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RESEARCH ARTICLE

An Acute Abdomen Dilemma: Epiploic Appendagitis

Bir Akut Karın Dilemması: Epiploik Appendajit

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ABSTRACT

Aim: Appendagitis is a clinical condition caused by ischemia, torsion or inflammation of epiploic appendices located on serosal surface of the colon. Antibiotics and analgesics are generally sufficient in treatment. Rarely, excision might be needed. It might be confused with acute appendicitis and diverticulitis, depending on its localization.
Method: The data of 12 patients with acute abdomen, who were diagnosed to have epiploic appendagitis and responded to medical treatment completely, were analyzed retrospectively.
Results: There were seven female and five male patients with a mean age of 33 (range: 21-48) years. The mean body mass index was 25.5 (range: 19-34). There was no abdominal surgery. The mean length of hospital stay, leukocyte count and C-reactive protein (CRP) were 2.08 days, 10.41x10^3/µL and 2.3 mg/dL, respectively. Sixty-six point six percent (n=8) of the epiploic appendagitis was localized in the right colon and 33.3% (n=4) in the left colon. A positive correlation was found between the diameter of appendagitis and leukocyte count and CRP level (p>0.05). There was no correlation between appendagitis diameter and vomiting (p>0.05).
Conclusion: Appendagitis should be kept in mind in patients presenting with sudden onset, sharp and constant pain. Informing radiologist about this possibility may help to confirm the diagnosis.
Keywords: Conservative treatment, epiploic appendagitis, radiology

ÖZ

Amaç: Apandijit, kolon serozasında bulunan appendiks epiploikaların iskemi, torsiyon veya enflamasyonuna bağlı klinik durumdur. Antibiyotik ve analjezik tedavi tedavide genellikle yeterlidir. Nadiren, eksizyon gerekebilir. Yerleşim yerine bağlı olarak, akut apandisit vedivertikülit ile karışabilir.
Yöntem: Akut karın ile başvuran ve epiploik appendijit tanısı alarak medikal tedavi ile tamamen iyileşen 12 hastanın verileri retrospektif olarak incelendi.
Bulgular: Yaş ortalaması 33 (21-48) olan yedi kadın, beş erkek hasta vardı. Ortalama vücut kitle endeksi 25,5 (19-34) idi. Hiçbir hasta ameliyat edilmedi. Ortalama hastanede kalış süresi, lökosit sayısı ve C-reaktif protein (CRP) değerleri sırasıyla, 2,08 gün, 10,41x10^3/µL ve 2,3 mg/dL idi. Epiploik appendajitlerin %66,6'sı (n=8) sağ kolon ve %33,3'ü (n=4) sol kolon yerleşimliydi. Appendajit çapı, lökosit sayısı ve CRP düzeyi arasında pozitif bir ilişki saptandı (p<0,005). Appendajit çapı ile kusma arasında bir ilişki saptanmadı (p>0,005).
Sonuç: Epiploik appendajit, ani başlayan, keskin ve aralıksız ağrısı olan hastalarda akla gelmelidir. Bu olasılık açısından radyoloğun bilgilendirilmesi tanıyı kesinleştirmede yardımcı olabilir.
Anahtar Kelimeler: Konservatif tedavi, epiploik appendajit, radyoloji

Introduction

Acute primary epiploic appendagitis develops due to ischemia, torsion or inflammation of epiploic appendices located on serosal surface of the colon. Clinically, it generally presents with a sudden-onset, sharp and constant pain. It mimics acute appendicitis and diverticulitis depending on its localization, either in the right or left colon. Radiological findings may be confused with omental infarct, panniculitis or fat-containing tumors.[1] Radiologically, ultrasonography and computed tomography are sufficient to diagnose.[2] If it cannot be diagnosed radiologically, patients may undergo surgery due to acute abdomen. Appendagitis is frequently a self-limiting, benign clinical condition. It is mostly seen between 2nd and 5th decades, and is more frequent in

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women and obese people. A careful history taking, physical examination and radiological imaging can reveal accurate diagnosis. Antibiotics and analgesics are generally sufficient for treatment.

Materials and Methods

Twelve patients who were admitted to emergency department with acute abdomen and diagnosed with epiploic appendagitis between January 2014 and November 2017 were retrospectively analyzed. Physical examination, laboratory and imaging results were recorded. Local ethical committee approved the study and informed consent was obtained from the patients.

Statistical Analysis

SPSS 17 program was used for statistical analysis. Pearson correlation test was used to compare parameters. P<0.05 was considered statistically significant.

Results

There were seven female and five male patients with a mean age of 33 (range: 21-48) years. The mean body mass index (BMI) was 25.5 (range: 19-34). There was no abdominal surgery. The mean length of hospital stay, leukocyte count and C-reactive protein (CRP) were 2.08 days; 10.41x10^3/µL and 2.3mg/dL, respectively. The diagnosis was made by computerized tomography (CT) scan in all patients (Figure 1 and 2). Most (66.6%) of the epiploic appendagitis was localized in the right colon (Table 1). A positive correlation was found between the diameter of appendagitis and leukocyte count and CRP level (p<0.05). There was no relationship between appendagitis diameter and vomiting. The symptoms of the patients regressed with medical treatment. There was no complication or need for any surgical intervention.

Discussion

Epiploic appendices are lipomatous structures having a small arterial supply and venous return to colonic straight vessels. Matos and Costa[3] was the first to describe epiploic appendagitis in 1956 in the differential diagnosis of sudden-onset, right or left lower quadrant abdominal pain.

