

Does primer appendagitis epiploica require surgical intervention?

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ABSTRACT

BACKGROUND: Although primer appendagitis epiploica (PAE) is an acute condition, there is no consensus about a standard first-choice treatment. Different non-surgical and surgical interventions for PAE are available.

METHODS: In this study, a total of 39 patients who were diagnosed as PAE between 2013–2018 were evaluated retrospectively concerning recurrences of the disease, medical intervention, and the requirement of hospitalization. USG and abdominal CT were used as diagnostic tools. Patients were also evaluated for a one-month and long-term follow-up.

RESULTS: Of the 39 patients, 29 were male and 10 were female. Recurrence was seen in three patients at the earliest six months. These patients responded to medical treatment.

CONCLUSION: Accurate diagnosis with the help of developing imaging methods has made non-surgical treatment a viable option in the treatment of PAE.

Keywords: Acute abdomen; conservative treatment; primer epiploic appendagitis.

INTRODUCTION

Epiploic appendages (EA) are an intense form of pedicled fat tissue covered with serosa in the wall of the colon. Epiploic appendages are between 0.5 and 5 cm long, each accompanied by one or two arterioles and a venule present in the vascular stalks attached to the colon.^[1] The total number of appendages varies between 50–100 and the appendages are generally adjacent to anterior and posterolateral taenia coli.^[2,3] Primer appendagitis epiploica (PAE) is an acute condition that arises from torsion or spontaneous venous thrombosis that involves inflammation in the surrounding tissues due to weak arterial feeding and freely moving pedicled structures. The most common site of appendix epiploica is the sigmoid colon. Although PAE responds to conservative treatment, misdiagnosed cases may result in unnecessary laparotomies. In this paper, we suggest that PAE can be managed with conservative treatment.

MATERIALS AND METHODS

The records of patients admitted to Sakarya University Faculty of Medicine Emergency Department with acute abdominal pain from 2013 through 2018 were evaluated retrospectively in this study. Files of patients diagnosed with PEA were examined in detail to ascertain demographic data, leukocyte count at presentation, C-Reactive Protein (CRP) levels, radiological examinations, and treatment processes. Abdominal ultrasonography (USG) was performed by a radiologist for all patients who presented to the emergency department or surgical outpatient clinic with abdominal pain. An abdominal computed tomography (CT) scan was sometimes performed to confirm the diagnosis, especially for older patients who could not be diagnosed using USG. After the PAE diagnosis was confirmed, patients with severe abdominal pain were hospitalized. The patients were

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checked daily with hemogram and CRP controls. No control imaging was performed because there was no progression in hospitalized patients' clinics. Intramuscular (IM) anti-inflammatory treatment was administered to hospitalized patients, while oral anti-inflammatory medication was administered to non-hospitalized patients. Non-hospitalized patients were strongly advised to contact the hospital immediately in case of severe abdominal pain. All patients diagnosed with PAE had a follow-up after one month; control imaging and examinations were performed. USG was applied as a control imaging method. Ethics committee approval of our study was obtained from our university. Data were analyzed by descriptive statistics, and percentages and numbers were used for categorical data.

RESULTS

Twenty-nine of the thirty-nine patients with PAE were male, and ten were female. The mean patient age was 44.4 ± 13.2 . Ten of the thirty-nine patients (25.6%) were hospitalized (six males, four females). The mean hospitalization time was 55.2 ± 22 hours. The mean WBC (White Blood Count) of the patients was $8730 \text{ mm}^3 \pm 2.65$, and the mean CRP was $1.49 \text{ mg/dl} \pm 1.8$. The mean body mass index (BMI) of patients was 28.91 ± 3 . Intramuscular diclofenac sodium 2×1 was given to hospitalized patients. Oral intakes of the patients proceeded. Diclofenac sodium 2×1 pills were prescribed in the twenty-nine patients who were not hospitalized. Thirty-four of the 39 patients (87.17%) came to the one-month follow up appointments, and no pathology was detected in the controls. The five patients who did not come to the follow up could not be reached, even by phone. At long term follow up, one female patient had a recurrence after six months, one male patient had a recurrence after two months, and another male patient had a recurrence twelve months later. Patients with recurrences were treated medically without surgical intervention. The recurrence rate was 8.82% in checked patients. The longest follow-up was three years. No surgical intervention was performed during the follow-up (Table 1).

