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Subacute Epiploic Appendagitis Masquerading as Left-Sided Abdominal Pain in an Elderly Female: A Rare Case Report

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ABSTRACT

Subacute epiploic appendagitis (SEA) is a rare inflammatory condition involving the epiploic appendages of the colon. It often presents with nonspecific abdominal symptoms and can mimic various gastrointestinal disorders, leading to diagnostic challenges. Here, we present a case of a 74-year-old female who initially presented with left-sided abdominal pain and incomplete stool emptying, raising suspicion for other conditions such as cathartic colon. However, imaging studies revealed characteristic findings suggestive of SEA, highlighting the importance of considering this rare entity in the differential diagnosis of abdominal pain.

1 | Introduction

Subacute epiploic appendagitis (SEA) is an uncommon inflammatory condition involving the epiploic appendages of the colon [1]. SEA is a relatively rare condition, with an estimated incidence of 8.8 cases per million people per year. It primarily affects adults, with the majority of cases occurring in individuals between the ages of 20 and 50. There is a slight male predominance in the incidence of SEA, with a male-to-female ratio of approximately 1.5:1. The exact cause of SEA remains unclear, but it is believed to result from torsion or venous thrombosis of an epiploic appendage. Despite its rarity, SEA is an important consideration in the differential diagnosis of acute abdominal pain because of its potential to mimic more common and severe conditions such as acute appendicitis, diverticulitis, and cholecystitis. These conditions are far more prevalent, with appendicitis occurring in about 100 per 100,000 individuals annually, and diverticulitis affecting about 50 per 100,000 people per year in Western populations. Given its rarity and the potential for misdiagnosis, increasing awareness and understanding of SEA among healthcare providers is essential. Proper identification and management of SEA can lead to better patient outcomes and reduce the burden on healthcare resources. There are some small differences between acute and SEA, with acute epiploic appendagitis presenting usually with rapid onset short-term pain lasting around a week at maximum and SEA, which in this case usually presents with a gradual and slow onset of pain and symptoms that last for a few weeks to months or even longer, and the pain experienced is not as intense and sharp in the beginning as with acute epiploic appendagitis. The epiploic appendages, also known as epiploic or omental appendices, are small pouches of peritoneum filled with fat and located along the external surface of the colon [2]. Although traditionally considered to have minimal physiological significance, these structures can become inflamed because of torsion or other causes, leading to localized ischemia and subsequent inflammatory changes [3].

The clinical presentation of SEA often mimics other more common abdominal pathologies, including diverticulitis, appendicitis, and colitis [4]. This mimicry can pose diagnostic challenges, particularly in elderly patients who may already

Summary

- Subacute epiploic appendagitis poses a diagnostic challenge because of nonspecific symptoms.
- Integration into the initial differential diagnosis, especially in the geriatric population, is crucial.
- Utilize CT imaging for precise diagnosis and conservative management.

have a myriad of gastrointestinal (GI) and non-GI comorbidities [5]. Misdiagnosis or delayed diagnosis of SEA can lead to several adverse consequences for patients. Given its ability to mimic more common conditions such as acute appendicitis, diverticulitis, or cholecystitis, SEA is often initially overlooked. This can result in unnecessary surgical interventions, such as appendectomies or exploratory laparotomies, which pose additional risks and complications to the patient. Furthermore, misdiagnosis can lead to inappropriate medical treatments, including the use of broad-spectrum antibiotics, which may not be necessary and can contribute to antibiotic resistance. Patients may also experience prolonged hospitalization because of ongoing diagnostic uncertainty and ineffective treatment strategies. Delayed diagnosis of SEA can extend the patient's discomfort and pain, impacting their quality of life and potentially leading to increased healthcare costs. The nonspecific symptoms of SEA, such as localized abdominal pain and tenderness, can overlap with those of other intra-abdominal conditions, necessitating a thorough diagnostic workup to differentiate among them [6].

