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# Efficacy of Medical Treatment in Primary Appendagitis Epiploica

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## ABSTRACT

**Objective:** Primary appendagitis epiploica is a rare cause of abdominal pain. Generally, it can be treated conservatively, and radiological imaging is important for diagnosis. The present study aimed to report the diagnosis, treatment, and follow-up results of patients diagnosed with primary appendicitis epiploica.

**Methods:** This retrospective study included 31 patients diagnosed with primary appendagitis epiploica and treated medically between February 2015 and May 2021. The definitive diagnosis in all patients was made by computerized tomography (CT). The diagnosis of patients with suspected primary appendagitis epiploica on ultrasonography was confirmed by CT. The diagnosis, treatment, and follow-up results of the patients were evaluated.

**Results:** Of the 31 patients, 14 were female and 17 were male, with a mean patient age of  $42.03 \pm 13.58$  years. 10 patients were hospitalized and 21 were treated as outpatients. Inpatients stayed in the hospital for a mean of  $2.8 \pm 1.03$  days. Oral intake continued during hospitalization. None of the patients developed complications or were operated.

**Conclusion:** Primary appendagitis epiploica is a rare condition characterized by self-limiting abdominal pain. It can be treated conservatively with the correct diagnosis. Further investigation is required for recurrent cases.

**Keywords:** Computerized tomography, epiploic appendagitis, medical treatment

## INTRODUCTION

Primary appendagitis epiploica (PAE) is a rare benign and self-limiting inflammatory disease of the epiploic appendages of the colon.

Because PAE is a clinical condition that presents with acute abdomen not requiring surgical treatment, it is very important to differentiate it from other conditions requiring urgent surgical treatment. PAE, which usually responds to conservative treatment, may lead to unnecessary laparotomies in undiagnosed cases (1-3).

It may occur in any age group, but is observed more frequently in the 4<sup>th</sup> and 5<sup>th</sup> decades. It has been reported that the risk of the disease is slightly higher in middle-aged men (4).

The appendix epiploica are pedicled appendages with a length of 0.5-5 cm and a thickness of 1-2 cm, frequently located in the sigmoid colon and ileocecal region, and contain adipose tissue covered with serosa and numbering around 100 along the entire colon (5).

The blood circulation is provided by 2 arteries coming from the colic artery branches and 1 central vein. They are susceptible

to torsion and infarct development because of their pedicled structure, which allows free movement (6).

In this study, we aimed to report the diagnosis, treatment, and follow-up results of patients diagnosed with PAE.

## METHODS

Ethics approval was obtained from the Kahramanmaraş Sütçü İmam University Medical Faculty Clinical Research Ethics Committee for this study (decision no: 02, date: 24.08.2021).

In this study, 31 patients diagnosed with PAE and treated between February 2015 and May 2021 were retrospectively evaluated. The patient data were obtained from computer records, discharge summaries, and outpatient records. When necessary, patients were interviewed, and their information was obtained. Patients were followed with 6-month intervals. Patients who did not attend the follow-up and could not be reached were excluded from the study. Patients who had other concurrent intra-abdominal pathologies with the diagnosis of PAE and whose data could not be reached were not included in the study. All risks were explained to the patients after interviewing them, and their consent was

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obtained. The definitive diagnosis in all patients was made by computerized tomography (CT) (Figure 1,2). The diagnosis of patients with suspected PAE on ultrasonography (USG) was confirmed by CT. After diagnosis, patients with severe abdominal pain were hospitalized. None of the patients underwent follow-up imaging because no complications were observed. Inpatient and outpatient treatment was provided to 10 and 21 patients, respectively. Inpatients stayed in the hospital for a mean of  $2.8 \pm 1.03$  days. Oral intake continued during hospitalization.

No complications observed in any patient, and no surgery was performed. Patients followed in an outpatient setting were treated with ciprofloxacin, metronidazole, and anti-inflammatory drugs. The patients who required admission were treated with ceftriaxone, metronidazole, and anti-inflammatory drugs and were discharged at the end of hospitalization with ciprofloxacin, metronidazole, and oral anti-inflammatory drugs.

### Statistical Analysis

Study findings were evaluated using SPSS (Statistical Package for Social Sciences) v. 21.0 statistical software. Descriptive statistical

methods, such as mean, standard deviation and percentage, were used to evaluate data.

### RESULTS

Of the 31 patients, 14 were female and 17 were male. The mean patient age was  $42.03 \pm 13.58$  years. Eight patients were hospitalized. The mean duration of hospitalization was  $2.62 \pm 0.74$  days. Five of the hospitalized patients were female and three were male. Twenty-seven patients were admitted to the hospital with left lower quadrant pain and 4 with right lower quadrant pain. The mean white blood cell count (WBC) was  $89.04 \pm 2.03$  mm<sup>3</sup> and the mean C-reactive protein (CRP) was  $17.16 \pm 12.46$  mg/L. The mean follow-up duration was  $43.8 \pm 21.07$  months. Recurrence was observed in 4 patients (12.9%) (Table 1). Three patients were female and one was male, and 1 recurrence was observed in these 3 patients. One female patient had 2 episodes of recurrence of symptoms. In this patient, who had 3 attacks in total, sigmoid tumor was detected on colonoscopy and surgical removal was performed.

### DISCUSSION

Epiploic appendages are peritoneal extensions originating from the colonic serosa, which contains adipose tissue and vascular structures (7). These structures, which are supplied by colic artery branches, are easily exposed to torsion and infarction because of the poor blood flow they receive and their pedicled structures, which allow them to move freely (5).

