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# A Clinical Study on Appendicular Mass and ITS Outcome

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**ABSTRACT**

An appendicular mass is a common surgical complication observed in 2-6% of patients presenting with acute appendicitis. The mass forms due to the omentum bowel loops and swollen appendix, typically appearing three to five days after the onset of symptoms. The complication of appendicular mass remains controversial, with traditional approaches favoring conservative treatment followed by an interval appendicectomy. However, the necessity of interval appendicectomy has been questioned and early surgical intervention is gaining attention for its potential to reduce hospital stays and avoid readmission. This study aims to explore the progression of appendicular mass and evaluate the efficacy of different management strategies. To study the demographics of patients presenting with appendicular mass. To assess the progression of appendicular mass using ultrasonography (USG), total leukocyte count and clinical evaluation. To evaluate the necessity of interval appendicectomy after successful conservative management using the Ochsner-Sherren regimen. To explore the potential for non-surgical management in appendicular mass cases. This study involved a cohort of patients diagnosed with an appendicular mass. Patients were evaluated based on demographic data, clinical presentation and imaging studies. The progression of the appendicular mass was monitored over time, with a focus on the success rate of conservative management versus the need for surgical intervention. The study also assessed the recurrence rate of appendicitis and the long-term outcomes of patients managed conservatively. The study found that the majority of patients were aged between 31-40 years, with a mean age of 36.2 years and 60% were female. Common symptoms included diffuse abdominal pain (86.7%), right iliac fossa (RIF) pain (93.3%) and migrating pain to RIF (83.3%). Conservative management using the Ochsner-Sherren regimen was successful in 93.3% of cases, with only 6.7% requiring interval appendicectomy. The recurrence rate of appendicitis was low at 3.6% over a one-year follow-up. No cases of dilated appendicitis or RIF tenderness were observed at 12 months in the conservatively managed group. The study supports the use of conservative management for appendicular mass, citing a high success rate and low recurrence of symptoms. The findings suggest that non-surgical management, with careful monitoring, can be an effective and preferable option, reducing the risks and costs associated with surgical intervention. The results also indicate that routine interval appendicectomy may not be necessary in all cases, further supporting a conservative approach in the management of appendicular mass.

## INTRODUCTION

An Appendicular mass[1] is a common surgical clinical entity that is seen in 2-6%of patients who report with acute appendicitis. An appendicular mass is the site of infection that appears three to five days following an acute appendicitis episode. The omentum, bowel loops and swollen appendix make up this mass of inflammation. Though there are various management options for appendicular mass, their treatment is contentious[2]. These patients are typically treated conservatively and undergo an interval appendices to my six to twelve weeks later. This is because it is thought that performing an early appendices to my in these circumstances is risky, time-consuming and could result in poten tially fatal complications including faecal fistula. It has also been questioned if interval appendicectomy is necessary[3].

Supporters of the early conservative technique assert that, difficulties are less common than with the early operative strategy. But in 10-20% of cases, it doesn't work well and the patients requireane mergency procedure because the illnessissp reading, which is considerably more challenging. Additionally, if the patient is released from the hospital, they could experience an other episode of appendicitis[4]. Once their acute condition is resolved, the majority of patients decline to bere admitted for surgery, which appears to be a significant drawback of the first conservative strategy.

According to Garg[5], mis diagnosisisan other draw back of conservative care. They state that disorders such as intussusception and cancer caecum maybe managed conservatively by mistake, resulting in significant morbidity. On the other hand, the early procedure has the advantage of being curative in the index admission and guarantees an early return to work along with increased compliance.

The conventional course of treating appendicular masses involved first conservative measures, then interval appendectomy, is being replaced with prompt appendectomy. This shift is not generally welcomed, though, as many surgeons still use the same conventionally conservative methods[6]. Because early surgical intervention significantly shortens hospital stays overall and eliminates the need for a follow-up admission, it has long been seen as a successful alternative to conservative care[7-10]. It is clear that there is disagreement about the optimal way to handle this issue and that appendicular mass management is a contentious topic.

Never the less, 10-20% of interval appendices to my procedures have failed and complications such as abscesses and perforation peritonitis have occurred. The necessity for readmission for a further acute episode and the higher risk of mis diagnosis, which significantly increases morbidity, are the four drawbacks of the conventional strategy[11].

A safe strategy to shorten hospital stays and lower readmission rates is to operate on appendiceal masses as soon as possible[12]. The development of laparoscopy is a wonderful advancement in medical technology., it is a safe, practical procedure that also lessens the financial load on patients. Many surgeons today favour laparoscopic procedures for treating appendicitis and appendicular masses. In light of these, the purpose of this study was to determine the proper management strategy and track the development of appendicular mass naturally.

**Aims and Objectives:**

- To study the natural progression of Appendicular Mass and plan appropriate Management Strategy
- To study the demographics of patients presenting with Appendicular Mass.
- To study the progression of Appendicular Mass using USG Abdomen and Pelvis, Total Leucocyte Count, Clinical Evaluation.
- To study the need for Interval Appendicec to my asaroutine in cases, after successful Ochsner-Sherren Regimen management.
- To study the prospects of non-surgical Management in the study cases.

**Review of Literature:** One of the most frequent problems observed in patients who appear a few days following the onset of acute appendicitis is an appendicular tumour. The best way to treat this potentially harmful illness is up for debate. Appendectomy is seen to be the best course of action for treating acute appendicitis., if this is not possible, a number of complications, including an appendicular mass, typically occur[13]. This typically happens after a delayed or unsuccessful diagnosis at the presentation. Sadly, the history is some times found to have been fairly normal and the error is deemed avoidable when the diagnosis is missed at the initial presentation to a physician. Historically, the diagnosis of acute appendicitis was primarily made through repeated physical examinations following active observation, with minimal dependence on laboratory testing. An increased dependence on purportedly objective diagnostic instruments may cause a delay in diagnosis and alter the prognosis for certain patients[14]. Uncomplicated simple a cute appendicitis be comes complicated appendicitis due to a delayed diagnosis[15].

