



# Non-Surgical Case of Acute Abdomen in An Adolescent Male: A Case Report on Epiploic Appendagitis



Laurice S. San Jose, Portia Menelia Decano-Monreal

**Abstract:** This is a rare case of Epiploic appendagitis in an eleven-year-old overweight male who presented with severe left lower quadrant pain. Computed tomography (CT) scan with contrast showed pathognomonic signs of the disease (a fat-density ovoid structure adjacent to the proximal sigmoid colon with peripheral fat strandings and a hyperattenuating ring-like structure), and the patient was managed with antibiotics and analgesics. Recognition of this disease on diagnostic imaging encourages clinicians and surgeons to manage it based on imaging findings confidently.

**Keywords:** Epiploic Appendagitis, Acute Abdomen, Computed Tomography, Case Report.

## Nomenclature:

US: Ultrasonography  
CT: Computed Tomography  
EA: Epiploic Appendagitis

## I. INTRODUCTION

Epiploic appendagitis is a rare disease entity that mimics numerous causes of acute abdomen among the adult population. The prevalence of this disease in the pediatric age group is unknown and has been reported only in case reports and series from the West. Clinical manifestations of this disease are challenging, as there are no pathognomonic signs, although the majority would exhibit left lower quadrant abdominal pain in 70-90% of patients diagnosed with the disease. Likewise, there are no specific laboratory findings, and some would exhibit normal levels as well. CT scan findings such as a solitary ovoid lesion, the hyperattenuating ring sign, thickening of the parietal peritoneum, fat stranding, and the central dot sign, which may not all be present in a patient presenting with severe abdominal pain, are diagnostic of epiploic appendagitis. Before the advent of advanced imaging modalities, this disease was a diagnosis of exclusion and was confirmed during exploratory laparotomy.

Conservative treatment heralded by pain management and symptom monitoring had been advocated in the management of this disease.

## II. CASE PRESENTATION

A previously healthy 11-year-old male was transferred to our institution for further evaluation and management of his 4-day history of left lower quadrant pain. He described the pain as sharp, piercing, grade 7-10/10, non-radiating, on the left lower quadrant, occurring throughout the day with no other accompanying symptoms. There were no triggering or alleviating factors identified, including ambulation, eating, defecation and rest. He denied constipation, diarrhoea, rectal bleeding, fever, bloatedness or dysphagia. He had an unremarkable review of systems; he was diagnosed with bronchial asthma at 6 years old, with no current controller medications. At 4 years old, he underwent endorectal pull-through for Hirschsprung's disease with no complications. Pertinent family history revealed that both grandparents on both sides are diabetic and hypertensive.

Before the patient arrived at our institution, he was initially admitted to a different institution as a case of acute abdomen 2 days after symptom onset. Abdominal ultrasonography (US) was normal. Initial laboratory findings revealed an elevated white blood cell count of 18.3. Cefoxitin was started at 35 mg/day, however due to the persistence of abdominal pain, a computed tomography (CT) scan was obtained which demonstrated a 3.3 x 2.1cm fat density ovoid structure adjacent to proximal sigmoid colon showing peripheral fat strandings, and a hyperattenuating ring-like structure with an initial impression of Epiploic appendagitis vs. omental infarction, thus transfer was facilitated to our institution for further evaluation and management.

Upon arrival at our institution, his physical examination revealed that he was afebrile with normal vital signs; he was well hydrated and ambulatory. His weight, height and body mass index were 64kg, 156cm and 26.5 (overweight range), respectively. Cardiovascular and respiratory examinations were normal. The abdomen was flabby and without scars; it was soft, with grade 1-2/10 tenderness to deep palpation in the left lower quadrant, without rebound tenderness or guarding. He was kept on nothing per ore and intravenous hydration. He was referred to the service of pediatric surgery, where serial abdominal examination was done. Cefoxitin was continued, and given intravenous ibuprofen as needed for left lower quadrant pain. Pertinent workup revealed an elevated C-reactive protein level of 18.5mg/dL (NV <5 mg/dL), and a repeat contrast CT

Manuscript received on 29 May 2026 | First Revised Manuscript received on 04 July 2026 | Second Manuscript Accepted on 09 July 2026 | Manuscript Accepted on 15 July 2026 | Manuscript published on 30 July 2026.

