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RESEARCH ARTICLE

"THE ROLE AND PROCEDURE OF INTERVAL APENDECTOMY IN FOLLOW-UP CASES OF APPENDICULAR MASS AND ABSCESS IN TERTIARY CARE IN KALABURAGI"

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Abstract

Introduction: An appendicular tumor is among the most common adverse effects seen in patients who show symptoms a few days after the onset of acute appendicitis. The optimum treatment for acute appendicitis is generally thought to be an appendectomy; if this is not done, a number of complications, including an appendicular mass, usually occur. In the past, active observation and frequent physical examinations were the main methods used to diagnose acute appendicitis, with little to no reliance on laboratory tests. A greater reliance on purportedly objective diagnostic instruments can cause delays in diagnosis and has altered the prognosis for certain patients. Delays in diagnosis can lead to the development of severe appendicitis from simple, acute appendicitis. Surgery is a common procedure avoided by many in a nation where the majority of people live in poverty and one person may earn all of the family's income. This is the reason why some people find it difficult to take time off of their jobs. The fact that a big percentage of people are normally afraid of surgery is a major contributing factor. The growth of an appendicular tumor can also be caused by other factors, such as the lack of medical facilities in remote, impoverished areas. General practitioners in some rural areas sometimes keep patients on symptomatic therapy rather than sending them to a higher-level hospital.

Aim of the Study: In order to better understand the function of interval appendicectomy, this dissertation will examine the outcomes of treated cases with appendicular mass and abscess. to compare and assess the clinical results of appendicular masses and abscesses treated surgically versus conservatively. to assess the benefits and usefulness of interval appendicectomy while these cases are being monitored.

Material and Methods: • Research period: November 1, 2022–August 31, 2023; study location: Kalaburagi's Basaveshwara Teaching and General Hospital, which is connected to Mahadevappa Rampure Medical College. This study design is known as prospective research. • Data analysis: The relevant statistical test will be applied after the data

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has been entered into MS Excel and tabulated. • Sample size: Diagnoses of appendicular masses and abscesses are considered, as are all patients admitted to different surgical wards within the study timeline.

Results: Interval appendicectomy is considered beneficial in patients of severe appendicitis managed conservatively due to its low conversion rate, lower recurrence, lower complication rate, and shorter hospital stay.

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Introduction:-

One of the most common acute surgical diseases is acute appendicitis. An inflammatory mass or confined abscess, which frequently manifests as a palpable mass a day after the onset of symptoms, may occasionally be formed by the patient's own defense mechanism in cases of acute appendicitis.

In 2 to 7% of all episodes of appendicitis, there is an appendicular mass. Children and the elderly are more susceptible, and their diagnosis of acute appendicitis may be missed or delayed.

48 to 72 hours following the onset of acute appendicitis symptoms is when the mass often develops in the right iliac fossa. The mass appears when ischemia necrosis and gangrene of the appendicular wall result in appendicitis, which is then produced by obstruction of the lumen. This poses a risk of appendix perforation.

The omentum and small bowel surround the inflamed appendix as a natural defense mechanism, trying to keep the infection from spreading by separating the irritated organ from the remainder of the abdominal cavity. This type of defense system may have been chosen due to an evolutionary benefit.

