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An uncommon cause of acute abdomen - epiploic appendagitis: CT findings

Nadir akut karın nedenlerinden epiploik apandisit: BT bulguları

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Epiploic appendagitis, which is an uncommon cause of acute abdomen, is a benign self-limiting inflammatory process of epiploic appendices. It has primary and secondary types. Computed tomography findings of the primary type are specific but are demonstrated rarely. Herein, we present pre- and post-treatment computed tomography findings of two cases who admitted to the emergency clinic with acute abdominal pain and were diagnosed to have epiploic appendagitis. Follow-up computed tomography features correlated well with clinical improvement.

Key words: Inflammation, epiploic appendage, acute abdomen, colon, computed tomography

Nadir akut karın nedenlerinden olan epiploik apandisit, epiploik apendikslerin kendi kendini sınırlayan inflamasyonudur. Primer tipi nadirdir fakat bilgisayarlı tomografi bulguları spesifiktir. Bu yazıda, acil servise akut abdominal ağrı ile gelen ve epiploik apandisit tanısı konulan iki olgunun tomografi bulguları sunulmaktadır. İki olguda da tedavi öncesi çekilen bilgisayarlı tomografide solda inen kolon komşuluğunda, intravenöz kontrast madde enjeksiyonu sonrasında periferal kontrastlanma gösteren yağ dansitesinde nodüler lezyon mevcuttu. Lezyon çevresinde mezenterik yağ dokuda inflamasyona sekonder dansite artışları izlendi. Olgulara, tomografi bulgularına göre epiploik apandisit tanısı kondu. Tedaviden 1.5-3 ay sonra çekilen kontrol bilgisayarlı tomografide bulguların kaybolduğu ve klinik iyileşme ile korele olduğu izlendi.

Anahtar kelimeler: İnflamasyon, epiploik apendiks, akut karın, kolon, bilgisayarlı tomografi

INTRODUCTION

Epiploic appendages are fat- and blood vessel-containing outpouchings protruding from the serosal surface of the colon (1-3). They appear in the fifth month of fetal life (2) and in an adult human, the average number of epiploic appendages is approximately 50-100. They measure from 2-5 cm in length (1, 2, 4). Vessels pass through their narrow pedicle. Epiploic appendagitis is the inflammatory process of the epiploic appendage and has primary and secondary types. Primary epiploic appendagitis (PEA) is the infarction and inflammation of an appendage because of torsion or spontaneous venous thrombosis. PEA mimics acute abdominal diseases; thus, it must be distinguished from the secondary epiploic appendagitis, which is caused by neighborhood inflammatory processes such as diverticulitis, appendicitis or cholecystitis (1, 2).

Computed tomography (CT) features distinguish epiploic appendagitis from other inflammatory conditions by measuring the fat tissue density within the mass (2). Although the findings are specific, they are demonstrated rarely. In this paper, we present two cases of epiploic appendagitis with characteristic CT findings and their follow-up after treatment.

CASE REPORTS

Case 1

A 25-year-old male patient was admitted to the emergency clinic with progressively increasing left lower quadrant pain and nausea of sudden onset. The pain increased with coughing and breathing. There was left lower quadrant tenderness with deep palpation on physical examination. The white

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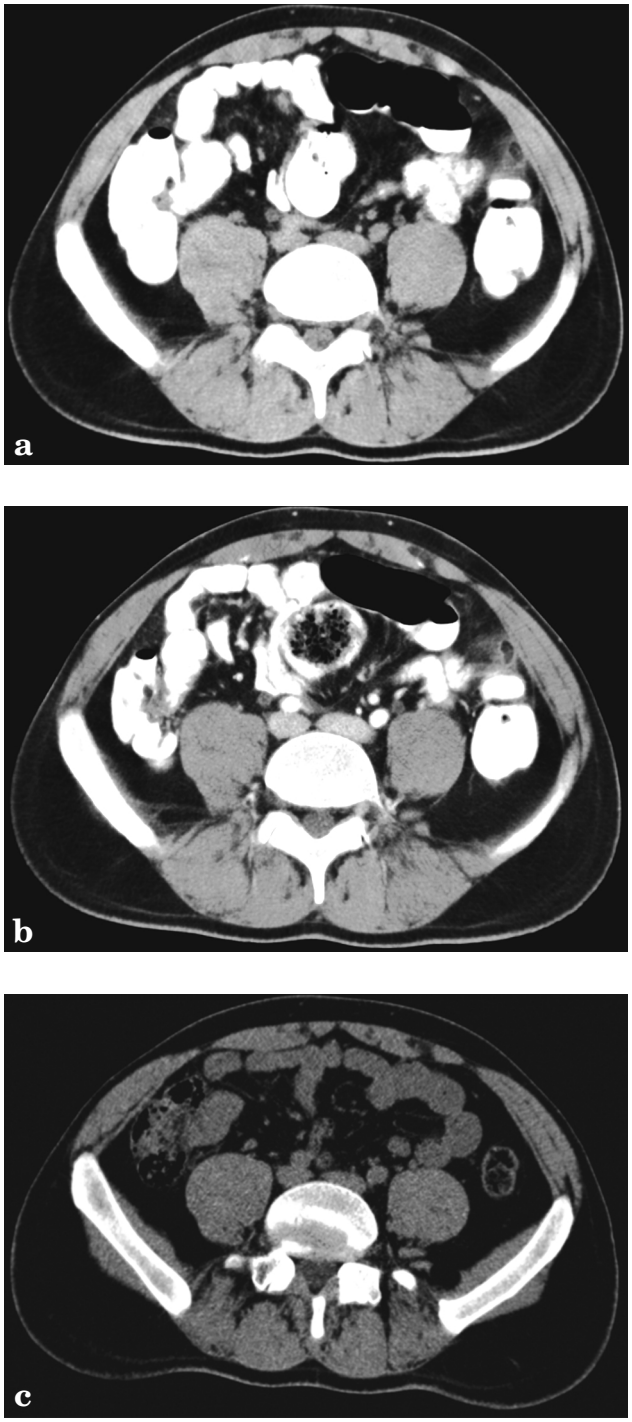