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revealed persistence of the previously noted sigmoid epiploic appendagitis. On the third hospital day, the patient was asymptomatic with good activity and appetite. Serial abdominal examinations were non-surgical; Cefoxitin was shifted to cefuroxime to complete 7 days at home. Dietary and lifestyle modifications were advised. He followed up with his paediatrician 1 week after discharge from the hospital, and he remained asymptomatic. He has had no recurrence of abdominal pain in the past 6 months since hospitalisation.

## III. DISCUSSION

Epiploic appendagitis (EA) is an inflammation of the epiploic appendage and is a rare cause of abdominal pain that often manifests with an acute onset of abdominal pain. It can be primary, occurring as an acute ischemic inflammation resulting from torsion of an appendage or spontaneous thrombosis of a central draining vein. Secondary EA occurs when the epiploic appendage is inflamed because of another process, such as diverticulitis, appendicitis, pancreatitis, or cholecystitis [1]. It has an estimated frequency of 1.1-1.3% in patients with abdominal pain. It occurs at an estimated rate of 8.8 per 1 million cases with abdominal pain/ year. It is usually diagnosed between the 2nd and 5th decades of life but may occur at any age. In some literature, men are 4x more affected than women, and some common occurrences coincide with patients who are obese and those with exercise injury [2, 4]. Epiploic appendages are small fat outpouchings that line the colonic serosal surface. They are found in two parallel rows, most commonly on the taenia coli, and are more abundant at the rectosigmoid junction and in the transverse colon. These are absent in the rectum, while a minimal amount may be appreciated in the appendix's base [1]. Epiploic appendages measure approximately 1-2 cm in thickness and 0.5-5 cm to 10-15 cm in length, depending on the patient's body mass index [2, 4]. Each appendage's vascular supply comes from two end arteries arising from the vasa recta and from its narrow basal stalk, with a single tortuous vein ensuring drainage [4]. The main purpose of these appendages is still debated. They are theorised to act as a protective barrier during mechanical stress, provide fat storage and intestinal immunity, and absorb moisture and electrolytes.

Most commonly presents with acute or subacute onset of abdominal pain, frequently either the left or right lower quadrant. Collaborative studies note that the majority of patients diagnosed with epiploic appendagitis present with left lower quadrant pain in 70-90% of patients, on the right lower quadrant (8-16%) and 1.5-3% of patients present with pain in other locations [3]. The pain is described to be non-migrating, with or without localised tenderness on abdominal palpation. Other accompanying symptoms, such as fever, nausea, diarrhoea, vomiting, and constipation, are sometimes seen in patients with this disease, but are usually absent [6,7].

Due to its nonspecific presentation, it is commonly dubbed the "mimicker," as it is mistaken for other conditions, including acute diverticulitis, acute appendicitis, mesenteric lymphadenitis, and omental infarction.

Laboratory evaluation in patients with epiploic appendagitis is usually within normal limits. White blood cell count, erythrocyte sedimentation rate, and C-reactive protein levels are within the normal range in most patients; mild leukocytosis may occasionally be observed as part of the inflammatory response [6,7].

There are no clinical or laboratory pathognomonic findings for this disease, so diagnostic imaging plays an indispensable role. The diagnosis of epiploic appendagitis would be difficult without the imaging findings. A computed tomography (CT) scan is the primary diagnostic modality for epiploic appendagitis. A non-contrast-enhanced CT scan is sufficient to document inflammation of an appendage. This modality may also help differentiate this entity from other causes of acute abdomen in the pediatric age group [7].