In the third world, where the majority of people live in poverty and one person may provide for the entire family, reluctance to get surgery is prevalent. Time off, from work can there fore be challenging for certain people. A significant contributing aspect is that a large

portion of the populace generally fears surgery. Lack of medical services in isolated, underdeveloped places is one of the additional variables that leads to the development of an appendicular mass.

According to reports, the incidence of appendicular masses is higher in oldermales[16] and the irpathophy siology, clinical course and outcome vary[17]. Usually developing 48-72 hours after the onse to facute appendic it is symptoms, the mass is located in the right iliac fossa. The appendix may perforate due to ischemia necrosis and gangrene of appendicular wall, which can result in appendicitis caused by lumen obstruction[18]. The omentum and small bowel naturally enclose the inflamed appendix as a protective measure to keep the infection from spreading by separating the affected organ from the remainder of the abdominal cavity. This type of defence mechanism may have been chosen due to an evolutionary benefit. Usually, the patient has a right iliac fossa painful mass along with fever, malaise and anorexia when they first arrive. If this walling off mechanism breaks down, widespread peritonitis could result. This is more frequently observed in cases of appendicular lumen obstruction caused by a faecolith, immunocompromised patients, advanced age, diabetes mellitus and when the inflamed appendix lies freely in the pelvis and cannot be fully contained by the omentum[18].

**Pathogenesis of the Appendicular Mass**: The appendicular mass typically appears as a sore mass in the right iliacfossa and ranges from a phlegm on to an abscess development. It typically arises after an episode of acute appendicitis[19]. As previously mentioned, it typically appears in individuals who present later on in their acute appendicitis episode, when the omentum and small bowel coils naturally seal off the inflamed appendix. At first, this mass was made up of an unclear mixture of granulation tissue and an inflammatory appendix[20]. Within 48 hours, if the barriers are effective and the inflamed appendix does not rupture, a clinically palpable painful mass will appear in the right iliac fossa. An appendix that has perforated or the barriers are unable to contain the inflammation could result in an appendicular abscess. Phlegmonis another word for the mass. The mass presents a challenge to the surgeon regarding the best course of actionbecause multiple schools of thought and treatment modalities are recommended.

**Treatment Options for the Appendicular Mass:** Since the best method for treating the appendicular mass isnot widely agreed upon, the treatment of this tumour is contentious and somewhat perplexing. There are currently four the rapeutic modalities used globally, with two of these schools of thought clearly distinguished from the other.

- The standard approach to management entails a period of 6-8 weeks of interval appendecto my after a first conservative course of treatment, provided the patient is well and settles.
- Completely conservative care without recurrent appendices. This method was implemented in response to several publications casting doubt on the necessity of an interval appendectomy.
- A proactive and prompt strategy that prioritises an early appendectomy in cases of appendicular mass.
- The most recent development in the treatment of appendicular masses is laparoscopic management.

**Coventional Treatment: The Ochsner-Sherrenregime:** It was once thought that because of oedema and the vulnerability of vital tissues such as the terminal ileum and caecum, surgery performed during the acute appendicitis with accumulating phase could be hazardous and result in life- threatening complications. The surgeon might cause more harm, than good because the issue was controlled and a possible solution might come along. Oschnerpopularised the Ochsner-Sherren regime[21]. For many years, the idea has been the accepted standard of care for the appendicular mass, giving it a distinctive position.

**The Following are the Current Essential Components:**

- Assisting the patient in a popped-up posture to promote any exudates' gravity flow towards the pelvis.
- For the first 24-48 hours when the patient is receiving intravenous fluids, nothing should be taken orally.
- When administering intravenous antibiotics, the mass's size is measured and vital signs are regularly checked.
- The patient is customarily permitted to ingest liquids orally prior to initiating a solid diet, contingent upon the improvement of their general health, the reduction in the size of the mass and the alleviation of fever and anorexia. The possibility of discharge to their residence is contemplated if the patient demonstrates the ability to tolerate oral intake. An interval appendectomy is subsequently conducted after an interlude of six weeks following the initial medical intervention
- Conversely, conservative care is stopped and surgery is considered if the patient's condition worsens, the mass grows, the patient's pulse rate rises, general peritonitis soccurs, orthe patient becomesseptic. Two to three percent of

conservative regimes are said to have failed and further research is seen to be crucial.

**Advocates of the Conventional Treatment:** When treating an appendicular mass with out an abscess formation, this is the most often used procedure[22]. It is preferred because it can prevent the risk of developing a faecal fistula and damaging the caecum[23]. Preference for the surgeon is still frequently given[24]. According to Tingstedt B[25], the conservative strategy is thought to be safe and linked to a significantly low rate of problems[26]. According to reports, the success rate ranges from 88 to 95%[27].Given that the rate of mass formation and appendicit is recurrence high following conservative treatment and mass resolution, interval appendicec to my is deemed essential[28]. The confirmation of the diagnosis is another factor in the decision to doaninterval appendectomy because it is possible to overlook other pathologies, such as ileocaecal TB or cancer. These cases resemble acute appendicitis, hence cautious consideration should be given to conservative therapy alone[29].

**Critics of Conventional Treatment:** Requirements for re-admission, inadequate patient compliance and occasionally trouble locating the appendix during interval appendectomy or excessive bleeding are mentioned by critics[30]. Additionally, it is stated that 10% of patients require exploration since the ircondition worsens when on conservative treatment plan[31]. If apatientis pain-free and asymptomatic, they often do no tvis it for an interval appendectomy. It's not eworthy that the recurrent illness is less severe than the initial acute appendicitis, with a reported recurren cerate of aslo was 5-20%[32]. Although interval appendectomy is questionable and may not be cost-effective, the efficacy of immediate conservative therapy is a tried-and-true method of treating the mass[33].