Imaging studies, particularly computed tomography (CT) scans, play a pivotal role in the accurate diagnosis of SEA. Characteristic CT findings of SEA include oval or round fat attenuation lesions adjacent to the colon with a peripheral rim of soft tissue density, often referred to as the "central dot" sign [7]. These imaging features, along with clinical correlation, help differentiate SEA from other inflammatory conditions such as diverticulitis or appendicitis [4]. Although CT scans are the gold standard for diagnosing SEA because of their high resolution and ability to provide detailed images of abdominal structures, other imaging modalities can complement CT in certain clinical scenarios. Ultrasound can be a useful adjunctive tool, especially in patients for whom radiation exposure is a concern, such as pregnant women and children; sensitivity is lower. Magnetic resonance imaging (MRI) is another complementary imaging modality that can be particularly beneficial in cases where CT findings are inconclusive or where radiation exposure is to be minimized. MRI provides excellent soft tissue contrast and can visualize the inflamed epiploic appendage without the need for ionizing radiation. Although not typically diagnostic for SEA, plain abdominal X-rays can occasionally show indirect signs such as localized ileus or displacement of bowel loops.

Timely and precise identification of SEA is crucial, as it helps avoid unnecessary surgical procedures and informs appropriate treatment [8]. Conservative management involving pain relievers and anti-inflammatory drugs is often effective, emphasizing the need to differentiate SEA from more critical surgical emergencies [7]. The American College of Radiology Appropriateness Criteria highlights that conservative management should be the primary approach for uncomplicated SEA, as it is a self-limiting condition that usually resolves within one to two weeks with supportive care [9]. Additionally, the European Association for Endoscopic Surgery (EAES) guidelines recommend conservative treatment for SEA, emphasizing the avoidance of unnecessary surgical procedures [10].

A study published in the "Journal of Gastrointestinal Surgery" supports this approach, demonstrating that patients with SEA managed conservatively had excellent outcomes with rapid symptom resolution and no significant complications [11]. Moreover, a review in the "World Journal of Gastroenterology" emphasizes that unnecessary surgical interventions can be avoided through accurate diagnosis and appropriate conservative management [12].

In line with these guidelines, the Society of American Gastrointestinal and Endoscopic Surgeons also advocates for a nonsurgical approach in the management of uncomplicated-SEA, underscoring the importance of accurate imaging and diagnosis to prevent unwarranted surgeries [13].

This case report describes the importance of early SEA detection in preventing excessive medical interventions and promoting positive patient outcomes.

2 | Case History/Examination

A 74-year-old female presented with complaints of left-sided abdominal pain accompanied by daily cramps for the past two months. These cramps used to occur frequently throughout the day without any predicted triggers whatsoever. Their intensity was moderate early on but increased to severe intermittently, accompanied by abdominal pain in these last 2 months, which prompted her to visit a physician. She also reported incomplete stool emptying despite having a bowel movement once a day, necessitating the use of laxatives for complete relief. There were no associated symptoms such as weight loss, fever, or altered bowel habits. She had a history of mild chronic renal disease since 35 years medications without any major symptoms such as hematuria or urinary disturbances, operated on renal cell carcinoma on biopsy, partial nephrectomy with clear margins of the right kidney, and a long-standing history of hypercholesterolemia, gouty arthritis, hypertension, and postmenopausal osteoporosis, which were all controlled well with various medications. Physical examination revealed mild to moderate tenderness over the left lower quadrant without palpable masses or organomegaly. Auscultation revealed normal bowel sounds. Percussion was normal. A pelvic examination was carried out and was normal, without any superficial lesions, palpable abdominal or adnexal masses, or structural irregularities. There was pain on palpation on the left side of the lower abdomen and pelvis. Bowel sounds were normal and regular.

2.1 | Differential Diagnosis, Investigations, and Treatment

The patient underwent a comprehensive panel of blood tests, including complete blood counts, liver function tests, renal function tests, prothrombin time, activated partial thromboplastin time, Prothrombin Time - International Normalised Ratio (PT-INR),

random and fasting blood glucose, serum calcium levels, HIV type 1 and type 2, HBsAg, HCV, thyroid function tests (T3, T4, TSH), and urine analysis, all of which were within normal limits except for mild normocytic anemia and mildly elevated Serum Glutamic Pyruvic Transaminase (SGPT)/alanine aminotransferase. Imaging studies included abdominal and pelvic + KUB ultrasound with findings of a 5.4×3 cm left kidney, which appeared small in size with increased critical echogenicity with poor corticomedullary differentiation suggestive of chronic renal disease. The right kidney measured a normal 10.2×3.9 cm and showed maintained Corticomedullary Differentiation (CMD) with mildly increased cortical echogenicity. There was no hydronephrosis, hydroureter, or solid masses/lesions. Normal color filling of renal vessels was observed. There was a simple cyst measuring 12×8 mm noted at the lower pole of the right kidney. The urinary bladder was normal, and there was no evidence of ascites or paraaortic lymphadenopathy.