Figure 1. a) Non-enhanced and, **b)** enhanced CT demonstrate hypodense lesion on the left side, anterior to the descending colon, and increased density of mesenteric fat planes around the lesion. The lesion had fat density centrally with peripheral contrast enhancement, **c)** Follow-up non-enhanced CT scan shows regression of findings

cell count was normal. Abdominal Multidetector CT (Volume Zoom, Siemens, Erlangen, Germany) with intravenous contrast was performed to rule out acute abdominal disease. CT demonstrated a hypodense lesion on the left side with fat density and peripheral contrast enhancement next to the descending colon and increased density of the mesenteric fat planes around the lesion, which was thought to be secondary to inflammation. According to these CT findings, epiploic appendagitis, secondary to inflammation of torsioned epiploic appendix, was diagnosed (Figure 1a, 1b). Control CT scans three months after medical treatment demonstrated regression of the inflammatory findings (Figure 1c).

Case 2

A 37-year-old male patient was admitted to the emergency clinic with intermittent suprapubic pain that later became constant and progressively localized to the left lower quadrant. There was left abdominal tenderness on physical examination; the laboratory findings were unremarkable. Abdominal ultrasonography showed no significant abnormalities. Abdominal CT demonstrated hypodense nodular lesion having fat density on the left side neighboring the descending colon. Increased density secondary to inflammation was seen in mesenteric fat planes around the lesion. Lesion showed peripheral contrast enhancement. In this case, inflammation around the fatty appendage was more significant. Peritoneal thickening and contrast enhancement according to the inflammation were present in this case (Figure 2a, 2b). Epiploic appendagitis was diagnosed according to the CT findings. After antibiotic therapy, follow-up CT scan six weeks later demonstrated no inflammation (Figure 2c).

DISCUSSION

Epiploic appendages appear in the fifth month of fetal life (2). In an adult human, they number 50-100 on average, and their measurements range from 2-5 cm in length (1, 2, 4). They generally arise from the descending colonic wall such that their inflammation mimics diverticulitis.

In 1543, Vesalius first reported them as finger-like projections of fat-containing structures arising from the serosal surface of the colon. The vessels pass through their narrow pedicle which contains one or two small arteries and a single vein (4).

The role of epiploic appendages is still not clearly known, but there are some theories. They may function as a barrier against infection or inflammation as a miniature omentum (4). Some authors