**Conservative Treatment with out Interval Appendicectomy:** According to Anna Kaminski[34], interval appendectomy is not required following effective conservative therapy of an appendicular mass. Certain people who do not experien cere peated symptoms may benefit from this strategy[29]. For 80% of patients, conservative therapy alone is sufficient. Following effective conservative treatment, the first six months carry the highest risk of recurrent appendicitis development and symptoms are least likely to reappear after two years. Some people view interval appendectomy asa challenging procedure and occasionally the fibrotic appendix may not be discovered during the procedure[35]. This gave rise to the idea of the wait and watch policy, which has been proven to be economical following successful conservative management[33].

**Early Appendectomy in Appendicular Mass:** If a tiny lump is felt while the patient is under general anaesthesia, most surgeons will operate on it and remove it, while some will wake the patient and proceed non-operatively. If the patient has this option, it is imperative that they are aware of it when they visit the theatre. As a result, early appendectomy is common, but not when the mass is felt before surgery and is big. According to this source, appendicular mass surgery is not as dangerous in its early stages as it formerly was. Good resuscitation, skilled anaesthesia, broad spectrum antibiotics and an experienced surgeon are essential for early surgery[36]. This method completely resolves the issue, eliminates the need forre-admission and provides an early opportunity for a definitive diagnosis. According to Sardar Ali[37], this method is safe, cost-effective and time-efficient, allowing for an early return to work. An important factor is the surgeon's experience.

**Interval Appendicectomy:** The necessity of interval appendicectomy (IA) following effective conservative treatment is another contentious matter. An analysis of 663 surgeons in North America showed that 86% of the surgeons polled routinely do IA[38]. The danger of recurrent appendicitis, which is said to happen in 21-37% of patients, is the most frequently mentioned explanation[38,39]. About 90 consultant general surgeons in England participated in a recent questionnaire survey and the results showed that 53% of surgeons of ten conduct I Aat 6-12 weeks, primarily due to recurrence concerns[40]. This claim of recurrent appendicitis has been taken into question because less than 20% of cases had the highest risk during the first two years and the risk decreases after the first two years following the initial episode[41,42]. There fore, the morbidity of surgery can be avoided for over 80% of individuals. Additionally, the Mid-Trentregion study in the UK revealed that <25% of patients manage an asymptomatic appendix mass without IA[43]. The survey reveals that following successful conservative management, specialist registrars are less likely to recommend IA to patients. This is an interesting finding[43]. A prospective, non-randomized investigation with 48 IA specimens revealed that 37 (77%) of the appendices had a patent lumen, while only 11 (23%) had appendicular lumenfibrosis and obliteration[44]. Because of this, some authors have come out in favour of IA for patients who have had good conservative treatment. But this entails giving unneeded IA to 23 per cent of patients, which requires a second hospital

is action and is not completely free of complications-the reported complication rate is between 12 and 23 per cent[54,46].

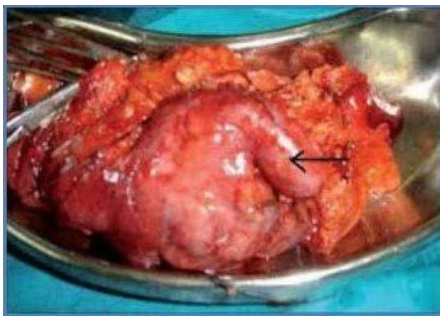


Fig. 1: Showing Appendix

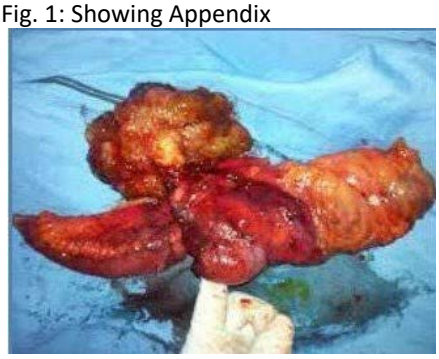


Fig. 2: Showing Appendix

**Recent Literatures:** Kumar[47] found that, when compared to appendectomy following the resolution of App mass group, cases in the IA group had shorter operating times, fewer adhesions, fewer instances where the incision needed to be prolonged and less post-operative problems. During an follow-up period of 24-52 months, only 2 out of 20 cases in the medically managed group experienced recurrent appendicitis, resulting in the shortest duration of hospital stay and work-day loss.

Manohar[48] examined the symptoms, signs and treatment of AA incases. There were 100 cases in the current study, with 61% of the cases being male and 39% being female. The age group of 20-29 years old had the largest number of cases. Anorexia was detected in 87% of cases and migratory pain to RIF in 76% of cases. In 79% of cases, there was nausea or vomiting. In 98% of the cases, RIF tenderness was detected. In 686 cases, there was evidence of rebound discomfort. In 45% of the cases, there was afever. In their investigation, TLC was increased in 80% of cases. 42% of the cases showed a shift to left. Every patient in the irresearch had an abdominal USG examination. For AA, USG has a 94.8% sensitivity and an 80% specificity. Ninety-three percentage diagnostic accuracy was achieved. For AA, NPV and PPV of USG is 44% and 98%, respectively. In this study, the rate of negative appendectomy was 5.5%. 60% of cases are observed in females.

Israr[49] evaluated the viability and security of doing early surgery on young individuals who had an App mass. The cases' mean age was 8.3 years, with 68.4% of them being men and 31.6% being women. The average length of suffering was 3.8 days. Themassin 68.4% of the cases consisted of the appendix with adherent ileal loops and the omentum., in 31.6% of the cases, the mass also included frank pus. An appendix that was partially gangrenous or perforated was discovered in 43.4% of cases, whereas 56.6% of cases had a suppurative appendix without a large perforation. Cases with complicated masses experienced higher intraoperative complications. In 23.3% of individuals, postoperative problems were noted.

