

Epiploic Appendagitis, an Uncommon Cause of Abdominal Pain: A Case Series and Review of the Literature

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Objective: Epiploic appendagitis (EA) is a rare entity caused by the inflammation of the appendix epiploica. It is a benign and self-limited condition presenting as acute onset abdominal pain. The inaccurate diagnosis of EA can lead to unnecessary hospitalization, antibiotic therapy, and surgery. Our aim is to describe the common clinical features of patients who were diagnosed with EA over a 2-year period at the San Juan Veterans Administration Hospital.

Methods: A retrospective descriptive review of the records of all patients diagnosed with EA from 2007 to 2009. The clinical data was obtained through record review. Diagnoses were confirmed by 2 radiologists reviewing imaging studies.

Results: Eight patients were included in the study. All were male with a mean age of 58 years. Seven patients were overweight as per body mass index (BMI) scale. All had localized focal, non-migratory abdominal pain, most (75%) in the left lower quadrant. Nausea (37.5%), anorexia (12.5%), constipation (12.5%), and diarrhea (25%) were documented as well. Only 2 patients demonstrated mild elevations in WBC, but none of the 8 had a fever. During the study period, all the patients' symptoms resolved without documented recurrence.

Conclusion: In our small case series, overweight was a common finding, supporting the described association between EA and obesity. History and physical exam should prompt the clinician to consider EA in the differential diagnosis of acute abdominal pain, particularly in those who are obese and who have pain localized to the left lower quadrant. [*P R Health Sci J* 2015;34:219-221]

Key words: Appendix Epiploica, Colon, Abdominal Pain

Epiploic appendages are small fat-filled, serosa-covered pedunculated structures on the external surface of the colon measuring 1 to 2 cm thick and 0.5 to 5 cm long. Each appendage has 1 or 2 arterioles and a venule on its vascular stalk (1).

Epiploic appendagitis (EA) is a benign self-limited condition associated with the torsion or spontaneous venous thrombosis of the draining vein. Most of the clinical characteristics of this rare disease have yet not been well established. Its signs and symptoms can mimic other causes of acute abdominal pain, representing a clinical challenge for physicians.

The real incidence of EA is unknown. Nowadays it is more commonly diagnosed because of the availability, widespread use, improved image quality, and high resolution of the 64-slice scanner abdomino-pelvic computerized tomography (CT) as part of the evaluation of patients presenting with acute abdominal pain and the pathognomonic imaging appearance of this entity (1–5).

There is limited information describing this condition; the objective of this case series and review of the literature is to describe the common clinical features of EA (as diagnosed at the Veterans Hospital in San Juan, Puerto Rico).

Materials and Methods

This is a retrospective review of the medical records of all the patients diagnosed with EA over a 2-year period (January 1, 2007–December 31, 2009) at the main hospital of the VA Caribbean Health System. The patients were identified through the radiology department's database. The diagnosis was confirmed by 2 experienced American Board of Radiology–certified, body imaging fellowship–trained radiologists after a review of each patient's CT digital images on high-resolution 3-megapixel digital color diagnostic monitors.

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Patient demographics, initial presentation, laboratory tests, imaging studies, and pertinent follow-up visits were evaluated.

This study was approved by the Institutional Review Board of the VA Caribbean Healthcare System (MIRB#00572). The data were analyzed using SPSS. Dichotomous (absence or presence of symptoms) variables were identified.

Results

Eight male patients with a mean age of 57.8 years (range 38–76) were diagnosed with EA during the study period. Seven patients had a body mass index (BMI) of 25 or more, while 6 had a BMI of 30 or more, thereby signifying that 7 out of 8 patients met the criteria for obesity.

Most (88%) patients presented with acute-onset abdominal pain, mostly localized to the left lower quadrant (75%). Thirteen percent of the patients reported pain in the right lower or left upper quadrants. The pain was described as focal and non-irradiating in 75% of the affected patients. Nausea (37.5%), anorexia (12.5%), constipation (12.5%), and diarrhea (25%) were also reported (Table 1).

Although 2 patients presented with mild elevations of their WBC counts, none of the 8 total patients reported having had a fever, nor was documented in the chart at the time of evaluation. All the patients were seen at the Emergency Department and had abdominal CTs as part of their evaluations (Figures 1 and 2). Based on their imaging results, patients were treated conservatively. No recurrence of symptoms was documented during any of the follow-up visits, as was recorded in the medical records.