Subsequently, the patient underwent a contrast-enhanced CT scan of the abdomen and pelvis, which reported few diverticula, the largest measuring 8×8 mm arising from the sigmoid colon without any evidence of diverticulitis. A singular ill-defined fat-density lesion measuring 1.8×1.7 cm with a soft tissue density rim was seen in the pelvis abutting the sigmoid colon (Figures 1–3). There was mild fatty infiltration of the liver without any focal lesions and evidence of intrahepatic bile duct dilatation. There was a normal appearance of the portal vein and hepatic vessels. The gall bladder was partially distended with normal wall enhancement containing few calculi, the largest measuring 11×5 mm, no evidence of pericholecystic edema or distortion of common bile duct architecture. The pancreas and the spleen appeared normal, and there were no enlarged paraaortic, paracaval, portal, or peripancreatic lymph nodes.

As for the kidneys, echoing the findings of USG, the CT scan showed a 4.5×2.7 cm left kidney and normal-sized right kidney. A few simple cysts were observed in both kidneys, the largest being 2.5×2.1 cm in the mid-pole of the left kidney. Multiple parenchymal scars and postoperative status of the right kidney were noted. Bowel loops, mesentery and mesenteric vessels, and urinary bladder all appeared normal without any pathological changes. No free fluid or basal pleural effusion was seen, and the iliopsoas and bony pelvis appeared normal. The stool occult blood test was negative.

After a careful review of these reports, the patient was advised to undergo upper GI endoscopy along with ileo-colonoscopy to rule out internal pathologies such as bleeding ulcers, malignancies, masses, and growths and to confirm the imaging findings. The treating physician did not advise getting an MRI done prior to carrying out invasive procedures such as endoscopies for unknown reasons; none of the authors support any unnecessary breach of or deviation from standard treatment protocols for any patient unless faced with exceptional circumstances, unlike this one where

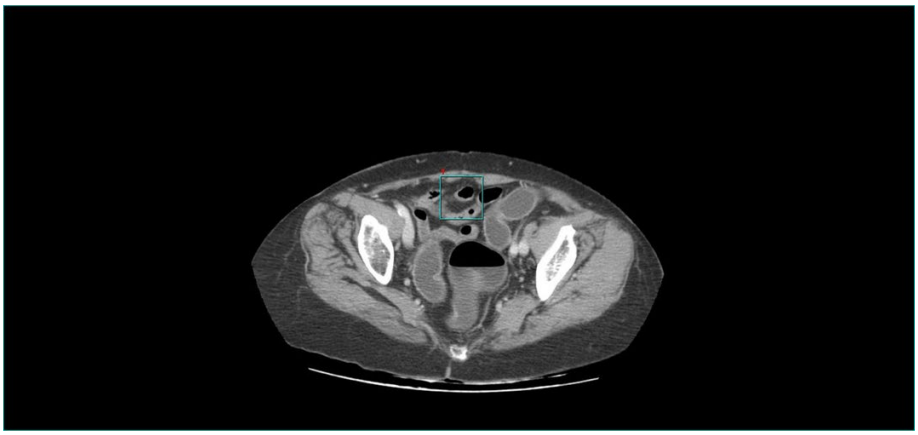

FIGURE 1 | Computed tomography scan of the abdomen and pelvis (Axial view).

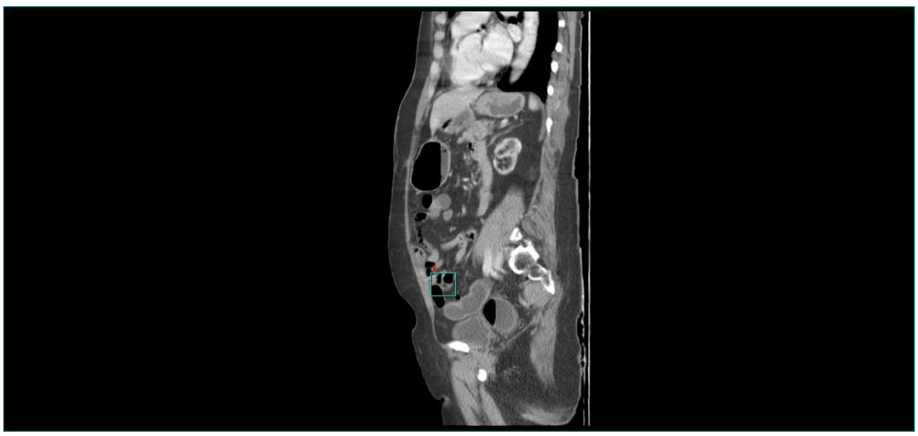

FIGURE 2 | Computed tomography scan of the abdomen and pelvis (Sagittal view).