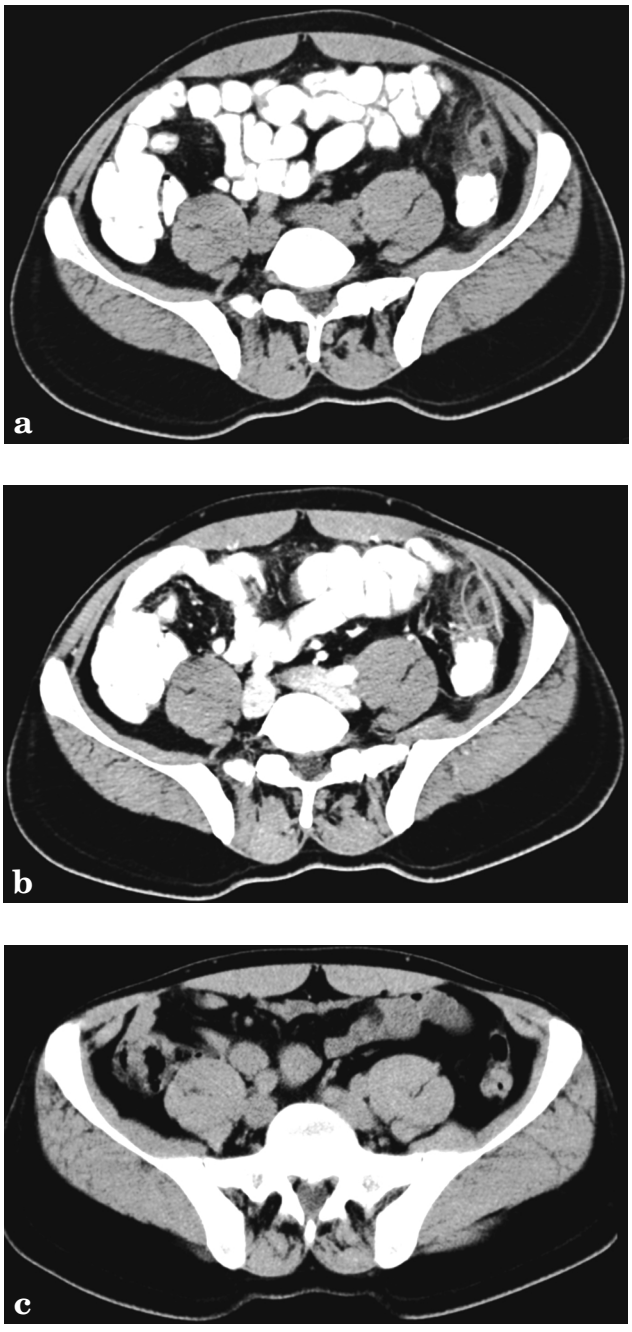

Figure 2. a) Non-enhanced and **b)** contrast-enhanced CT scans show pericolic inflammation neighboring the descending colon. Fat tissue density within the inflammatory tissue is consistent with epiploic appendage. Peritoneal thickening and contrast enhancement according to the inflammation nearby the lesion are also present, **c)** Follow-up non-enhanced CT image demonstrated normal findings without any inflammation

report that, by acting as cushions, they may protect the colon during peristalsis or they may act as a depot of blood against the colonic intramural vessel's contraction. Another theory is that they may store fat (4, 5). Some surgeons use them to close a perforation or protect a suture line during surgeries (5).

Epiploic appendagitis has primary and secondary forms. Torsion or spontaneous venous thrombosis causes inflammation and infarction of the appendage that result in PEA. Secondary epiploic appendagitis is caused by nearby inflammatory processes like appendicitis, diverticulitis or cholecystitis (1-5). It is important to distinguish between the two in order to avoid unnecessary surgery in the primary cases.

Patients generally have acute onset abdominal pain with left lower quadrant tenderness, which sometimes increases with motion and deep breathing (2). Some patients report fever, vomiting, diarrhea or nausea, such as our first case (1, 6). Laboratory findings are usually normal, or white blood cell count is minimally elevated (4, 6). Sometimes exercise or posture change may cause PEA (2, 4). Male predominance is seen in the primary form and it affects obese people in the second to fifth decades of life (4, 5).

Ultrasound has been used to show epiploic appendagitis. It shows hyperechoic noncompressible mass near the colonic wall at the site of tenderness on physical examination (1-4, 7-10). With color Doppler, no vascularity is demonstrated within the mass, and this finding distinguishes it from other inflammatory processes such as diverticulitis or appendicitis (1, 3).

CT findings of PEA are specific and characteristic for epiploic appendagitis. In both of the presented cases, abdominal CT demonstrated an oval fat density lesion on the left side with peripheral contrast enhancement next to the descending colon and increased density of mesenteric fat planes around the lesion secondary to the inflammation, as presented in previous papers (1, 2, 7, 11, 12). Sometimes fascial thickening and nearby parietal peritoneal thickening may be demonstrated (1, 5, 7, 8, 10, 11). A linear density according to the thrombosed vein may also be seen in the lesion. Adjacent colonic wall thickening and mass effect on the nearby bowel structures were also reported by some authors in the literature (5). Omental infarction is another entity that may mimic PEA. But location and limited small extension of PEA distinguish it from omental infarction. The treatment is nonsurgical with antibiotics. In both cases, significant regression of the findings was demonstrated after treatment with non-contrast CT.

In conclusion, PEA mimics acute abdominal diseases, and CT findings are characteristic for the disease. It should be kept in mind that if the patient is diagnosed with this rare inflammatory condition, other acute pathologies can be excluded and unnecessary surgery in patients can be avoided. Precontrast CT is sufficient for the follow-up of the patients.

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