Discussion

Epiplonic appendagitis is a rare disease caused by the inflammation of the appendix epiploica, which are small outpouchings of adipose tissue covered by the serosa of the colon. The epiplonic appendages vary in shape and size but usually measure about 3 cm long, each. An average person has about 50 to 100 appendages in parallel rows and associated with the anterior and posterior taenia coli. These are usually larger and more numerous at the sigmoid region and most commonly

found anterior to the colonic lumen. The size and number vary, but obese individuals tend to have larger and more prominent appendages (1, 6–7). Epiplonic appendages may sometimes calcify and detach becoming intraperitoneal loose bodies (8).

Each epiplonic appendage receives blood supply through the narrow stalk. Small end arteries (only 1 or 2) branching from the vasa recta of the colon provide oxygenated blood while a tortuous vein takes care of drainage (1–4). EA is caused by the spontaneous thrombosis of the supplying blood vessels or is secondary to the torsion of the appendage.

Although the incidence of EA is unknown, estimates place it at around 8.8 cases/million population/year (2). EA has been reported mainly in people in their second to fifth decade; affecting 4 times more frequently men than women (5, 9–10). Obesity and strenuous exercise have both been also associated with an increased risk (11).

EA's presentation is usually acute-onset focal abdominal pain, most commonly located on the left (9–10). EA may be misdiagnosed as acute abdomen, appendicitis, or acute diverticulitis (9–11). Rarely, EA presents with a fever and associated symptoms are mainly non-specific, such as nausea (7, 10–12). Laboratory tests tend to be normal, although mild leukocytosis has been reported (10).

The lack of specific clinical features makes the diagnosis of EA difficult, with clinicians relying mainly on computerized tomography (CT) findings. Radiologists classically describe a fatty mass attached to the serosal surface of the colon, with slightly higher attenuation (compared to that of peritoneal fat), a hyper-attenuating peripheral rim, and associated periappendiceal fat stranding. A central dot of high attenuation has been described in up to 42.9% of the cases (2).

Contrast-enhanced ultrasound and MRI are also helpful in the diagnosis of EA (13–14). On ultrasound, they may appear as a hyperechoic mass that is localized under the point of maximum pain, adjacent to the anterior peritoneal wall, and fixed during deep breathing. The absence of flow on Color Doppler imaging correlates with appendage infarction (13). EA is classically described on MRI as an oval-shaped fat intensity lesion with a central hypo-intense dot on T1- and T2-weighted sequences; while on post-contrast gadolinium T1-weighted fat saturated images an enhancing rim is frequently described (14).

EA should be considered in the differential diagnosis of acute abdominal pain to prevent unnecessary hospitalization, antibiotic therapy, and surgical intervention. The disease has a benign course and is usually self-limited. In most small series, symptoms disappear just a few days after the patient's receipt only oral of anti-inflammatory drugs (4, 9, 10). The actual incidence of EA is probably higher than current estimates since it has no pathognomonic clinical features and its diagnosis depends on imaging studies.

Our study confirms the previously described clinical presentation and course of the disease. Furthermore, it

Table 1. Clinical characteristics of the patient population

Age	Sex	Temp (°F)	WBC (10 ³)	Sudden onset of pain	Location	Nausea	Anorexia	Constipation	BMI (k/m ²)
60	M	98	8.4	+	RUQ	+	-	-	24.50
67	M	97.6	6.8	+	LLQ	-	+	-	33.40
68	M	99.2	11.1	+	LLQ	-	-	-	48.00
76	M	98	4.9	+	LLQ	-	-	-	32.00
38	M	98.4	9.6	+	LUQ	-	-	-	33.30
42	M	98.5	7.1	-	LLQ	+	-	+	25.00
37	M	98.7	13.1	+	LLQ	-	-	-	35.85
75	M	98.6	7.1	+	LLQ	-	-	-	30.10

WBC = white blood cell count at the time of diagnosis; RUQ = right upper quadrant; LLQ = left lower quadrant; LUQ = left upper quadrant; + = symptom present; - = symptom absent