FIGURE 3 | Computed tomography scan of the abdomen and pelvis (Coronal view).

an MRI should have been recommended and analyzed before subjecting the patient to upper and lower GI scopies. The upper GI scopy revealed mild congestion in the antrum of the stomach and was suggestive of only mild gastritis. A *Helicobacter pylori* test was carried out, which was found negative. Ileo-colonoscopy confirmed the diverticula seen in the CT scan, showed hemorrhoids, and reported findings suggestive of a cathartic colon. No masses, lesions, ulcers, or malignancies were noted. Biopsy from the colonic mucosa was sent for histopathological examination and was declared normal without any neoplastic activity.

On the basis of the clinical presentation and imaging (Figures 1–3) and endoscopic findings, a diagnosis of SEA was made. The patient was managed conservatively with the tablet lansoprazole 30 mg OD and the tab rabeprazole 100 mg TDS for acidity, tab mebeverine BD for abdominal cramps, syrup Kinlax Plus (Laxative) for constipation, tab aspirin, and other NSAIDS along with mild analgesics. These medications were prescribed for a period of 2 weeks. On follow-up, the patient reported improvement in symptoms but not resolution. She reported mild improvement in abdominal pain intensity, intensity, and frequency of cramps, signifying the limited effect of these medications on the quality of life of this patient.

3 | Conclusion and Results (Outcome and Follow-Up)

After coming to a confirmed diagnosis, the patient was managed conservatively, leading to a significant improvement in symptoms during follow-up visits. During the follow-up visits, the patient demonstrated a significant improvement in clinical symptoms and imaging findings following the initiation of conservative management for SEA. Initially presenting with left-sided abdominal pain and cramps, the patient reported gradual resolution of pain over the course of one week. By the second week of conservative treatment, the patient's pain had completely subsided, and there were no associated symptoms. Follow-up CT scans to assess the progress was however not performed in this case. The patient's compliance with the conservative treatment regimen was excellent throughout the follow-up period. She adhered strictly to prescribed analgesics and anti-inflammatory medications and followed dietary recommendations aimed at promoting bowel rest and minimizing exacerbating factors. Compliance with these measures was pivotal in achieving favorable clinical outcomes without the need for invasive interventions. Figure 4 highlights a timeline of a complete diagnostic scenario of the case. SEA is a rare but important differential diagnosis in patients presenting with nonspecific abdominal pain, especially in the elderly population. Clinicians should consider SEA when imaging studies reveal characteristic findings, as early recognition can lead to appropriate management and avoid unnecessary surgical and medical interventions.

4 | Discussion

SEA, an infrequent inflammatory ailment, poses a diagnostic conundrum owing to its nonspecific clinical presentation, which frequently resembles other intra-abdominal pathologies [1]. This case report describes the vital significance of incorporating SEA into the differential diagnosis of abdominal discomfort, particularly in the geriatric population, and accentuates the crucial role played by advanced imaging modalities, such as CT, in achieving precise and timely diagnoses [2].

Epiploic appendagitis is generally considered a single condition rather than one with distinct types. However, it can present in different ways, which can be broadly categorized on the basis of the specific characteristics observed on imaging or the clinical presentation. These variations can include the following:

Acute epiploic appendagitis: The most common presentation is characterized by sudden onset of abdominal pain, often localized to the lower abdomen. It is usually self-limiting and resolves with conservative treatment.

Chronic epiploic appendagitis: Less common, but it can occur if the inflammation persists or recurs. This form might be associated with a more prolonged or recurrent pain.

Idiopathic epiploic appendagitis: This refers to cases where the exact cause of the inflammation is not clearly identified but is diagnosed on the basis of imaging findings.

Primary epiploic appendagitis: This occurs without any identifiable underlying pathology. It typically results from torsion or spontaneous inflammation of an epiploic appendage.

