

Modern Pathogenesis, Diagnosis and Management - Acute Appendicitis

¹Chintapalli Veeravenkata Sireesha; ²Karothu Rohini; ³Jaya Santhoshi Chintala

⁴Padma Vura; ⁵Rohit Gollapudi; ⁶Guddanti Hema; Gayathri Paturi^{7*} (Assistant Professor)

¹Department of Pharmaceutics, Raghava College of Nursing, Prathap nagar, Kakinada - 533003

²Department of Pharmacology, Avanthi Institute of Pharmaceutical Sciences, Vizianagaram - 531162

³Department of Pharmacology, KITS College of Pharmacy for Women – DIVILI, Peddapuram, East Godavari - 533433

⁴Department of Pharmacology, ADARSA College of Pharmacy, Kothapalli, East Godavari – 533285

⁵Department of Pharmacology, Shri Vishnu College of Pharmacy, Bhimavaram, West Godavari - 534202

⁶Department of Pharmacology, Vishnu Institute of Pharmaceutical Education and Research (VIPER), Narasapur – 502313.

Corresponding Author:- Gayathri Paturi^{7*}

Abstract:- Appendicitis is defined as inflammation of the vermiform appendix, and it is the most common surgical emergency among children and young adult have abdominal pain. The current treatment for appendicitis is a surgical appendectomy. Non-operative antibiotic therapy is useful in some cases, and growing data suggests that it might be more frequently used. The diagnosis is made based on the patient's history, clinical examination, and laboratory tests, despite the fact that 30-45% of patients appear with uncommon symptoms. The diagnosis is unknown, the most common imaging modalities are ultrasonography and CT scans. Diagnostic laparoscopy can be an effective approach in low-risk patients, particularly young women. A negative appendectomy is one that was performed for suspected appendicitis but resulted in a normal appendix on histological testing. A negative appendectomy has a postoperative complication incidence of approximately 10%, highlighting the importance of precise and quick diagnosis.

Keywords:- Appendix, Inflammation, CT Exam, Antibiotics, Laparoscopic Appendectomy.

I. INTRODUCTION

Appendicitis is defined as either simple or complex disease, with complex indicating the presence of a peri-appendicular abscess, gangrene, or perforation. Complex appendicitis is associated with much greater rates of morbidity and mortality. Appendicitis is an inflamed appendix. It can cause acute (sudden and severe) pain in the lower abdomen. The appendix is a small, tubular pouch about the size of a finger that protrudes from the bottom right end of the large intestine. Poop (feces) moving through your large intestine may obstruct or infect the appendix, resulting in inflammation, causes appendix to expand.

A ruptured appendix is a medical emergency. It spreads bacteria from your bowels to entire abdominal cavity. This infection (peritonitis) can then spread to circulation, resulting in life-threatening consequences

(sepsis). Because of this risk, the conventional treatment for appendicitis is appendectomy.

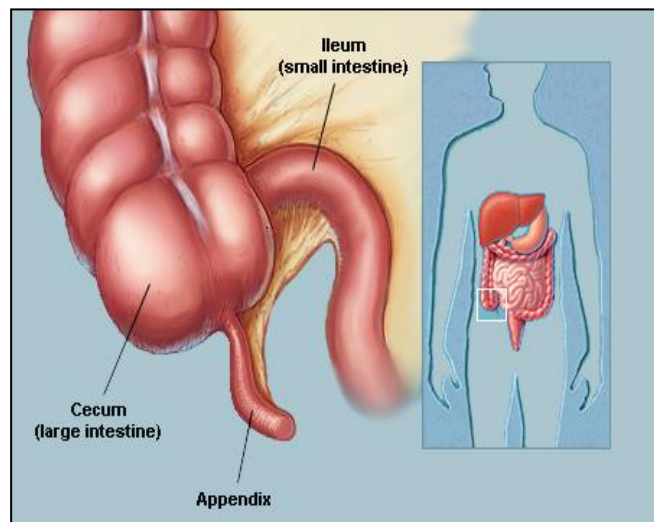


Fig 1 Appendix

II. ACUTE APPENDICITIS VS. CHRONIC APPENDICITIS

Chronic appendicitis generate mild symptoms that last for a long period before fading and reappearing. It could go untreated for a few weeks, months, or years.