Almoamin[50] evaluated the elements influencing how well medicinal treatment of App mass works. 3.9% of cases of AA are complicated with an app mass. In 84.5% of cases, medical therapy of App mass was successful. The majority of app mass cases were in children between the ages of 5 and 10. Males are impacted at a ratio of 1.4, more of ten than females. There is a strong correlation between age and the effectiveness of medicinal control of App mass. The size of the tumour or the length of the symptoms has no discernible bearing on how well medical treatment works. There are no significant surgical complications or fatalities. Medical management, while beneficial, increases hospital stay duration. Ravichandran[51] stated that complications such as intraop adhesions, surgical site infections, wound dehiscence and enterocutaneous fistula were less common when medical treatment was followed by IA. It also required less time in the hospital after surgery and for recovery. Das[52] compared the use of IA after medical management in cases of appendicitis with EA, in an effort to improve patient care for cases with complex appendicitis. 112 cases were found to have an Appmass out of 1192cases of AA. According to the record, 48 instances were treated with an emergency surgical operation and 64 cases were managed normally in accordance with the OSR, followed by elective IA. Of the 64 cases in the IA group, 58 cases (90.6%) had successful non-operative treatment. Six cases among the remaining cases had not responded to non-operative treatment and they underwent emergency surgical exploration (9.4%). Thus, after six weeks, IA was performed on 58 individuals in total. Of the 54 cases in both groups who had undergone immediate appendectomy, 55.5% of them had an App mass discovered during the procedure, but all 44 cases in the medically treated group were released from the hospital in <six days (91.7%). However, only 16 cases in the IA group-or 25%-were allowed to leave the hospital in less than six days., the remaining cases were released from the hospital after >seven days. They as

serted that because of advance ments in surgical methods and improved postoperative care, EA in App bulk is safe.

Appa[53] conducted a research with sixty Appmasscases. The majority of cases (50%) belonged to the age category of 21-30 years old, with a mean age of years, ranging from 13-48. Wound infections were the most prevalent problems experienced by 13.3% of cases in the EA group. Cases in the medical management group experienced 46.7% of problems, with treatment failure and missed follow-up being the most common. The average number of days that the EA group received parenteral medicine was 3.3. It was 6.2 days in the medically supervised group. The average length of hospital stay for the EA group was 5.3 days. It was 8.5 days in the medically monitored group. They asserted that EA is a manageable and safe treatment option for cases with App mass.

Acharya[54] compared the results of App mass cases receiving medical care alone with routine follow-up versus receiving medical care plus IA and assessed the hazards associated with IA. There was no remarkable significance since the mean age group in both groups (26-50 years) was similar. More men than women were impacted. Two cases in the group receiving conservative care experienced issues, while nine cases in the other group experienced problems. Four of the twenty-five cases in the conventional group and nine of the cases in the IA group experienced recurrent appendicitis. Of the cases in the IA group, three spent five to ten days in the hospital and twenty-two spent less than five. Nine cases stayed in the hospital for less than five days, thirteen for five to ten days and three for more than ten days in the group that was conservatively handled. They asserted that the best course of treatment for AA is an EA. It's still up for de batewhe ther IA is preferable to medical management alone with routine follow-up in the treatment of App mass after medical management.

Tarar[55] contrasted the outcomes of EA with app mass medical management. They stated that the cases' average age was 26.8 years. The male- to-female ratio was 1.2:1, with 55% of the cases being men and 45% being women. Individual sunder conservative man age ment had anoticeably longer mean length of hospital is action than individuals receiving early appendectomy (EA). On the other hand, there was no discernible increase in the frequency of perforations between the EA group and the medically treated group. They stated that treating cases with Appmasses medically was linked to longer hospital admissions., never the less, the frequency of appendicular perforations was shown to beassafe under this approach, indicating that medical treatment of cases with App masses is recommended, especially for high-risk cases.

## MATERIALS AND METHODS

**Study Design:** This prospective observational study was conducted to assess the natural progression of appendicular mass and plan appropriate management strategies.

**Place of Study:** Department of General Surgery, Narayana Medical College and Hospital, Nellore.

**Study Population:** Patients with appendicular mass

**Study Period:** September 2022-April 2024.

**Inclusion Criteria:**

- Patients with age group between 18-60 years with Appendicular Mass.
- Patients who are willing to participate in the study and have given written consent.

**Exclusion Criteria:**

- Patients not willing for Conservative management.
- Generalized Periton it is with Appendicular mass.
- Diabetics.
- Pregnant women.
- Children.
- Established cases of Abdominal Tuberculosis, Malignancies, Inflammatory Bowel disease.

**Sample Size:** A total of thirty cases those who presented with appendicular mass during the study period were included in the study.

**Ethical Committee Approval:** Ethical committee approval was obtained for this study from the Institutional Human Ethics Committee.

**Data Collection:** Prior to the interview, thes tudy participants provided written informed consent. Following the acquisition of signed in formed consent, I have used a pre-structured proforma to evaluate each participant's clinical presentation and demographics I have also evaluated each participant's comprehensive medical history and performed a clinical examination on the patients. Additionally, blood tests and abdominal USGs were performed on every case both at the time of presentation and during the follow-up period of 1 year. After the initial presentation, follow-up was conducted for a full year, with three-month intervals for period assessments.

**Data Analysis:** The data was entered in excel sheet and analyzed using Statistical Package for Social Sciences (SPSS)-Version 19. Descriptive statistics with mean, standard deviation and proportions(%) were calculated for quantitative variables.