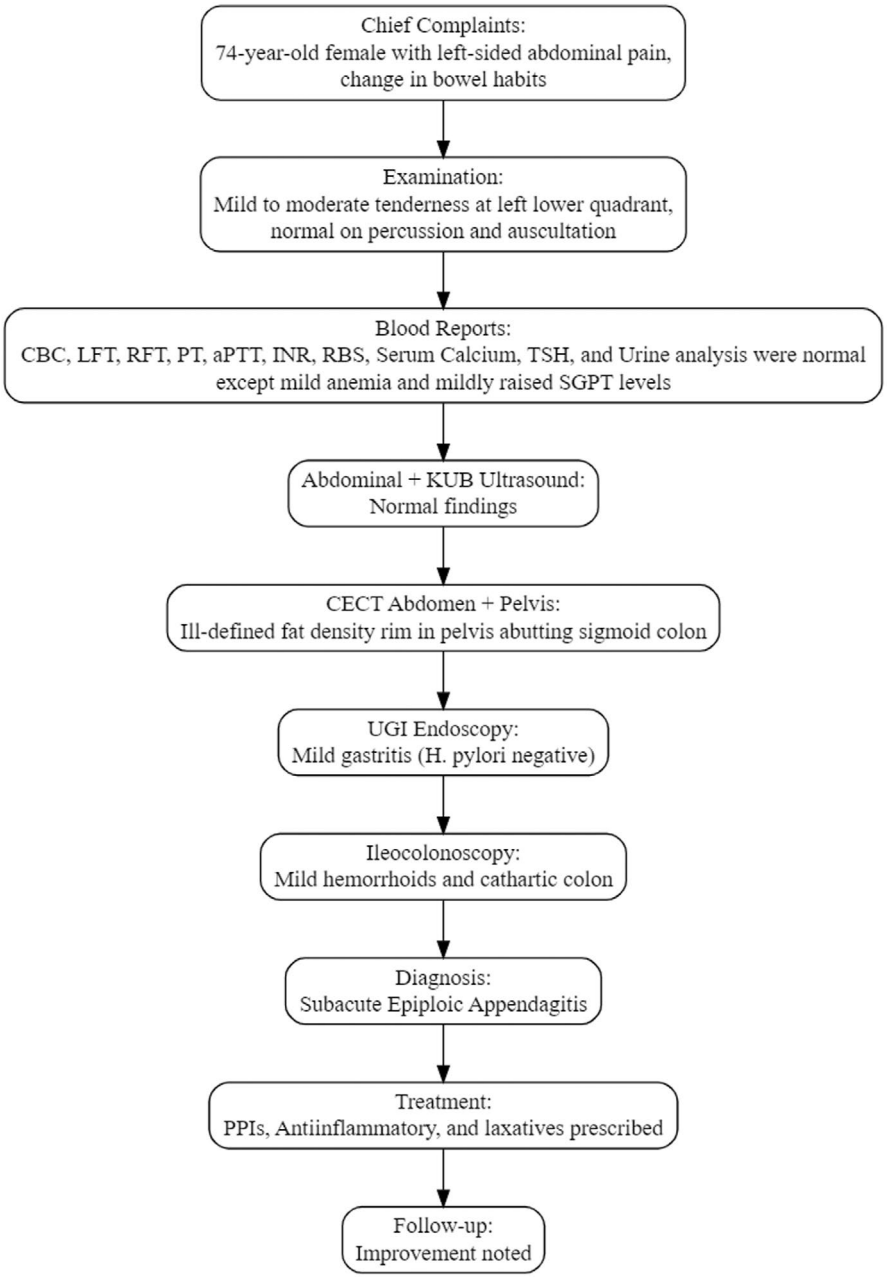

FIGURE 4 | Complete diagnostic scenario of the case.

Secondary epiploic appendagitis: It arises as a complication or is associated with other GI conditions or factors.

The clinical manifestation of SEA typically encompasses localized abdominal pain, tenderness, changes in bowel habits, and mild systemic symptoms (fever and nausea) [8]. These symptoms may converge with diverse GI pathologies, potentially resulting in misdiagnosis or delayed diagnostic conclusions. However, the advent of high-resolution imaging techniques has facilitated the identification of distinctive radiological attributes associated with SEA, thereby expediting and enhancing the precision of diagnostic processes [8].

CT imaging plays a crucial role in distinguishing SEA from more serious conditions such as appendicitis, diverticulitis, and acute cholecystitis [6]. The characteristic findings on CT scans, including oval fat attenuation lesions with a peripheral rim of soft tissue density (Figure 3), known as the "central dot" sign, are indicative of SEA. Moreover, with the escalating utilization of CT scans, incidental detection of epiploic appendagitis is increasingly noted. Ultrasound examinations of the abdomen and pelvis can also aid in diagnosis, with characteristic findings such as a noncompressible hyperechoic mass encircled by a hypoechoic mass and lacking color flow on doppler studies. The most frequently affected bowel segments, in descending order of prevalence, encompass the sigmoid colon, descending colon, and the right hemicolon [14].

