection or right-sided hemicolectomy for technical reasons or suspicion of malignancy in about 3% of patients.

Material and Method

This study was conducted on 100 patients who presented with appendicular mass in Surgery OPD and Emergency Department of JLN Medical College and Associated Group of Hospitals, Ajmer.

Our study was a clinical, prospective and comparative study conducted during 1 November 2017 to 30 April 2019 comprising of 100 patients. Our study was conducted after obtaining a detailed history, complete general physical examination and systemic examination of patients. They were subjected to relevant investigations like CBC, urea, creatinine, serum electrolytes, urine routine, USG- abdomen and colonoscopy and other investigations as per need of the patients was done with proper informed written consent as appropriately

Inclusion Criteria

- Patients admitted with sign and symptoms of appendicular mass during the study of period.
- Patients age less than 50 years.

Exclusion Criteria

- Patient with acuteappendicitis.
- Patient with appendicularperforation.
- Patient with appendicular mass with other pathology.
- Patients age more than 50 years.

Mode of study: In our study, the patients were randomly divided in 2 groups, each containing 50 patients. In group I, we included 50 patients with appendicular mass, who were treated conservatively without immediate or interval (after 1½ months) surgical intervention. In group 2, 50 patients were treated conservatively and did interval appendicectomy after 1 and ½ months.

On admission in both groups, we treated patients by hospitalisation, nil per oral, IV fluids, IV broad spectrum antibiotics and IV analgesics and when symptoms were subsided, we discharged the patients in group I and we followed up the patients on monthly basis for 6 months to rule out any bowl malignancy/ ileocaecal pathology (by CECT/colonoscopy) and for the patients of group II, we did interval appendicectomy after 6-8 weeks and followed up for 6 months. After initial admission, patients were then followed in the hospital with respect to subjective symptoms and objective findings. The progress of the mass was observed and the vital signs were recorded regularly to monitor the response to conservative management. Decrement of abdominal pain, improvement in appetite and decrement in the size of RIF mass were evidence of good response which warranted continuation of the conservative management until the mass had disappeared or was reduced to a small nontender lump. Patients were discharged with oral antibiotics (amoxicillin and metronidazole) to make the advice to return in 6-8 weeks for interval appendicectomy for group 2 patients and regular monthly follow up for group

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1 patients. Failure of conservative management was entertained when a patient, during follow-up, developed fever, tachycardia, increment in the size the tenderness of the RIF mass and when repeat WBC count showed raised leucocytosis or ultrasound study confirmed appendiceal abscess. Such patients were subjected for surgery.We compared the both groups for recurrence and severity of symptoms, loss of working days and cost effectiveness and morbidity and complications of surgery. Variables were extracted on a structured questionnaire and data were analysed for age, sex, presenting symptoms and symptoms duration, clinical signs, length of hospital stay andoutcome.

Observations

In our study we included 100 cases of appendicular mass, who were admitted in various surgical units of J.L.N. Hospital, Ajmer during the period from November 2017 to April 2019 and they were randomly divided in two groups, each containing fifty. In our study of 100 cases, the patients were divided in two groups, each containing fifty. In group I, the mean age of study subjects was 29.16±8.93 years, ranging from 14-47 years and majority of patients (40%) belonged to age group of 21-30 years. In group II, the mean age of study subjects was 27.18±9.07 years ranging from 13-48 years and majority of patients (36%) belonged to age group of 21-30years. Student 't' test was applied and 'p' value was found to be 0.2740 (Not significant). In our study, there was male preponderance (68%) with male to female ratio of 2.12 : 1 in group I. There was male preponderance (72%) with male to female ratio of 2.57 : 1 in group II also.

Table1: Recurrence

Sign & symptoms	Group I	Group II	Total
Upto 6-8 weeks	4	3	7
Recurrence in emergency operated patients during 6-8 weeks	1	1	2
New Recurrence from 6-8 weeks to 6 month	1	3	4
Total recurrence upto 6 month	5	6	11

In our study we observed that there was recurrence of symptoms in 4 patients of Group I and 3 patients of Group II at the end of 6-8 weeks necessitating emergency appendicectomy at variable intervals. During the period of 6-8 weeks to 6 months, on monthly follow up, we observed that out of total 50 patients in group 1 and group 2, there was recurrence of symptoms in 2 and 4 patients respectively including one patient in each group which were already operated in emergency during 6-8 weeks follow up. So in group 1, recurrence was found in one new patient and in group 2,recurrence seen in 3 new patients that were operated by interval appendicectomy at 6-8 weeks. Hence, total recurrence seen in 5 and 6 patients in group I and II respectively on total 6 months follow-up. Fischer's exact test was applied and p value was 0.99 which shows that there is no association in recurrence in both the groups.

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Table 2: Complication

Complication	Group I	Group II
Wound infection	-	3 (6%)
Lost follow-up	1 (2%)	2 (4%)
Adhesive obstruction	1 (2%)	1 (2%)
Incisional hernia	-	1 (2%)
Respiratory tract infection	-	3 (6%)
Total	2 (4%)	10 (20%)

Table 2 shows that, in our study, 1 (2%) patient of group I and 2 (4%) patients of group II had lost follow-up at the end of 6-8 weeks interval. One patient (2%) of group I and another one patient (2%) of group II had adhesive intestinal obstruction and had to undergo laparotomy, adhesiolysis and appendicectomy with an uneventful post operative recovery. In group II, on post operative follow-up, 3 patients (6%) had wound infection and 1 patient (2%) had incisional hernia and another 3 patients (6%) had complaints of respiratory tract infections.The overall complication rate observed was 4% in group I and 20% in group II. Fischer's exact test was applied and p value was calculated 0.0277 which shows that there is some significant relationship exists in group I and group II based on total complication rates.