## RESULTS AND DISCUSSIONS

**Demographics and Gender Distribution:** In the present study, majority of cases (40%) were in age group of 31-40 years followed by 33.3% in 18-30 years, 16.7% in 41-50 years and 10% in 51-60 years of age. Mean age was noted as 36.2 with SD of 9.4 years.

The age distribution of participants was skewed toward younger adults, with the majority (40%) aged between 31-40 years, followed by 33.3% aged 18-30 years. A smaller portion of the participants were in the 41-50 years (16.7%) and 51-60 years (10%) age groups. In terms of gender distribution, females constituted a significant majority, accounting for 60% of the participants, while males made up the remaining 40%.

**Clinical Symptoms:** The study provided detailed data on various symptoms and clinical signs associated with acute appendicitis. Notably, 86.7% of participants presented with diffuse abdominal pain, a common symptom of appendicitis, while only 13.3% were free from this symptom. A high prevalence of right iliac fossa (RIF) pain was observed, affecting 93.3% of cases, which is consistent with the typical presentation of appendicitis. Additionally, 83.3% of participants experienced pain that migrated to the RIF, a characteristic symptom of appendicitis.

Nausea and vomiting were reported in 56.7% of the cases, highlighting the gastrointestinal involvement common in appendicitis. Fever, another common symptom, was present in 40% of cases. Interestingly, anorexia, often associated with appendicitis, was reported in only 30% of cases.

**Duration of Illness and Initial Presentation:** Regarding the duration of illness before presentation, 53.3% of the participants reported symptoms lasting two days or less, while 46.7% had symptoms for >two days. The mean duration of illness was 1.7 days, with a standard deviation of 1.1 days.

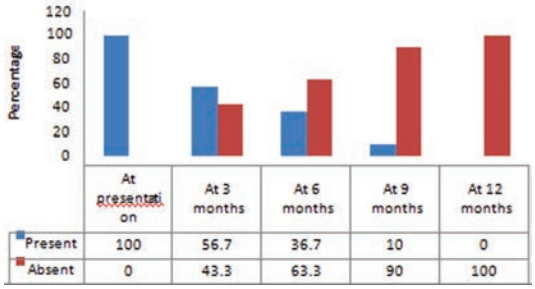
Upon initial presentation, a significant majority (96.7%) exhibited RIF tenderness, a key diagnostic sign of appendicitis. Similarly, guarding, which indicates peritoneal irritation, was present in 93.3% of the cases. Rebound tenderness was noted in 86.7% of cases, further supporting the diagnosis of appendicitis. The Rovsing sign was positive in 83.3% of participants and the psoas and obturator tests were positive in 80% and 83.3% of cases, respectively, indicating inflammation affecting the muscles and peritoneum.

**Laboratory Findings:** The study also reported on laboratory findings, particularly the neutrophil count and white blood cell (WBC) count, which are crucial in diagnosing appendicitis. An abnormal neutrophil percentage was found in 93.3% of cases and 96.7% of participants had an abnormal WBC count at the time of presentation. Over time, the WBC count normalized in most patients, with only 3.3% showing abnormal counts at six months and none at twelve months.

**Appendicular Mass and Diameter of the Appendix:** At the initial presentation, 100% of cases had an appendicular mass, but this figure decreased significantly over time, with only 10% of cases showing a mass at nine months and none at twelve months. Similarly, the diameter of the appendix was dilated in 96.7% of cases at presentation, but this also normalized over time, with all cases showing normal diameters by twelve months.

**Table 1: Appendicular mass at different time intervals**

| Appendicular mass | At presentation | At 3 months | At 6 months | At 9 months | At12 months |
|---|---|---|---|---|---|
| Present | 30(100) | 17(56.7) | 11(36.7) | 3(10) | 0 |
| Absent | 0 | 13(43.3) | 19(63.3) | 27(90) | 30(100) |
| Total | 30(100) | 30(100) | 30(100) | 30(100) | 30(100) |

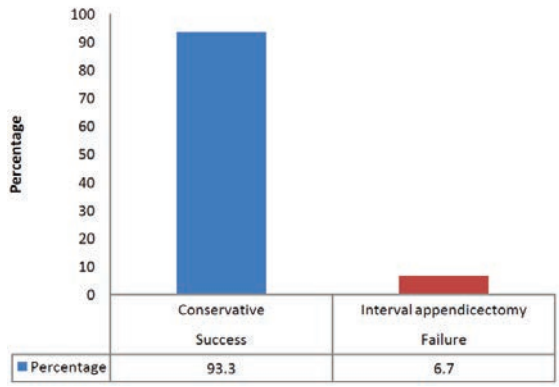



Graph 1: Appendicular mass at different time intervals

**Treatment Outcomes:** In this study, success of Os regimen was reported in 93.3% of cases who were managed conservatively however there were 6.7% of cases, who required interval appendicectomy at 6 weeks and 3 months duetonon compliance of the patient and the other due to abdominal discomfort.

**Table 2: Rate of success of OS Regimen**

| Rate of success of OS Regimen | Response | Frequency | Percentage |
|---|---|---|---|
| Success | Conservative appendicectomy | 28 | 93.3 |
| Failure | Interval | 2 | 6.7 |
| Total | - | 30 | 100 |

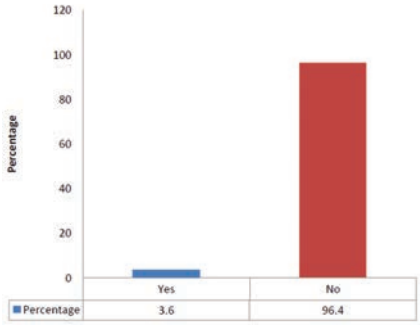



Graph 2: Rate of success of OS Regimen

Most importantly, 3.6% of cases had recurrent appendicitis at 3 months of presentation and 96.4% of cases had no recurrence during the follow up period of one year.