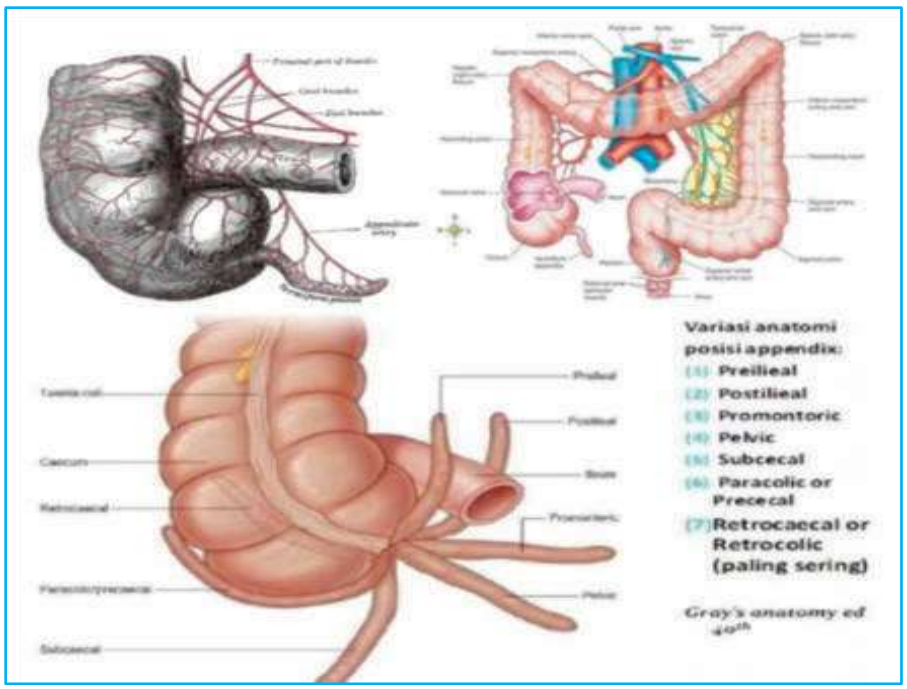
Typically, the patient has a right iliac fossa painful mass along with fever, malaise, and anorexia. In the event that this walling of mechanism fails, widespread peritonitis could result. This is most frequently observed in cases with faecolith blockage of the appendicular lumen, immunocompromised patients, advanced age, diabetes mellitus, and when the inflamed appendix is lying freely in the pelvis and cannot be fully encircled by the omentum.

Anatomy & Embryology

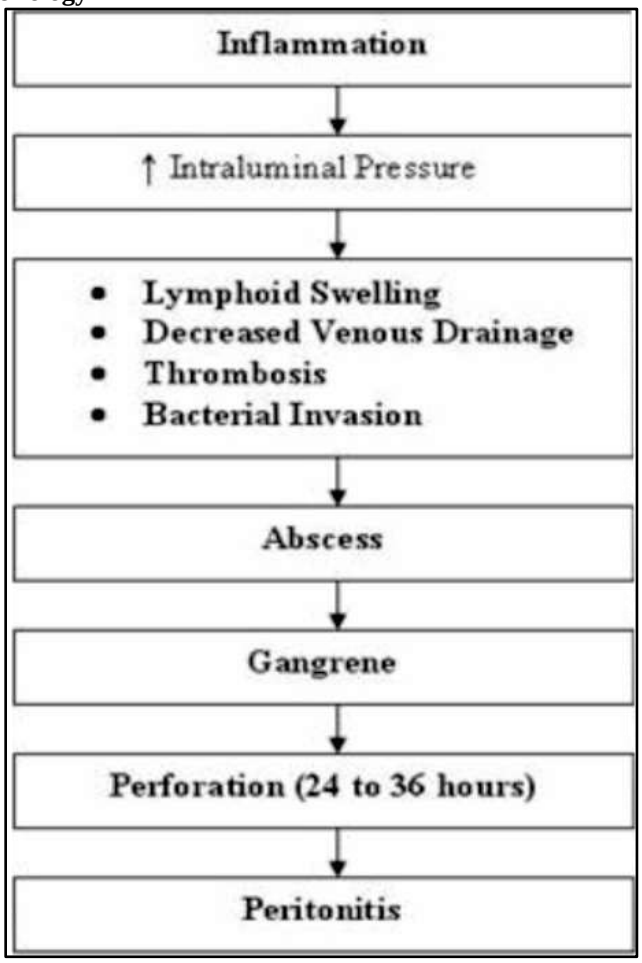
At eight weeks of pregnancy, the appendix-a midgut organ-is first identified as a little pouching of the cecum. As the pregnancy goes on, the cecum rotates medially and settles into the right lower quadrant of the belly, causing the appendix to grow longer and more tubular.

Because of the columnar epithelium, neuroendocrine cells, and goblet cells that produce mucin that line the tubular structure, the appendiceal mucosa has a colonic appearance. The appendix is a midgut organ that receives its blood supply from the superior mesenteric artery. One of the main named branches of the superior mesenteric artery, the ileocolic artery, is the source of the appendiceal artery, which passes through the mesoappendix. The lymphatics of the appendix are also located in the mesoappendix, and they accompany the blood flow from the superior mesenteric artery to the ileocecal nodes. Adults usually have an appendix that is 9 cm long, though it can vary in length from 5 to 35 cm.