The following are commonly appreciated during the diagnosis of epiploic appendagitis [8]:

- Solitary fat-density ovoid lesion, which measures 1-5 cm in axial diameter, that abuts the large bowel wall (Fig.1) anteriorly
- "The Hyperattenuating Ring sign"- Peripheral high-attenuating ring approximately 2-3 cm thick, seen surrounding the ovoid lesion. Used as a primary criterion for diagnosis (Fig.2)
- Thickening of the parietal peritoneum (30%-40%)
- Fat stranding
- "Central dot sign", which is a central high-attenuation focus, evocative of central venous pedicle thrombosis within an inflamed appendage. This sign is pathognomonic and is seen in only 30-78% of cases (Fig.3)

As observed in our patient, he had a fat-density ovoid structure adjacent to the proximal sigmoid colon showing peripheral fat strandings, a hyperattenuating ring-like structure, and a central mildly hyperdense focus, which represents the central dot sign, which increased the likelihood of epiploic appendagitis in our patient.

Before the availability of advanced imaging techniques such as CT scan, epiploic appendagitis was a surgical disease, identified during the operation for a different disease entity suspected to cause acute abdomen.

Once the diagnosis has been confirmed and other diagnoses excluded, conservative management is initiated with analgesics with or without NSAIDs. If patients have persistence of symptoms, or with recurrence of the Epiploic appendagitis, surgical management may be warranted through excision of the inflamed appendage.

Most patients' symptoms would resolve within 1- 2 weeks, regardless of whether given analgesics with or without NSAIDs [5,6]. In some journals, antibiotics were given as an adjunct to anti-inflammatory medications; however, their therapeutic value remains debated.





[Fig.1: Fat Density Ovoid Structure]



[Fig.2: Peripheral Fat Strandings, Hyperattenuating Ring-Like Structure]



[Fig.3: Central High-Attenuation Focus]

Although resolution is expected, physicians should be aware that CT findings usually persist for up to 6 months after the onset of acute epiploic appendagitis. This is to avoid misdiagnosis of patients presenting with acute abdominal pain due to other causes.

#### IV. CONCLUSION

Clinicians, radiologists, and surgeons should be aware of the typical imaging findings of epiploic appendagitis to accurately diagnose this entity and avoid unnecessary pharmacologic or surgical management.

#### DECLARATION STATEMENT

Some of the cited references are older and explicitly noted as [2]. However, these works remain significant for the current study, as they are pioneering in their fields.

After aggregating input from all authors, I must verify the accuracy of the following information as the article's author.

- **Conflicts of Interest/ Competing Interests:** Based on my understanding, this article has no conflicts of interest.
- **Funding Support:** This any organizations or agencies have not funded article. This independence ensures that the research is conducted objectively and without external influence.
- **Ethical Approval and Consent to Participate:** The content of this article does not necessitate ethical approval or consent to participate with supporting documentation.
- **Data Access Statement and Material Availability:** The adequate resources of this article are publicly accessible.
- **Author's Contributions:** The authorship of this article is contributed equally to all participating individuals.

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# Non-Surgical Case of Acute Abdomen in an Adolescent Male: A Case Report on Eiploic Appendagitis

She is committed to continually expanding her knowledge and skills while providing compassionate, evidence-based care to her patients.



**Portia Menelia Decano Monreal, MD, mhp, fpps, fppg** is the Chief of the Section of Pediatric Gastroenterology, Hepatology, and Nutrition in the Department of Paediatrics at the University of Santo Tomas Hospital. She is also an Associate Professor in the Department of Pediatrics of the UST Faculty of Medicine and Surgery. She is passionate about teaching medical students and mentoring aspiring paediatricians pursuing subspecialty fellowship training. She has received specialised training in paediatric endoscopy and has earned numerous recognitions for her clinical, academic, and professional contributions. Committed to lifelong learning, she actively participates in local and international conventions and continuing medical education activities to further enhance her knowledge and expertise in paediatric gastroenterology.

## SUPPLEMENTARY DATA

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Patient / Participant / Legally acceptable representative  
Signature over printed name \_\_\_\_\_ Date \_\_\_\_\_

Person obtaining the consent / Principal Investigator  
Signature over printed name \_\_\_\_\_ Date \_\_\_\_\_

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