**Table 3: Proportion of cases with recurrent appendicitis**

| Recurrent Appendicitis | Frequency | Percentage |
|---|---|---|
| Yes | 1 | 3.6 |
| No | 27 | 96.4 |
| Total | 28 | 100.0 |




Graph 3: Proportion of cases with recurrent appendicitis

In the present study, majority of cases (40%) were in age group of 31-40 years followed by 33.3% in 18-30 years, 16.7% in 41-50 years and 10% in 51-60 years of age. Mean age was noted as 36.2 with SD of 9.4 years. In this study, majority (60%) were females and the rest 40% were males. Notably 86.7% of cases had diffuse pain abdomen and 13.3%of cases were free from diffuse abdomen pain.

Majority (93.3%) of cases had RIF pain and only 6.7% of cases did not have RIF pain. Also, 83.3% cases had abdominal pain radiating to RIF and 16.7% of cases had no migrating pain. Additionally, 56.7% and 43.3% of cases were with and without nausea and vomiting, respectively. Fever was present in 40% of cases and 60% of cases did not have fever. Anorexia was reported in 30% of cases.

On assessing the duration of acute appendicitis, 53.3%, and 46.7% of cases had illness for $\leq$2 days and >2 days, respectively. Mean duration of illness was 1.7 days with SD of 1.1 days. Notably RIF tenderness was reported in 96.7% of cases. Guarding was present in 93.3% of cases and only 6.7% of cases did not have guarding. Also, 86.7% and 13.3% of cases were reported with and without rebound tenderness, respectively.

Rovsing test was positive in 83.3% of cases and negative in 16.7% of cases. Psoas test was positive and negative in 80% and 20% of cases, respectively. Obturator sign was positive in 83.3% of cases and negative in 16.7% of cases. Notably neutrophil percentage was normal and abnormal in 6.7% and 93.3% of cases, respectively. In this study, at presentation with acute appendicitis with a mass, 96.7% of cases had abnormal WBC countho wavered 3,6,9 and 12 months there were 46.7%, 6.7%, 3.3% and 0% of cases had abnormal WBC count, respectively. Also, at presentation with acute appendicitis, 100% of cases had appendicular mass however at 3,6,9 and 12 months there were 56.7%, 36.7%, 10% and 0% of cases had appendicular mass, respectively. Also, at presentation, 96.7% of cases had dilated appendix however at 3, 6, 9 and 12 months there were 46.7%, 13.3%, 0% and 0% of cases had dilated appendix, respectively.

Also, at presentation with acute appendicitis, 96.7% of cases had RIF tenderness however at 3 months there were 26.7% of cases. Notably at 6, 9 and 12 months of followupthere were no cases with RIF tenderness. In this study success of OS regimen was reported in 93.3% of cases who were managed conservatively however there were 6.7% of cases, who required interval appendicectomy. Most importantly, 3.6% (Only 1 patient) of cases had recurrent appendicitis and 96.4% of cases had no recurrence during the follow up period of one year. Findings of the present study were comparable with the findings of the following studies. Meshikhes AWN[56] in their review reported that EA is becoming a more popular the rapeuticoption than traditional medicine for appendix masses. It allows forthe early diagnosis and treatment of unanticipated pathology and is possible, safe and economical. When it's unclear, emergency surgery should be performed. IA can be safely discontinued after effective medical care, with the exception of incases who have recurrent symptoms. Ali[57] reported that the 2nd and 3rd decades of life are when AA is most common. Ther atioofmen to women was 2:1. Over 90% of the cases reported having fluctuating stomach pain in the past. Upon examination, 100% ofthecases had varying degrees of appendix inflammation. Adhesive intestinal blockage, treatment failure, missed follow-up, incorrect diagnosis and readmission were less common in the EA group of cases. Compared to the medically managed group, the EA group's hospital stay was noticeably shorter.

Similarly, Bahram[58] assessed the safety and viability of EA in the context of App mass. During the procedure, the appendix was located inall 46 cases and removed. In 25% of cases, peri-appendiceal abscesses were found. In 10% of the cases, adhesiolysis and appendix localization were problematic. Of the cases, 17% had superficial wound infections and 9% had deep wound infections. A three- day hospital stay was the average. There had been noseriousissues. They asserted that EA intervention is safe, practical and spares cases with an App mass from the negative effects of misdiagnosis and management of other surgical illnesses. Jat[59] discovered that, among the sixty cases,there were forty men and twenty women, oram al et of ameliorate

of 2:1. Age sranged from 12-50, with amean of 24. Thirty cases had EA intervention. In these cases, 80% had an App mass without pus formation, 13.3% had a localised pus collection along with the mass and 6.7% had a frank App abscess. A 4.5-day hospital stay was average. Post-operative complications included faecal fistula in 3.3% of cases, incisional hernia in 3.3%, deep wound infection in 10% of cases and superficial wound infection in 16.7% of cases. In this study, 6.7% of instances of persistent abscess were treated with antibiotics and drainage guided by USG.

Also, in another study, Kaya[60] examined the efficacy and safety of doing an urgent appendectomyon cases who had an App mass. With a mean age of 37.2 years, they stated that there were 53.2% men and 46.8% females. It took an average of 4.1 days from the start of the symptoms until the operation. In 80.9% of cases, a straightforward appendectomy was carried out. Followingsurgery, 61.8% of cases were released and followed up on without any complications. In 27.7% of the cases, wound infection was identified. Villalon F et al53determined the best moment to perform the appendectomy and the non-operative strategy for the appendix. Nineteen Appmass cases were firs than dledusinga non-operative technique in their series. All of them received intravenous antibiotics and in 14 of the cases, a peritoneal drainage was implanted. An EA was done in 16% of instances. 84% of the time, the conservative strategy worked and the appendectomy was postponed for three to twelve months. Twelve of them were done using laparoscopy, while four were done using an open technique. There was only one complication (a wound abscess) and the mean length of stay was 1.8 days. Of these sixteen delayed appendectomies, eleven were completed without much difficulty on a technical level and in five cases the numerous adhesions made the process challenging. They stated that, based on their 84% success rate in their series, careful management of Appmassis beneficial. If the appendectomy was done three to six months after the symptoms started, there was less risk involved.