Table 3: Hospitalstay

Hospital stay	Group I	Group II
$\leq$ 5 days	30 (60%)	2 (4%)
6-8 days	12 (24%)	26 (52%)
>8 days	8 (16%)	22 (44%)

In our study, majority (60%) of group I patients had total duration of hospital stay for $\leq$5 days and the mean duration of hospital stay was 5.5$\pm$2.64 days in this group whereas in group II, only 4% of patients had total duration of hospital stay for $\leq$5 days and the mean duration of hospital stay was 8.7$\pm$2.24 days in them. 't' test was applied and the p value was calculated to be <0.0001 which is highlysignificant.

Table 4 : Frequencyof admission

Frequency	Group I	Group II
Single time	45	2
Two times	5	48
Three times	1	4

In our study, we observed in both groups that how many times, a patient needs to be admitted in hospital during the course of the illness. We found that, in group I, out of total 50 patients, 45 patients needed only single time admission. 5 patients needed 2nd time admission due to recurrence, out of which 4 had symptoms before 6- 8 weeks and one had symptoms after 6-8 weeks to 6 months follow up. Out of these 5 patients, one patient, who was operated in emergency before 6-8 weeks, had recurrence again and hence needed 3rd

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timeadmission. In group II, out of total 50 patients, only 2 patients had single time admission due to loss of follow up. Rest 48 patients had 2nd time admission for interval appendicectomy. Out of these, 3 patients were admitted before 6-8 weeks for emergency appendicectomy & rest 45 were admitted for interval appendicectomy at the end of 6-8 weeks. Among these 48 patients, 4 patients needed 3rd time admission due to recurrence of symptoms, of which one patient was operated in emergency and another 3 operated by interval appendicectomy.

The mean frequency of admission was 1.14±0.40 in group I and 2.02±0.38 in group II. 't' test was applied and the 'p' value was calculated to be <0.0001 which is highly significant.

Discussion

An appendicular mass is a common surgical clinical entity, encountered in 2-6% of patients presenting with acute appendicitis.[8]

In the present study, 100 cases of appendicular mass, who were admitted in JLN Hospital emergency and OPD from November 1, 2017 to April 30, 2019 were included. The patients were divided randomly in two groups, each containing fifty. In group I, patients were managed by conservative management and in group II, initial conservative followed by interval appendicectomy 6-8 weeks later done.

	Zelalem Assefa[9]	Our Study
Mean hospital stay	6.5+1.5	7.11±2.92
Percentage of patientsdischarged in 6-8 days of admission	89%	70%

In our study, we treated all patients with appendicular mass initially conservatively with Oschner-Sherren regimen for various duration of periods till the symptoms and mass resolves. 70% of patients (42 in group I and 28 in group II) were discharged within 6-8 days of hospital stay. With a mean hospital stay of 7.11±2.92 days. These results are comparable to other studies as follows : In our study, 7 patients had recurrence of symptoms within 6-8 weeks of successful conservative treatment (4 patients of group I and 3 patients of group II). All patients were having complaints of pain abdomen, vomiting and fever. All these 7 patients were treated by emergency appendicectomy and discharged. In group I (total conservative approach), total 5 patients out of 50 patients had developed recurrence on a total 6 months follow-up (10%) and one patient of group II developed recurrence on follow up of 6-8 weeks.

Study	Recurrence rates in conservatively treated patients on 6 months follow- up
R. Murugan et al10	6.6%
Tekin et al11	14.6%
Kaminiski et al12	5%
Kumar, Jain13	10%
Our study	10%

Normally, the risk of recurrence after successful non-surgical treatment was about 10% (3-25% in literature).[7] The majority of recurrence occurs within 6 months after initial hospital stay.[7] These results are comparable to other studies as follows : On further follow-up of both the groups from 6-8 weeks to 6 months, as most of the recurrence of appendicular symptoms and post-operative complications occurs

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within 6 months. [7] In group I, there was recurrence of symptoms in 2 patients, one of them was operated in emergency previously and other patient had recurrence of symptoms was operated on his second admission. The patient who was operated in emergency, having symptoms of localised peritonitis and increased morbidity might be due to post operative complications. In group II, 4 patients had to be admitted in hospital due to symptoms and signs of localised peritonitis. One of them was operated in emergency and other 3 had interval appendicectomy. In our study, as an elective or emergency situation, we did total 53 appendicectomy (45 interval appendicectomy and 8 emergency appendicectomy).

Hence, in our study only 8 patients (out of total 100) needed appendicectomy in both groups on 6 months follow-up. These results are comparable to study by Jenny Tannoury which shows that atleast 75%-90% of routine interval appendicectomies in adults are unnecessary. This is also comparable to the prospective study done by Youssuf et al which revealed that 89.4% intervalappendicectomy done was unnecessary.

Another important point to study is the comparison of complications related to conservative management alone with regular follow-up and conservative management with interval appendectomy. In our study, we observed a total 20% morbidity related to complications after interval appendicectomy. Some studies showed that complications following interval appendicectomy is 12-23%.[14]

Study	Complication Rate after interval appendicectomy
R. Murugan et al10	14.6%
Our study	20%

Conclusion

Low morbidity, reduced hospital stay, low cost and patient compliance favour conservative management of appendicular mass and thus obviating the traditional management by interval appendicectomy.

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