Although PAE can be observed in all age groups and in children, it is most commonly observed in people in their 40s and 50s, and men are affected slightly more than women (4,8).

The most commonly involved sites are the sigmoid and descending colons (3,9). Although the exact incidence of the disease is not known, it was reported to be 8.8 per million in a previous study (10).

However, diagnosis is more frequently made in patients with acute abdominal pain due to the widespread use of radiological imaging methods.

Although appendicitis, diverticulitis, acute cholecystitis, and acute gynecological diseases are also included in the differential diagnosis of PAE, they have characteristic features that can be easily distinguished by their typical locations and accompanying radiological and clinical findings (11,12).



Figure 1. Image of left-sided epiploic appendagitis

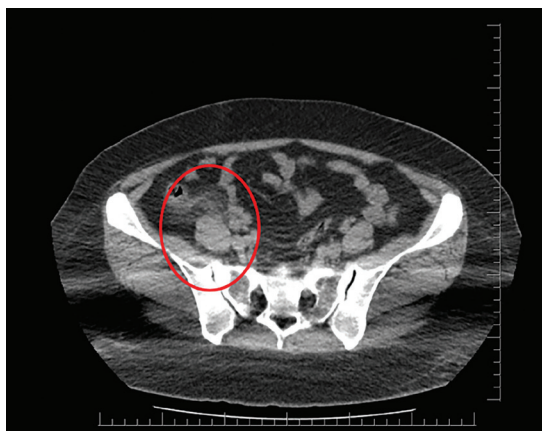


Figure 2. Image of right-sided epiploic appendagitis

Table 1. Patient demographics

Gender (Female/Male)	14 F/17 M
Mean age (Years)	$42.03 \pm 13.58$
Leukocyte average	$8904 \pm 2030$ /mm <sup>3</sup>
CRP average	$17.16 \pm 12.46$ mg/L
Follow-up period (months)	$43.8 \pm 21.07$
Recurrence	4 (12.9%)
Localization (L/R)	27/4

Most patients present to the emergency department due to the sudden onset of abdominal pain. It is most commonly observed in the right and left quadrants. Of the patients, 27 complained of left and right lower-quadrant pain. Nausea and vomiting can sometimes be seen in addition to abdominal pain. Physical examination findings include fever, and laboratory findings include increased WBC counts. WBC and CRP levels have been found to be high in some studies (1,13).

In our study, although the mean WBC was  $8.94 \pm 2.03$ , 8 patients had leukocytosis. CRP levels were found to be high, with a mean of  $17.16 \pm 12.46$  mg/L. Historically, PAE was mostly diagnosed with laparotomy. Today, USG is an affordable and non-invasive technique for patients with suspected PAE. In Doppler USG, blood flow within the lesion was found to be absent. This imaging modality allows PAE to be differentiated from appendicitis and diverticulitis (11,14).

CT is considered to be the gold standard for diagnosis. Other lesions containing adipose tissue, acute omental infarction, mesenteric panniculitis, omental tumor (liposarcoma), fat necrosis, acute diverticulitis, and mesocolonic tumor should be considered in the differential diagnosis (14).

In our study, 7 patients were diagnosed with CT. USG was performed in 24 patients on their follow up visit. In 8 patients, CT was performed because no pathology was observed on USG. In 16 patients, although appendicitis was diagnosed by USG, it was confirmed by CT.

Although magnetic resonance imaging (MRI) is not necessary for direct diagnosis, it may be useful for determining the extent of inflammation in the surrounding mesenteric tissue. Although laparoscopy was used in selected cases, no patient required surgery (15).

The treatment of PAE remains controversial. It is argued that PAE is a self-limiting disease that can be resolved with a conservative approach using oral antibiotics and anti-inflammatory treatment (16).

However, it is also advocated that patients will recover completely only with anti-inflammatory drugs (17).

In our study, all of the patients received both antibiotics and anti-inflammatory drugs. Oral antibiotics were preferred at the outpatient setting, whereas intravenous or intramuscular antibiotics were administered in inpatient setting.

Some authors recommend early surgical intervention during treatment to prevent secondary complications and to overcome the disease quickly because early recurrence was found frequently in the patients (13).

In our study, recurrence was observed in 4 (12.9%) patients. Three patients experienced one episode of recurrence during follow-up, and one patient had 2 more episodes. A sigmoid colon tumor was detected in this patient who had appendicitis 3 times in total.

The patient was subsequently operated on and discharged with recovery. When the old CT images of this patient were re-examined, no mass lesions were observed. We recommend colonoscopic examination for recurrent appendicitis. These cases of recurrent appendicitis may be a hindrance to tumor development.

## CONCLUSION

PAE should be considered in the differential diagnosis of sudden-onset abdominal pain. There is no need for urgent surgery. A definitive diagnosis can be made by CT, and favorable results can be obtained with appropriate medical treatment. However, it should be kept in mind that there may be another underlying pathology in recurrent cases, and further investigations should be performed in such cases.

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### Ethics

**Ethics Committee Approval:** Ethics approval was obtained from the Kahramanmaraş Sütçü İmam University Medical Faculty Clinical Research Ethics Committee for this study (decision no: 02, date: 24.08.2021).

**Informed Consent:** Retrospective study.

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### Footnotes

**Author Contributions:** Surgical and Medical Practices - G.E.; Concept - G.E.; Design - G.E., S.S., G.D.; Data Collection and/or Processing - G.E., S.S., G.D.; Analysis and/or Interpretation - G.E., S.S., G.D.; Literature Search - G.E., S.S., G.D.; Writing - G.E., S.S., G.D.

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