However, Olsen[62] evaluated the consequences and treatment failure of the different the rapytechniques. According to the irfindings, there was a 57% chance of moderate to severe morbidity following an appendectomy for App mass and a 25% chance of intestinal resection. Significant problems were noted in as many as 18% of the instances. An 8-15% treatment failure rate was linked to medical care, whether or not antibiotics were used. Drainage was associated with a 2-15% risk of complications and α2-13% probability of treatment failure. They asserted that, in contrast to medical care or drainage, an appendectomy procedure for anApp tumour entails a significant risk of complications. Murcia[63] reported that the mean age of the medically managed group was 3.7 years, where as the EA group's was 9.2 years. In the medically managed group, the median delay from the onset of symptoms to diagnosis was7.9days,whereas in the EA group it was 4 days. In 24% of cases in the EA group and 42.9% of cases in the medically managed group, antibiotics were given prior to diagnosis. All cases had ultrasounds, but only 19.6% needed TAC to get a conclusive diagnosis. The EA group's median hospitalisation was 7.9 days, whereas the medically managed group's was 8.3 days. 64% of cases in the EA group and 23% of individuals in the medically managed group had complications. They asserted that the complication rate from medicinal care of App mass is lower than that from initial surgical management. In consistent with this study, Pawan[64] contrasted the early investigation of Appmass with its medical management. There was a high errisk of adhesive intestinal blockage, residual abscess, treatment failure, and readmissions in the medically managed group (mean hospitalisation duration of 10 days compared to 4 days fortheEA group). They came to the conclusion thatEAexploration providesaprettysatisfying outcome while confirming the diagnosis, curing the issue, lowering management costs and reducing the length of hospital stays and convalescence. Assefa[65] discovered that all cases had rebound tenderness, RLQ direct pain, and stomach discomfort. A mass was found in 84.9% of the cases' RLQ. Medical intervention was successful in 89% of cases, and cases were released from the hospital after an average of 6.5 days. 58 in dividualshad IA 8-16 weeks following the effective medical care. After IA, hospital stays ranged from 2-5 days, with amean of 3.5 days. A wound infection was present in 1.7% of cases. No one died. The majority of the time, they said, the in itial non-operative therapy of App mass was successful, and the rate of complications following IA treatment appeared to be lower thanthat of EA treatment.

Similarly, Yousfani[66] comprised fifty in dividuals who had Appmass., of these, 70% had fever and 60% had vomiting symptoms. Thirty percent of those with appabs cesses reported vomiting and ninety percent had afever. With amale predominance in the population, app mass and app abscess were found in 64% and 36% of cases, respectively. Of the thirty-two cases with Appmass, six teen go turgent surgery, while there maining sixteen were handled with OSR and had an appendicectomy at a later time. Due to recurrent appendicitis, all 18 instances of appendix abscess were treated with antibiotics and drainage. These cases were nominated for IA six to eight weeks later. Dileep[67] stated that the cases' average age was 25.9. The male to female ratio was 1.8:1, with a plurality of

men (65%). The majority of cases, or 67.5%, said that their pain started in the periumbilical area. 80% of cases had a shift in pain to RIF. Seventy percent of cases had a fever and 87.5% of cases experienced GI symptoms. Seventy percent of the cases had a simple mass during surgery, four had an appendix that had ruptured, five had an abscess and three had adhesions. Five cases had trouble localising the appendix., two cases each experienced mild intestinal damage and bleeding., andone case had trouble with adhesiolysis. In 80% of cases, there were no issues.

Similarly,[68] found that the malet of emaleratio of 2.7:1, with male preponderance (70%). The most common symptom that cases presented with was abdominal pain. The operation alissues that the two lines of management under study here face are not significantly different fromonean other. The cases in the OSR followed by IA treatment group experienced higher problems, which ledtoincreasedmorbidity. The traditional method of treating IA medically was replaced with surgical management of App mass by skilled surgeons due to minimal morbidity, shorter hospital stays, lower costs and better patient compliance. Debnath[69] reported that 67 individuals with an App mass diagnosis were among the 614 cases with AA, indicating 10.9% incidence. The cases' meanage group was 37.5 years, with 58% of them being men and42%being women. The majority is Hindu by religion (67.2%) and comes from amiddle-class socioeconomic household (53.7%). The patient typically appears with fever, anorexia and pain in the right bottom quadrant. Ultrasound of the abdomen and clinical information supported the diagnosis. With a mean hospital stay of 9.36 days, conservative medical therapy proved effective for the majority of cases (69%) receiving treatment. According to the study' sfindings, medical management could be used as a safe and effective initial treatment for appendicitis related to a lump.

However, Rahman[70] examined the results of early App mass surgery. The cases' ages ranged from 2-12 years, with a 2:1 male to female ratio. The most frequent presentation was stomach pain, which was followed by vomiting and fever. The average discomfort period was 4.4 days. 63.64% of the cases had a fever, 74% experienced tachycardia and 75.9% had an elevated white blood cell count. Of the cases, 14.1% had a laparoscopic appendectomy, while the remaining 85.9% had open surgery. The most frequent peri-operative discovery was a perforated appendix, which was followed by pus development. In addition, compared to older boys, younger cases experienced noticeably greater hospital stays and problems. 19.1% of the cases experienced complications, with wound dehiscence being the most frequent one. Das[71] compared the use of IA after medical management in cases of appendicitis with EA, in an effort to improve patient care for cases with complex appendicitis. 112 cases were found to have an App mass out of 1192 cases of AA. According to the record, 48 instances were treated with an emergency surgical operation and 64 cases were managed normally in accordance with the OSR, followed by elective IA. Of the 64 cases in the IA group, 58 cases (90.6%) had successful non-operative treatment. Six cases among the remaining cases had not responded to non-operative treatment and they under wen emergency surgical exploration (9.4%). Thus, after six weeks, IA was performed on 58 individuals in total. Of the 54 cases in both groups who had undergone immediate appendectomy, 55.5% of them had an App mass discovered during the procedure, but all 44 cases in the medically treated group were released from the hospital in <six days (91.7%). However, only 16 cases in the IA group-or 25%-were allowed to leave the hospital in <six days., the remaining cases were released from the hospital after >seven days. They asserted that because of advancements in surgical methods and improved postoperative care, EA in App bulk is safe.