Acute appendicitis results in more severe symptoms that appear quickly within 24 to 48 hours. It requires prompt treatment.

➤ Symptoms

- Abdominal Pain
- Pyrexia
- Loss of appetite
- Abdominal Swelling
- Tenderness
- Fatigue or Lethargy
- Malaise

➤ *Causes*

- Accumulation of Fecal Matter
- Calcified Fecal Deposits
- Enlarged Lymphoid Follicles
- Worms & Tumors
- Trauma
- Accumulation of foreign objects, like Stones, Marbles, or Pins

➤ *Complications*

- Ischemia and Necrosis
- Gangrene/perforation
- Abscess/phlegmon
- Peritonitis and spread of infection

➤ *Prevalance*

It most typically affects those aged 10 to 30, but it can affect anyone, and the overall lifetime risk is 7-8%. It is one of the most common causes of stomach pain, particularly among young individuals. Each year, around 50,000 appendectomies are performed in the United Kingdom. In this post, we will look at the clinical characteristics, examinations, and treatment of acute appendicitis.

➤ *Pathophysiology*

Acute appendicitis is primarily caused by direct luminal blockage, which is usually owing to a faecolith (Fig. 2) or lymphoid hyperplasia, or, less occasionally, by a malignancy. When the appendix is occluded, commensal bacteria grow and cause acute inflammation. Reduced venous drainage and localized inflammation can cause elevated pressure within the appendix, leading in ischaemia of the appendiceal wall. If left untreated, ischaemia can produce necrosis, which can lead to appendix perforation.

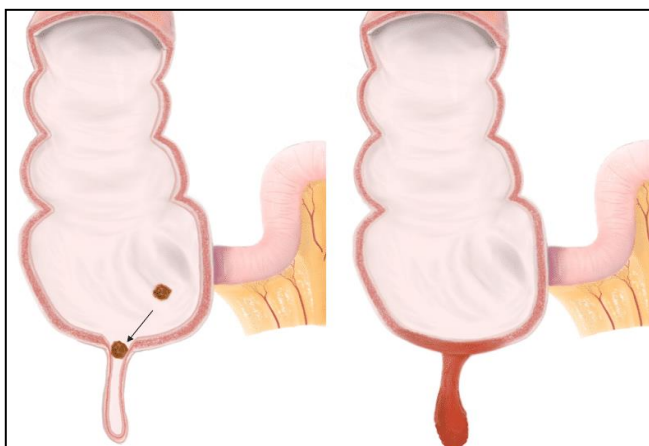


Fig 2 A Faecolith Obstructing the Appendiceal Lumen

➤ *Diagnosing Appendicitis*

- Blood tests
- Pelvic exam
- Urinalysis
- CT Exam

- Abdominal ultrasound
- MRI Scan & X-Ray
- Some conditions that share similar symptoms with chronic appendicitis, include:
 - Gastrointestinal disorders
 - Crohn's disease
 - Ulcerative colitis
 - Urinary tract infection
 - Kidney infection
 - Irritable bowel syndrome (IBS)
 - Ovarian cysts
 - Pelvic inflammatory disease (PID)

Appendectomy is nearly performed as an emergency procedure. As a result, an appendicitis diagnosis is typically made fast and is based mostly on a consideration of symptoms and the findings of a physical examination. Laboratory results may reveal an increase in the White Blood Cell (WBC) count, which is a sign for inflammation and infection, albeit this is not always the case. The cause of symptoms is suspected, a CAT scan of the abdomen and pelvis can assist diagnose an inflamed appendix or reveal any illnesses that may resemble appendicitis.

The diagnosis of appendicitis may be challenging. The appendix's position in the abdomen may change. The appendix is often found in the right lower abdomen, however it can also extend down into the pelvis or be located beyond the colon. In either case, appendix inflammation may behave similarly to inflammation in other organs. As a result, it is normal to follow individuals with suspected appendicitis for an extended period of time to see if the sickness will resolve on its own or develop symptoms that strongly suggest appendicitis or, maybe, ailment. Blood and imaging tests are commonly used to diagnose appendicitis.