Antibiotic treatment for appendicitis-related infections should consider both gram-negative and gram-anemophilous bacteria. These infections should be considered polymicrobial. Common isolates include Escherichia coli, Bacteroides fragilis, enterococci, Pseudomonas aeruginosa, and others. There are numerous causes of luminal obstruction. The most common of these are fecal stasis and fecoliths, but other potential causes include ascaris parasites, lymphoid hyperplasia, neoplasms, fruit and vegetable debris, and barium ingestion.



Pathophysiology And Bacteriology



Pathogenesis of The Appendicular Mass

Following an acute episode of appendicitis, the appendicular mass usually manifests as a sore lump in the right iliac fossa, with a size that can vary from a phlegmon to an abscess (Brown CV et al 2003). It usually appears in patients who report later in the course of acute appendicitis because the omentum and small bowel coils in the appendix area automatically seal off the inflamed appendix.

At first, this mass is made up of a confused mixture of granulation tissue and an inflammatory appendix (Brian W. Ellis and Simon –Paterson Brown 2000). If the barriers hold and the inflamed appendix does not rupture, a clinically palpable painful mass develops in the right iliac fossa within 48 hours. If the appendix ruptures or the defenses are unable to control the inflammation, an appendicular abscess may develop.

Physical Examination

Clinical Presentation Symptoms

- Peri umbilical pain
- Pain shift to right iliac fossa
- Anorexia
- Nausea and vomiting

Murphys Triad

- Pain
- Vomiting
- Temperature

Signs Of Appendicitis

- Pyrexia
- Localized tenderness in right iliac fossa
- Muscle guarding
- Rebound tenderness

Signs To Elicit Appendicitis

COPES PSOAS TESTPain on extension of the right thigh: retroperitoneal retrocaecal appendix.

Obturator Test:-

Pelvic appendix pain on internal rotation in the right thigh ROVSING SIGNWhen the left iliac fossa is pressed, there is pain in the right iliac fossa because the intestinal loops are shifting and irritating the parietal peritoneum.

Dunphys Sign:-

Coughing causes increased pain in the right iliac fossa.

Aron Sign:

Discomfort and pain in the epigastrium upon applying pressure above McBurney's point.

The Blumberg Sign:

Release sign because an organ underneath it is irritated.

Alder's Sign

(Diagnose Appendicitis In Pregnancy)

Mark the area that is the most tender first. When the patient is turned to the left, the appendix pain stays in the same location, but the uterine origin's tenderness will change.

Differential Diagnosis Gastro-intestinal

Cholecystitis Diverticulitis The diverticulitis of Meckel Enteritis stomach ulcer Intussusception intestinal lymphadenopathy

Enterocolitis with necrotizing Omentum Torsion Acute Pancreatitis Bowel perforation volvulus Neoplasm (carcinoid, carcinoma, lymphoma) GYNECOLOGICAL Unwanted conception Endometriosis Torsion of the ovaries Inflammatory illness of the pelvis and ovarian cyst bursts ovarian tubo abscess

Systemic Cause
Acidosis keto in diabetics Porphyria Anemia with sickle cells Pleurisy Genito-urinary prostatic and pyelonephritic kidney stones urinary tract infection infection of parasites

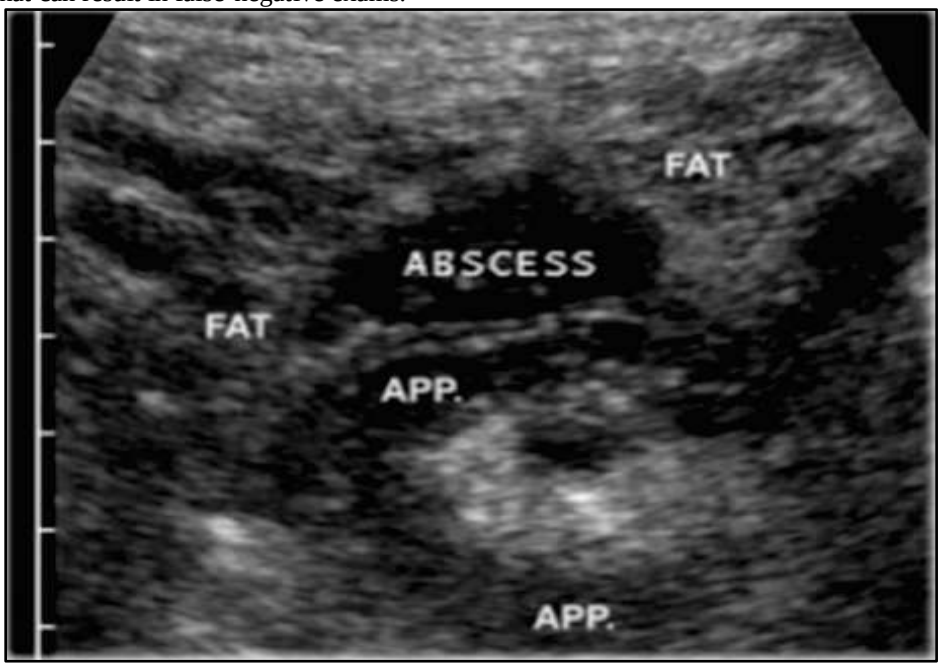
Abscess of Psoas Hematoma Torsion of the testicles