DISCUSSION

Vesalius was first described EA in 1543, and the surgical importance of EA was noticed in 1843 by Virchow, who suggested that EA could be intraabdominal loose bodies due to their detachment.^[3,4] The definition of EA was revealed in 1956 by Dockerty et al.^[5] The most affected bowel segments are the sigmoid colon and ileocecum.^[6,7] The exact role of these appendages is not clear, although fat storage for consumption during starvation, blood supply protection for a collapsed colon, and assistance with colonic absorption have been suggested.^[8,9] The exact incidence of the disease is not known, but in one study, the incidence was reported to be 8.8 per million.^[10] Nutritional status may affect EA size. Obese individuals and individuals who have had recent

weight loss have more extensive appendages.^[2,11] Although PAE can be seen in any age group, even children, it is most often seen in individuals in their 40s and 50s, and men are slightly more affected than women.^[12-14] Heavy exercise and obesity may also increase the risk of developing the disease.^[15] The main driver of PAE is the formation of torsion and related ischemia and aseptic necrosis.^[2,15,16] A spontaneous venous thrombosis is another reason for developing the disease.^[17] The mean age of our patients and the mean body mass index were consistent with PAE, and positional etiologic factors, such as a sudden change of body position, were not found in our patients.

Most of the patients were admitted to the emergency department with sudden onset, constant, localized, non-migratory abdominal pain, most frequently detected in the left and right lower quadrants. PAE may mimic surgical pathologies, such as acute appendicitis, acute cholecystitis, and acute diverticulitis.^[13,18] Nausea and vomiting may occur. All patients admitted to our emergency department or outpatient clinic had sudden onset abdominal pain, but no nausea or vomiting. On physical examination, tenderness in the right or left lower quadrant of the abdomen was the most common finding. All of our patients had lower abdominal tenderness.

Table 1. Descriptive statistics of the numerical variables

Patients	n	Mean \pm SD
Age	39	44.4 \pm 13.2
White blood cell	39	8731 \pm 2.65
C-reactive protein	39	1.49 \pm 1.8
Body mass index	39	28.9 \pm 3
Hospitalization	10	55.2 \pm 22

SD: Standard deviation.

Table 2. Descriptive statistics of the outpatient and hospitalized patients

Patients	n	Mean \pm SD
Hospitalized		
Age	10	46.7 \pm 14.1
White blood cell	10	10017 \pm 2.9
C-reactive protein	10	2.51 \pm 2.9
Body mass index	10	29.6 \pm 2
Outpatient		
Age	29	43.6 \pm 13.1
White blood cell	29	82.88 \pm 2.4
C-reactive protein	29	1.14 \pm 1
Body mass index	29	28.6 \pm 3.2

SD: Standard deviation.