III. SURGERY TO REMOVE THE APPENDIX

- *Appendectomy Perform in Two ways: Open Surgery and Laparoscopic Method.*

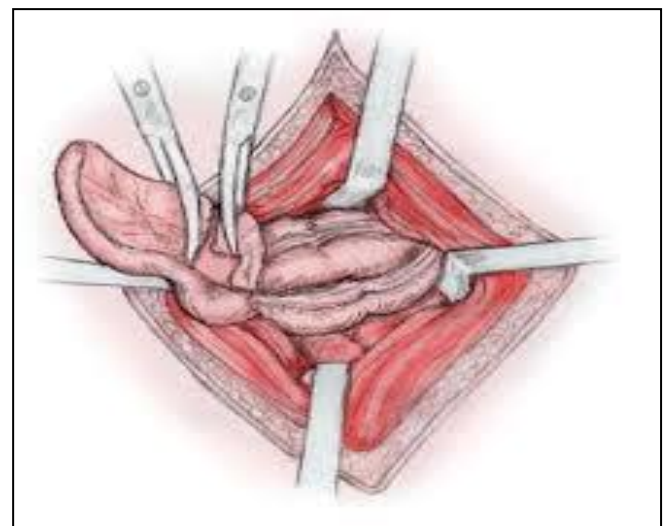


Fig 2 Open Appendectomy

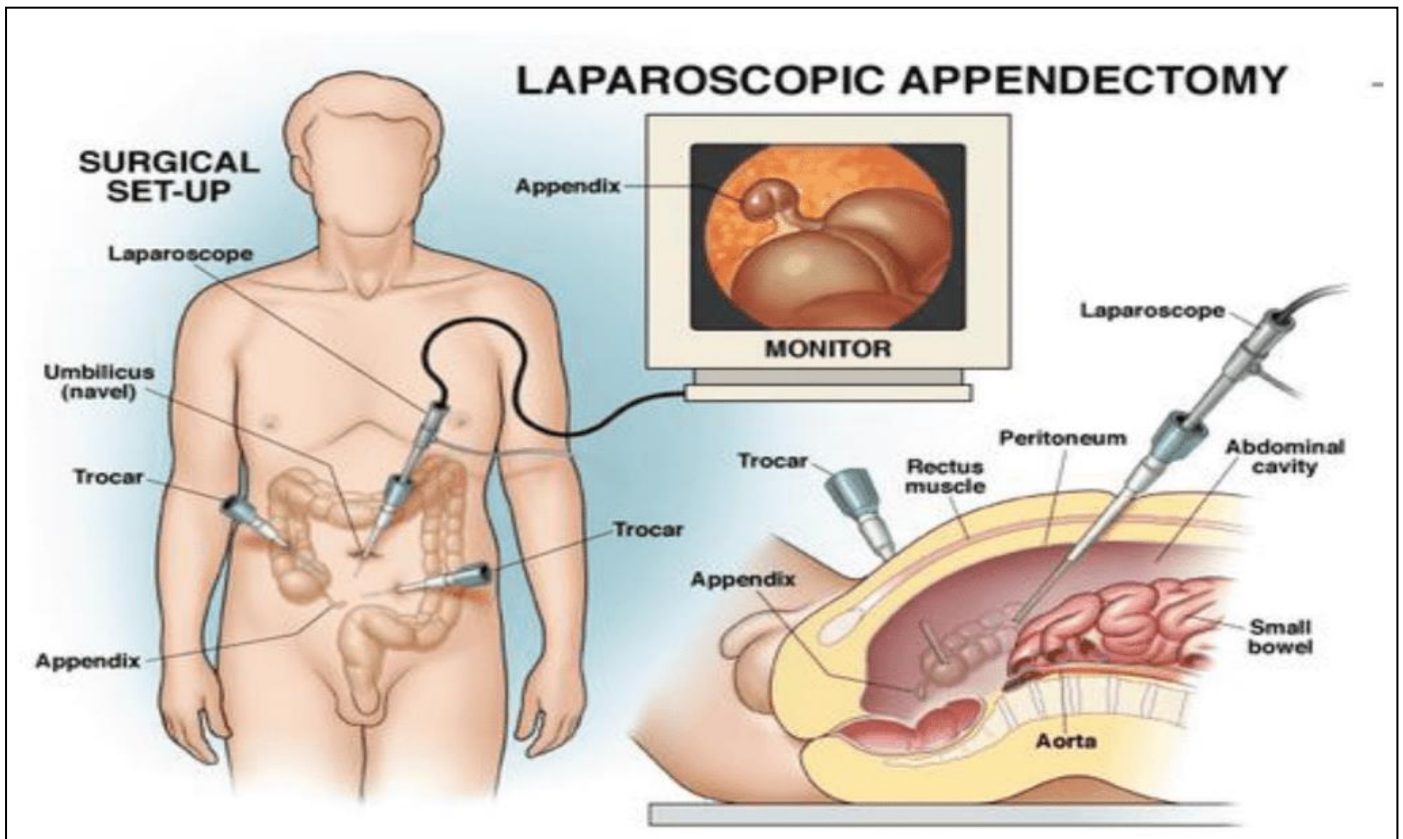


Fig 3 Laparoscopic Appendectomy

➤ *In Addition to Surgical Removal of the Appendix, Treatment may also Involve:*

• **Antibiotics:**

In some cases, particularly if the appendix has already perforated or if there is evidence of infection, antibiotics may be administered before or after surgery to help fight off the infection and prevent complications.

• **Pain Management:**

Medications NSAIDs may be prescribed.

• **Fluids and Nutrition:**

Patients may receive intravenous fluids to prevent dehydration, especially if they have been experiencing vomiting or diarrhea. Once they are able to tolerate food and fluids, they can gradually resume eating a normal diet.

• **Monitoring:**

After surgery, patients are typically monitored closely for signs of complications such as infection or abscess formation. Follow-up appointments with the surgeon may be scheduled to ensure proper healing.

Overall, appendicitis is a medical emergency that necessitates immediate surgical treatment. The prognosis for uncomplicated appendicitis is generally excellent, with most patients recovering completely. However, delays in getting medical care can lead to complications and worsen results, so if appendicitis is suspected, seek medical attention right once.

➤ **Outcomes**

Postoperative problems occur in roughly 12-13% of cases. Surgical site infection is the most common complication, affecting roughly 3.5% of appendicectomies. Increasing abdominal or pelvic discomfort, intermittent pyrexia, and diarrhoea should highlight the possibility of an intra-abdominal abscess, which occurs in 3% of appendicectomies.¹⁵ Postoperative collections are detected via ultrasound or CT scans and are most commonly located in the pelvis or subphrenic region.

IV. CONCLUSION

Appendicitis is a serious medical condition characterized by inflammation of the appendix, a small pouch-like structure located at the junction of the small and large intestines. Left untreated, appendicitis can lead to complications such as perforation of the appendix, which can result in peritonitis (inflammation of the abdominal lining) and even sepsis, a life-threatening condition.

From a medical perspective, diagnosing appendicitis promptly is crucial to prevent complications. Physicians typically rely on a combination of clinical examination, blood tests, and imaging studies such as ultrasound or computed tomography (CT) scans to confirm the diagnosis. However, diagnosing appendicitis can sometimes be challenging, particularly in atypical cases or in certain patient populations.

Treatment for appendicitis typically involves surgical removal of the inflamed appendix, a procedure known as an appendectomy. In some cases, particularly if the appendix has already perforated, the surgery may be more complex and may involve additional measures to clean the abdominal cavity and treat any infection.

Overall, appendicitis is a serious condition that requires prompt medical attention. While the prognosis is generally good with timely diagnosis and treatment, delays in seeking medical care can increase the risk of complications and worsen outcomes. As such, individuals experiencing symptoms suggestive of appendicitis, such as abdominal pain, should seek medical evaluation promptly to determine the appropriate course of action.

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