Investigations
Lab Investigations
The overall count significantly rose, with a range of 8000 to 14000/mm3. An increase in neutrophil counts (Shift to left) Increased CRP suggests inflammation. Analyzing urine to rule out urinary tract infections.

Radiographic Studies
Plain X-ray Film
•Sentinel loop: a fluid level in the ileum with dilated atonic ileum; dilated caecum; appendix calculus measuring between 0.5 and 6 cm; right lower quadrant hazy from fluid and edema • Present scoliosis that is concave to the right; • Preperitoneal fat widening; • Right lower quadrant mass indenting the caecum; • Blurring of the right psoas shape; • Appendix gas

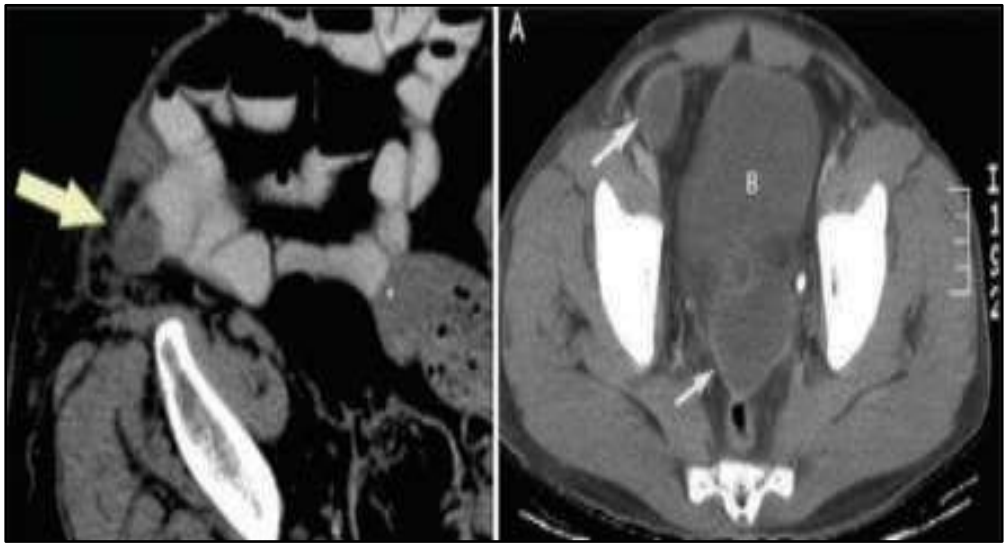
Ultrasound
For people experiencing abdominal discomfort, ultrasonography has a sensitivity of over 85% and a specificity of over 90% when diagnosing acute appendicitis.

Ultrasound Findings
• A tubular structure that is blind and ends at the tender point • Non-compressible oedema of the caecal pole • Diameter 7 mm or more •No peristalsis •Appendicolith producing an acoustic shadow high echogenicity non-compressible surrounding fat •Surrounding fluid or abscess; •One assertion is that the sensitivity is approximately 90%. Recall that there are difficulties with diagnosing appendicitis with ultrasonography. gangrenous or perforated appendicitis, retrocaecal appendicitis, appendicitis of the appendiceal tip, and orgas loaded appendix are among the scenarios that can result in false-negative exams.



Computed Tomography (C.T)
Spiral CT scans are more accurate than axial CT scans in appendicitis. Comparing oral and IV contrast to a non-contrast CT scan yields more accurate results.

C.T. Findings In Appendicitis:
• Appendicolith is present • Appendix diameter is greater than 6 mm • Oral contrast or air does not fill the appendix • IV contrast enhances the appendix wall Fluid, thick caecum, appendicular mass, fat attenuation, gas in the extra luminal space, and swollen lymph nodes. 100% Specificity and sensitivity are 100% blocked, with the caecal lumen oriented towards the appendix's orifice.