Early recognition of SEA is essential to avoid unnecessary surgical interventions and ensure appropriate management [7]. Subacute epiploic appendagitis is typically managed conservatively with pain relief medications, rest, hydration, and dietary

adjustments to alleviate symptoms. Surgical intervention is rarely necessary unless complications arise. Close monitoring and follow-up with a healthcare provider are important to ensure proper management and rule out any potential complications [15]. However, delayed or misdiagnosed SEA cases may lead to unnecessary antibiotic use or surgical procedures, highlighting the significance of accurate and timely diagnosis [16]. Misdiagnosis or prolonged diagnostic uncertainty in cases of SEA can have significant psychological implications for patients and their caregivers. The initial presentation of abdominal pain, which can mimic more serious conditions such as appendicitis or diverticulitis, often leads to anxiety and distress among patients. Uncertainty regarding the cause of symptoms may exacerbate feelings of fear and apprehension about potential surgical interventions or the progression of their condition. Moreover, prolonged diagnostic uncertainty can disrupt daily routines and social activities, impacting patients' quality of life and overall well-being. The psychological toll of living with unresolved symptoms and the uncertainty of a definitive diagnosis can contribute to emotional fatigue and decreased resilience over time. For caregivers, witnessing a loved one experience persistent pain and uncertainty can evoke feelings of helplessness and frustration. The lack of clear diagnostic answers may lead to heightened stress and emotional burden as they navigate the healthcare system seeking answers and appropriate treatment. Healthcare providers play a crucial role in mitigating these psychological impacts by maintaining open communication, providing clear explanations about the diagnostic process, and offering empathetic support to patients and caregivers.

Furthermore, incorporating SEA into the initial differential diagnosis of abdominal pain holds the potential to streamline patient care, thereby mitigating healthcare expenses linked to prolonged hospitalization and superfluous interventions [17]. Educating healthcare practitioners about the clinical attributes and radiological hallmarks of SEA assumes to be of paramount significance, as it directly contributes to enhancing diagnostic precision and ultimately favorable patient outcomes [18]. Effective management of SEA necessitates seamless interdisciplinary collaboration among healthcare providers, including gastroenterologists, radiologists, and surgeons. Gastroenterologists play a pivotal role in the initial evaluation and clinical assessment of patients presenting with abdominal pain suggestive of SEA. Radiologists are instrumental in the accurate interpretation of imaging studies, particularly CT scans, which are essential for confirming the diagnosis of SEA and assessing the extent of inflammatory changes. Surgeons, although often not directly involved in the initial management of uncomplicated SEA, contribute valuable insights regarding surgical indications and considerations in cases where conservative measures may not suffice or complications arise. Interdisciplinary collaboration fosters a cohesive approach to patient care, promoting shared decision-making, timely interventions, and optimal patient outcomes.

This case report highlights the critical importance of early recognition, judicious use of imaging modalities, and conservative management strategies in SEA. By routinely considering SEA in differential diagnoses, clinicians can expedite patient care, reduce healthcare burdens, and enhance overall patient outcomes. The characteristic CT findings—oval fat attenuation lesions with a peripheral "central dot" sign—aid in distinguishing SEA from more serious conditions. Remember, timely diagnosis and thoughtful management are key to successful outcomes.

Author Contributions

Jugal Hiren Bhatt: conceptualization, data curation, formal analysis, project administration, writing – original draft. **Ujjwal P. Dutta:** conceptualization, data curation, writing – original draft. **Nency Kagathara:** formal analysis, writing – original draft. **Irfan Nagori:** supervision, validation, writing – review and editing. **Srijana Neupane:** supervision, writing – review and editing.

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Ethics Statement

Ethics approval was obtained from the institutional review board for the publication of this case report.

Consent

The purpose of obtaining the details about the patient's disease and condition was explained to the patient. Later, written informed consent was obtained from the patient for the publication of this case report and accompanying images. A copy of written consent is available for review by the editor-in-chief of this journal on request.

Conflicts of Interest

The authors declare no conflicts of interest.

Data Availability Statement

Data are available on request because of privacy and ethical restrictions.

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