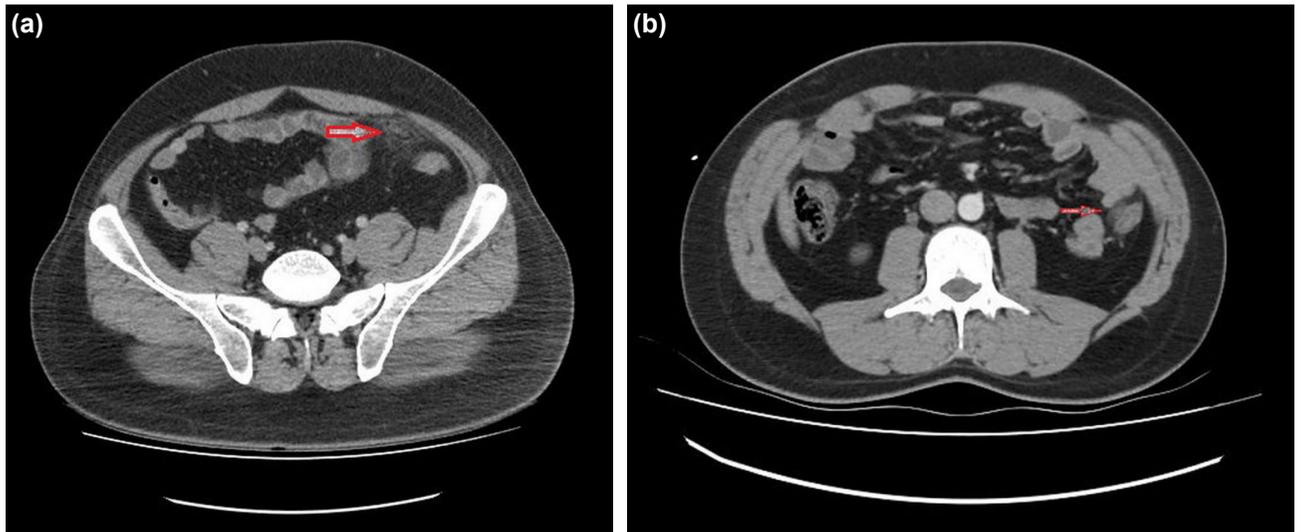


Figure 1. (a, b) CT image of appendagitis epiploica; red arrow

Only half of our patients had rebound sensitivity. Based on a previous study, rebound sensitivity is usually not detected.^[19] Laboratory test results are generally routine, although some patients may present with slightly elevated CRP and WBC.^[12,13,16] In 18 of our 39 patients, we identified that CRP values were somewhat high, and nine of our patients had an increased WBC. Although PAE is usually a self-limiting disease, 10 patients were hospitalized for follow-up and their mean WBC and CRP levels were higher than those of the outpatient group. It appears that WBC and CRP values are associated with clinical hospitalization, but larger sample groups are required to prove statistical significance (Table 2a, b).

In patients with suspected PAE, USG can be used as an inexpensive and non-invasive technique. The USG shows a well-defined, non-compressed hypoechoic mass lesion around the colon, with a hypoechoic rim around it. The color Doppler USG does not show blood flow within the lesion.^[20,21] This result enables the differentiation of PEA from appendicitis and diverticulitis. In our case series, USG was performed first, but the success of diagnosis depends on the radiologist's experience. Computed tomography is accepted as the gold standard for PAE diagnosis (Fig. 1a). Although regular EA is not observed with CT, PEA can be seen as a pedicled structure with fat density on the tomography after inflammation (Fig. 1b). Legome et al. diagnosed all patients using tomography in a 19-case series.^[15,22] Twenty-nine of our patients were diagnosed with tomography because USG was not helpful in the diagnosis of these patients. Although MRI is not required for direct diagnosis, it may be useful in demonstrating the severity of inflammation in the peripheral mesenteric tissue.

The differential diagnosis of PEA should be made, especially from appendicitis, diverticulitis, cholecystitis, and other pathologies that may require surgery. Diagnosis of PAE can easily be made by increasing the use of tomography, and ra-

diologists should keep in mind the presence of this rare disease.^[23,24]

The treatment of PAE is still controversial. PAE is generally known as a self-limiting condition in which patients have a full recovery with anti-inflammatory drugs in a few weeks.^[20] Surgical therapy is favorable to prevent recurrence due to inflammation-induced adhesions, and other less common complications. Laparoscopic intervention is usually the first choice.^[25] Although Epstein and Lempke first described the nonsurgical management of PAE in 1968, it was not reported until 1992.^[26,27] Although some studies have reported that conservative treatment causes high rates of recurrence, our recurrence rate was only 8.82% (3 of 34), and these relapsed cases were treated medically without any complication. Unnecessary surgical intervention should be avoided and side effects, such as severe bleeding, organ injury, and allergic reaction to anesthetic drugs, should be discussed with patients. In addition, conservative medical treatment of PAE is much more cost-effective than surgical intervention.

Conclusion

Increased use of imaging methods, such as tomography and USG, can aid correct diagnosis of PAE. We believe that conservative medical treatment of PAE is a good alternative to surgery.

Ethics Committee Approval: Approved by the local ethics committee.

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Conflict of Interest: None declared.

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ORİJİNAL ÇALIŞMA - ÖZET

Primer appendagitis epiploica da cerrahi müdahale gerektirir mi?

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AMAÇ: Primer apendajitis epiploica (PAE) akut bir hastalık olmasına rağmen, standart bir birinci seçenek tedavi konusunda fikir birliği yoktur. PAE için farklı cerrahi ve cerrahi olmayan girişimler mevcuttur.

GEREÇ VE YÖNTEM: 2013–2018 yılları arasında PAE tanısı almış toplam 39 hasta geriye dönük olarak hastalığın nüksü, tıbbi müdahale ve hastanede yatış gereksinimi açısından değerlendirildi. Ultrasonografi ve abdominal bilgisayarlı tomografi tanı aracı olarak kullanıldı. Hastalar ayrıca bir aylık ve uzun süreli takipler için değerlendirildi.

BULGULAR: Otuz dokuz hastanın 29'u erkek, 10'u kadındı. En erken altı ayda üç hastada nüks görüldü. Bu hastaların tümü nüks edenler dahil tıbbi tedaviye cevap verdi.

TARTIŞMA: Görüntüleme yöntemlerinin gelişmesi ile doğru tanın konulabilmesi mümkün olabilmekte ve sonuç olarak, cerrahi müdahale gerektirmeden tıbbi tedavi ile PAE tedavisinde uygulanabilir bir seçenek haline getirmektedir.

Anahtar sözcükler: Akut karın; konservatif tedavi; primer epiploik apendajitis.

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