Diagnostic Laparoscopy
It helps with cases that are unclear. Prevent unwarranted appendectomy beneficial for both gynecological disorders and young girls

Alvarado Score:
To aid in diagnosis, a variety of scoring systems based on clinical and laboratory settings have been developed. The Alvarado score is the most commonly utilized.

Management-Medical Management
Ochsner Sherren Regime
Historically, it was believed that because of edoema and the brittleness of the structures, appendicular mass surgery was dangerous and may lead to potentially fatal consequences.

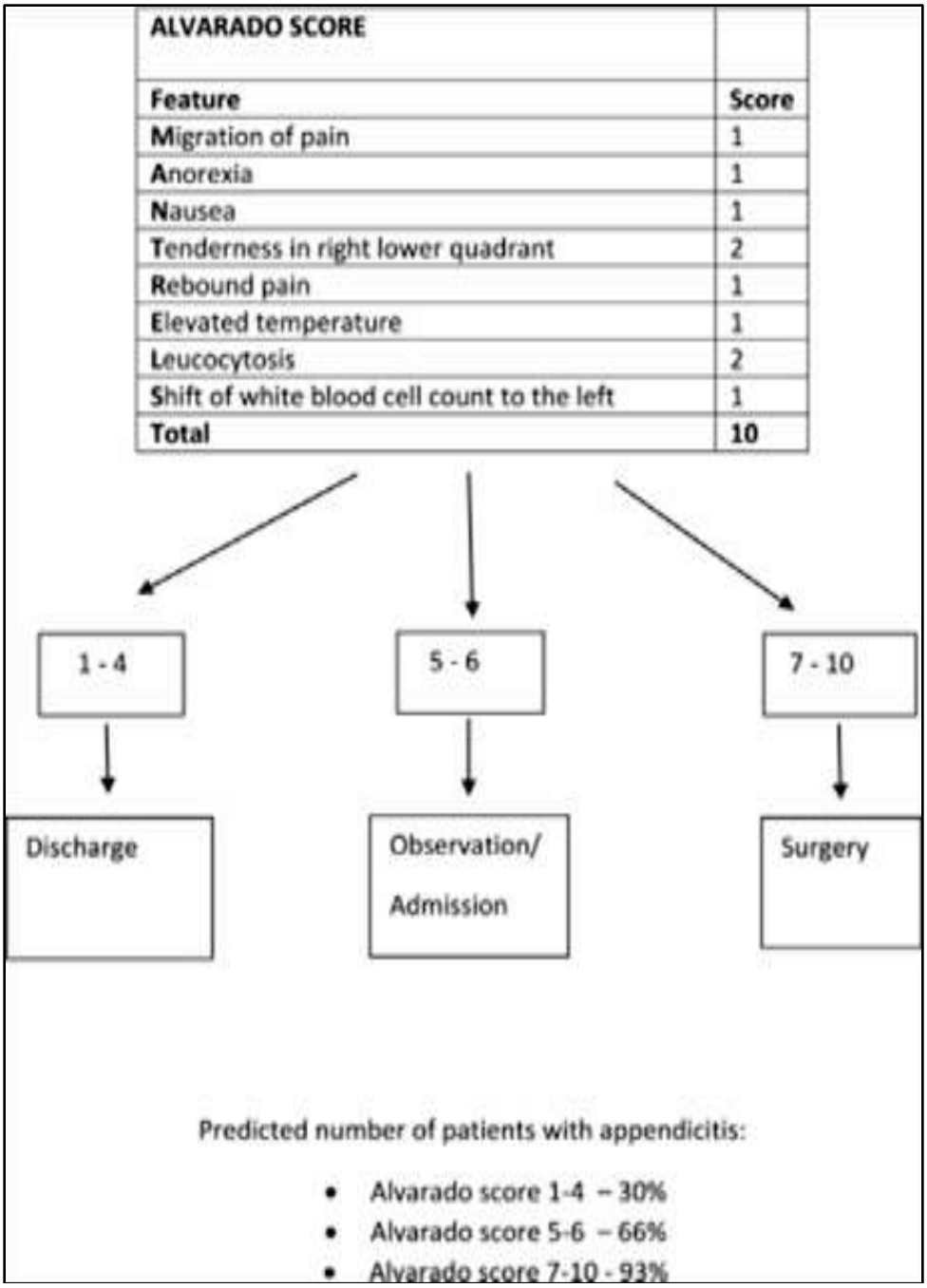
The necessary elements consist of
- Positioning the patient to enhance the exudates' gravity flow towards the pelvis
- 0 for the first 48 hours per oral
- intravenous liquids
- intravenous antibiotics
- Calculating the mass's dimensions After six weeks, if the patient continues to progress, orals are recommended along with an interval appendicectomy.
- If therapy doesn't work, surgery is done.