In another study, Appa[72] conducted a research with sixty App mass cases. The majority of cases (50%) belonged to the age category of 21-30 years old, with a mean age of 27.6 years, ranging from 13-48. Wound infections were the most prevalent problems experienced by 13.3% of cases in the EA group. Cases in the medical management group experienced 46.7% of problems, with treatment failure and missed follow-up being the most common. The average number of days that the EA group received parenteral medicine was 3.3. It was 6.2 days in the medically supervised group. The average length of hospital stay for the EA group was 5.3 days. It was 8.5 days in the medically monitored group. They asserted that

EA is a manageable and safe treatment option for cases with App mass. Acharya[73] compared the results of App mass cases receiving medical care alone with routine follow-up versus receiving medical care plus IA, and assessed the hazards associated with IA. There was no remarkable significance since the mean age group in both groups (26-50 years) was similar. More men than women were impacted. Four of the twenty-five cases in the conventional group and nine of the cases in the IA group experienced recurrent appendicit is. Of the cases in the IA group, three spent five to ten days in the hospital and twenty-two spent less than five. Nine cases stayed in the hospital for less than five days, thirteen for five to ten days and three for more than ten days in the group that was conservatively handled. They asserted that the best course of treatment for AA is an EA. It's still up for debate whether IA is preferable to medical management alone with routine follow-up

in the treatment of App mass after medical management.

In contrast, Tarar[74] stated that the cases' average age was 26.8 years. The male-to-female ratio was 1.2:1, with 55% of the cases being men and 45%being women. Individuals under conservative management had a noticeably longer mean length of hospital is ation than individuals receiving early appendectomy (EA). On the other hand, there was no discernible in crease in the frequency of perforations between the EA group and the medically treated group. They stated that treating cases with App masses medically was linked to longer hospital admissions., nevertheless, the frequency of appendicular perforations was shown to be as safe under this approach, indicating that medical treatment of cases with App masses is recommended, especially for high-risk cases.

**Summary:** This study investigated the presentation and progression of appendicular mass cases. In this study, the majority of patients were aged between 31-40 years, with a mean age of 36.2 years and 60% were female. Most patients (86.7%) experienced diffuse abdominal pain and 93.3% had right iliac fossa (RIF) pain. Additional symptoms included pain radiating to the RIF in 83.3% of cases, nausea and vomiting in 56.7% and fever in 40%. This study assessed the duration of acute appendicitis, with an average illness duration of 1.7 days. Initially, 100% of cases presented with an appendicular mass and 96.7% with dilated appendicitis. Clinical signs included RIF tenderness in 96.7% of cases and positive Rovsing, psoas and obturator signs in over 80% of cases. Over time, these symptoms significantly decreased, with no cases showing dilated appendix, RIF tenderness, Appendicular mass by 12 months with the conservative approach.

The conservative management through the OS regimen was successful in 93.3% of cases, while 6.7% required interval appendectomy. Recurrence of appendicitis was observed in 3.6% of patients during a one-year follow-up. This study strongly supports conservative management for appendicular mass, citing a success rate of 93.3% with only 6.7% requiring further surgical intervention. The low recurrence rate of 3.6% over a one-year follow-up period further validates the effectiveness of this approach. Conservative treatment reduces immediate surgical risks, hospital stays and overall healthcare costs. These findings suggest that with careful monitoring and follow-up, conservative management can be a highly effective and preferable option for patients with Appendicular Mass

## CONCLUSION

In this study, 13.3% of the cases were free of diffuse abdominal discomfort, whereas86.7%of the cases experienced it. Just 6.7% of in dividuals did not have RIF discomfort, while the majority (93.3%) of cases did. Additionally, 16.7% of in dividualshad no migrating pain and 83.3% of cases experienced stomach discomfort that extended to RIF. Furthermore, nausea and vomiting were present in 56.7% and 43.3% of cases, respectively. Forty percent of cases had a temperature, while sixty percent of cases had no fever. In 30% of instances, anorexia was reported. 100% of cases had an appendicular mass when they presented with acute appendicitis., however, at 3, 6, 9 and 12 months, the percentages of cases having an appendicular mass were 56.7%, 36.7%, 10% and 0%, respectively. Additionally, 97% of cases had dilated appendicitis at presentation., however, at 3, 6,9 and 12 months, the percentages of cases with dilated appendicitis were 46.7%, 13.3%, 0% and 0%, respectively.

Additionally, 26.7% of cases had RIF discomfort at three months, compared to 96.7% of cases at the time of acuteap pendicitis presentation. Notably, no patients of RIF discomfort were found at 6, 9, or 12 months of follow-up. 93.3% of the cases in this trial that were treated conservatively showed effectiveness with the OS regimen., 6.7% (Only 2 patients) of the cases needed interval appendicectomy. The most significant findings were that, during the course of a year-long follow-up, 3.6% of individuals experienced recurrent appendicitis, while 96.4% of cases did not. Thusweinfer that in the management of appendicular mass, the OS regimen is found to be efficacious and safe in terms of conservative management.

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