The patients describe a sharp, sudden onset, constant abdominal pain without nausea and vomiting or fever. The pain was reported to be more frequent in the left lower quadrant in the literature.[3,4,5] However, it was more frequent in the right lower quadrant in our study. Routine laboratory tests are within normal limits, except for mild leukocyte count and CRP increase.[6] Before the widespread availability of CT, appendagitis could only be diagnosed during

Figure 1. Epiploic appendagitis on computerized tomography

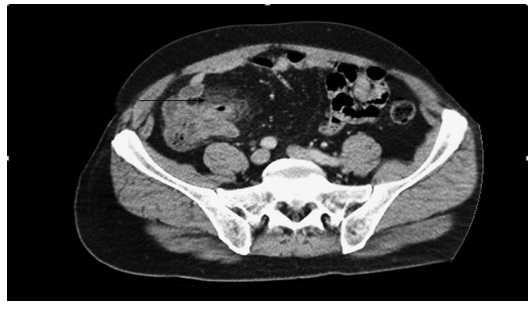

Figure 2. Epiploic appendagitis on computerized tomography

Table 1. Demographic characteristics of patients

Patient	Gender	Age (years)	Nausea/ vomiting	Pain localization	Leukocyte count (x10^3/µL)	CRP	Appendagitis diameter	BMI	Hospital stay (days)
1	Female	41	0	Right	7.06	0.5	1.6	20	1
2	Male	28	0	Right	10.10	2.1	1.7	27	2
3	Male	21	1	Right	9.10	2.9	2.1	23	3
4	Female	25	1	Left	10.90	3.3	2.4	32	3
5	Female	38	0	Right	13.00	1.7	1.5	29	2
6	Male	24	0	Left	8.10	2.2	1.1	19	1
7	Female	37	0	Right	12.30	4.1	2.7	33	3
8	Female	45	0	Right	11.40	1.2	1.8	25	2
9	Female	22	0	Right	9.40	1.6	2.3	27	3
10	Male	29	1	Left	11.10	1.4	1.9	34	1
11	Male	48	1	Left	13.80	5.1	3.7	23	3
12	Female	40	0	Right	8.70	2.3	1.2	31	1

CRP: C-reactive protein, BMI: Body mass index

surgical exploration, as its symptoms are non-specific. A study reported 2.5% preoperative correct diagnosis rate for appendagitis, which is very low.[1] Suspicion of appendagitis and informing the radiologist will be useful in the correct diagnosis during preoperative evaluation. Cases with non-radiological diagnosis or non-regressive symptoms despite medical therapy can undergo surgery with a prediagnosis of acute abdomen.[7,8]

It appears as an oval, non-compressible and hypoecoic lesion in ultrasound imaging.[9,10] There is severe tenderness on the lesion location. CT reveals a lesion of lipid density along with inflammatory findings in the neighborhood of colon.[11] Parietal peritoneum may appear thickened, if inflammation expands. Generally, the colonic wall appears to have normal thickness in CT, although it may appear thicker. The radiological findings of appendagitis resolve completely in 6 weeks.[12]

Epiploic appendagitis is a benign, self-limiting clinical condition with a size of 0.5 to 5 cm, and it is generally seen in young and middle-aged patients and obese people.[2] The high mean BMI and mean age in our study are consistent with the literature. Heavy physical activity may increase the risk of developing appendagitis. Male or female dominance is not certain in the literature.[1,3] It may be confused with acute appendicitis, acute cholecystitis or diverticulitis, depending on localization. The patients with a definite diagnosis based on imaging should be initially treated medically. Diagnostic laparoscopy can be used in cases with unexplained clinical or non-regressive symptoms. In addition, laparoscopic excision of appendagitis can eliminate the pathology.[13]

Epiploic appendagitis is one of the blamed factors in etiology of intraperitoneal loose body, along with omental torsion and peritoneal debris.[14] These intraperitoneal structures can mimic pseudotumor in imaging. Following acute period, appendagitis may show calcification and may be confused with carcinamatosis radiologically.[7] In such situations, if available, comparison with previous radiological imaging is helpful in diagnosis; otherwise, biopsy may be needed. While necrotized epiploic appendix tissue generally shows eggshell calcification, metastatic calcifications frequently show nodular formation.[15] However, in some cases, this discrimination is not clear. Thus, previous radiological imaging showing appendagitis is very important to differentiate this pathology from malignancy when suspected.

Conclusion

In conclusion, appendagitis is a clinical condition that is diagnosed by radiological imaging and that is generally conservatively treated. Ultrasound and CT scan are sufficient to make a diagnosis because of typical radiological findings. This typical appearance is important to differentiate it from acute appendicitis, omental infarction, diverticulitis and cholecystititis. Appendagitis should be kept in mind in patients with sudden onset or severe abdominal pain and mild increase in leukocyte or CRP counts. Informing the radiologist about suspected appendagitis may facilitate diagnosis.

Ethics

Ethics Committee Approval: The study was approved by the İstanbul Haydarpasa Numune Training and Research Hospital Ethics Committee (approval number: (07/06/2018-62977267-000-8436).

Informed Consent: Informed consent of all patients were taken.

Peer-reviewed: Externally peer-reviewed.

Authorship Contributions

Surgical and Medical Practices: H.Ö., Z.Ü.Ö., O.S., Concept: H.Ö., Z.Ü.Ö., Design: H.Ö., Data Collection or Processing: H.Ö., Z.Ü.Ö., F.C., Analysis or Interpretation: H.Ö., O.S., Literature Search: H.Ö., F.C., Writing: H.Ö., Z.Ü.Ö., O.S.

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