Operative Management
An appendicectomy is the therapy for appendicitis. Preoperative work up should be done correctly.
1. IV fluid administration should start. monitoring of blood pressure, pulse, and urine production. Any irregularities in electrolytes should be rectified.
2. Antibiotics ought to be administered prior to the half-hour mark of anesthetic induction.

3. Antibiotic should cover both gram-negative bacteria and anaerobes
4. There should not be any delay in surgery to minimize the chances of perforation.

Numerous researches have been carried out globally; some have endorsed and bolstered laparoscopy, while others have not. Laparoscopy can be used to treat acute appendicitis in the majority of cases. Compared to open appendicectomy, laparoscopic appendicectomy is less risky and has less pain and morbidity after surgery. A laparoscopic appendicectomy can shorten hospital stay, allow for an early return to work, and result in fewer problems. Due to improved training in minimum access surgery, laparoscopy has become more common. By allowing for a quicker hospital stay and an earlier return to work, laparoscopic operations reduce the number of lost earning days. Because the majority of them are daily wage workers in India, it is helpful there.

Alvarado Score



Discussion:-

•Both complicated and uncomplicated acute appendicitis are the most common cause of severe abdominal pain.

- An appendix inflammation may sometimes be accompanied with a restricted abscess or an inflammatory phlegmon. The best course of action for these patients is up for debate. Treatment for these patients is either conservative or surgical.
- In order to assess the effectiveness of interval appendicectomy and its necessity, this study will follow patients who have been diagnosed with appendicular mass or abscess and are undergoing either conservative or surgical treatment (drainage).
- The study includes all patients diagnosed with appendicular mass or abscess who are admitted to surgical wards.
- Without undergoing an appendicectomy, patients in this group are treated conservatively or with surgical drainage.
- About fifty individuals with complex appendicitis were advised to have surgical drainage or conservative therapy in this study. These people were watched for around three months. Some of the patients got interval appendicectomy during the procedure, while others underwent conservative line of treatment.
- Of the fifty patients that were part of the trial, twenty-one were female and 29 were male. The majority of hospitalized patients with appendicitis were between the ages of 20 and 30 (about 54%), then between 30 and 40 (28%), and finally older than 40 and younger than 20. Out of the 50 patients admitted, 28 patients had an appendicular mass identified either radiologically or clinically; roughly 22 people had this diagnosis. Every patient with appendicular abscesses underwent surgical drainage and underwent three months of follow-up care.
- The following is the breakdown of the procedures performed on the about 42 patients who had interval appendicectomy. A conservative course of treatment was continued for the eight patients who remained. 33 patients had laparoscopy; 2 had open surgery; and 7 had lap conversion to open surgery.
- The conversion rate from laparoscopic appendicectomy to open method was slightly greater than in individuals with acute appendicitis.
- The hospital stays varied in duration from three to seven days. The patients are arranged in the following order based on the duration of their stay.

7 Days	3
6 Days	6
5Days	16
4 Days	7
3 Days	8

- Of the 42 cases, six interval appendicectomy patients had postoperative complications like fever, wound infection, and wound gaping. Furthermore, it was found that five patients had normal histology findings demonstrating total infection remission, demonstrating the efficacy of cautious antibiotic treatment. The incidence of complications was somewhat higher than in cases involving traditional appendicectomy.
- Of the eight participants who did not get interval appendicectomy, there was no record of recurrence.
- With all of this information, interval appendicectomy might not be required in a case of severe appendicitis that is treated conservatively.

Conclusion:-

In our study, conservative care with interval appendectomy for the management of appendiceal mass/abcess shown a lower incidence of recurrence and negligible consequences. Considering all of these data, interval appendicectomy is thought to be advantageous due to its low conversion rate, low complication rate, and shorter hospital stay while treating complex appendicitis conservatively.

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