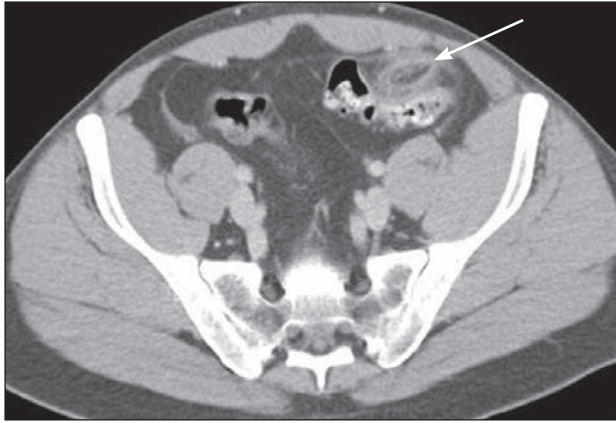


Figure 1. This axial contrast-enhanced CT image shows an oval-shaped fat density (white arrow) with a hyperattenuating rim and surrounding fat-stranding abutting the sigmoid colon, without colonic wall thickening.

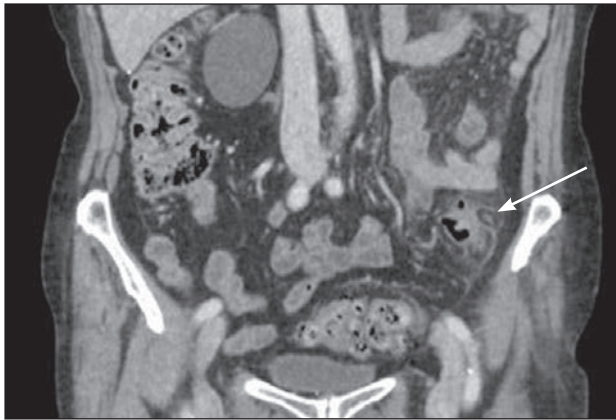


Figure 2. This coronal reconstruction image shows an oval-shaped fat density with a thick hyperattenuating rim and surrounding fat stranding (white arrow). There is a central hyperdensity representing the thrombosed vessel.

supports the association of EA and obesity. In our case series, EA was not considered in the differential diagnosis of the evaluating physician in any of the patients.

Acute localized abdominal pain without warning signs should prompt the clinician to consider EA in the differential diagnosis, especially in overweight and obese patients. Imaging studies are important if an accurate diagnosis is to be made.

Resumen

Objetivos: Apendicitis epiploica (AE) es una entidad inusual causada por la inflamación de los apéndices epiploicos. Es una condición benigna y auto-limitada que presenta con dolor abdominal agudo. Un diagnóstico equivocado puede resultar en hospitalizaciones, terapia con antibióticos y cirugías innecesarias. Nuestro objetivo es describir las características más comunes en pacientes diagnosticados con AE durante un periodo de dos años en el Sistema de Salud de Veteranos del Caribe. Métodos:

Estudio retrospectivo descriptivo de pacientes diagnosticados con AE durante 2007 al 2009. Los datos clínicos se obtuvieron del récord médico computarizado de cada paciente. Todos los diagnósticos fueron confirmados por dos radiólogos revisando los estudios de imagen disponibles. Resultados: Se incluyeron ocho pacientes en el estudio. Todos eran hombres con una edad promedio de 58 años. Siete estaban sobrepeso según la escala del índice de masa corporal (IMC). Todos tenían dolor abdominal localizado y sin irradiación; mayormente (75%) en el cuadrante inferior izquierdo. También se documentaron síntomas asociados como náusea (37.5%), anorexia (12.5%), estreñimiento (12.5%) y diarrea (25%). Solo dos pacientes se encontraron con una pequeña elevación de los WBC, pero ninguno de los 8 tuvo fiebre. Durante el periodo de revisión los síntomas desaparecieron sin documentación de recurrencia. Conclusión: En nuestra serie, el sobrepeso fue un factor común, apoyando la previamente descrita asociación de AE con obesidad. El historial y examen físico deben alertar al médico a considerar AE entre el diagnóstico diferencial de aquellos pacientes con dolor abdominal agudo, particularmente en aquellos sobrepeso, y cuando el dolor se localiza en el cuadrante inferior izquierdo.

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