

Laparoscopic Diagnosis and Treatment of an Acute Epiploic Appendagitis with Torsion and Necrosis Causing an Acute Abdomen

J.A. Vázquez-Frias, MD, Pablo Castañeda, MD, Salvador Valencia, MD, Jorge Cueto, MD

ABSTRACT

Acute epiploic appendagitis is not as rare as previously thought; but, since the presenting signs and symptoms are not specific, preoperative diagnosis has been rarely made. At the present time, a laparoscopic exploration of the peritoneal cavity will establish the correct diagnosis, and the treatment can be provided during the same procedure. Herein, a case of a 63-year-old female patient with acute abdominal syndrome caused by a necrotic epiploic appendix that was successfully diagnosed and treated laparoscopically is described. A review of the literature is made, as well.

Key Words: Acute epiploic appendagitis, Laparoscopy.

INTRODUCTION

Epiploic appendages (EA) are composed of fat covered by serosa¹ and have three morphologically different types: stalked appendices and others that are attached with their base in longitudinal and vertical direction to the colon axis.² Although they are located throughout the colonic wall, occasionally they have also been found in the small bowel^{3,4} and in the parietal peritoneum.⁵ Their function is still controversial. Although little has been written about epiploic disorders (inflammation, torsion, necrosis, etc.), they occur more frequently than expected.^{6,7} Thus, they should be kept in mind.

CASE REPORT

A 63-year-old white female was admitted to the emergency room of the American British Cowdray Hospital of Mexico City complaining of severe colicky pain in the left lower quadrant and nausea for the last 24 hours. Her past medical history was unrewarding except for controlled hypothyroidism. At physical examination, the patient was tachycardic (110 beats per minute), and exquisite tenderness and rebound were found in the left lower quadrant. White blood cell count was 17,000 mm³, and the rest of the laboratory tests were within normal limits. Abdominal X-rays showed a dilated sigmoid colon, and a CT scan revealed no abnormalities. An emergency diagnostic laparoscopic procedure was performed under general endotracheal anesthesia. After establishing the pneumoperitoneum, a 10-mm 0° laparoscope was introduced through the umbilicus. The peritoneal cavity exploration revealed a dilated sigmoid colon with increased vascularity and scanty yellowish exudate in the left pelvic area. Two additional 5-mm ports were placed in the right lower quadrant and in the right flank, and intestinal forceps were used to manipulate gently the sigmoid colon. Immediately, a 2-cm twisted and ischemic epiploic appendix was observed in the antimesenteric border of an edematous segment of sigmoid colon approximately 12 cm proximal to the peritoneal reflection. Its pedicle was cauterized using a bipolar electrocautery, sectioned and finally retrieved in a zipper-type sterile plastic bag. The area was carefully irrigated and bupivacaine (30 mL; 0.45%) was instilled.

From the Departments of Surgery of The American British Cowdray Hospital and Hospital Angeles Lomas, Mexico City, Mexico (all authors).

FACS. Prof. Asist. Adj. of Surgery, LSU Medical Center, New Orleans, USA (Dr. Cueto).

Address reprint request to: Dr. José Antonio Vázquez-Frias. Lago del jazmín #7. Col. Fuentes de satélite, Estado de México CP 53120, México. Telephone/Fax: 52-42-94-26, E-mail: vafa@correoweb.com

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The following morning, the patient passed flatus and tolerated a liquid diet. Surgical pathology revealed acute inflammation and fat necrosis of the epiploic appendix. She was discharged 48 hours later and remains asymptomatic 11 months later.

DISCUSSION

Acute inflammation, spontaneous torsion, fat necrosis, infarction, and calcification occur in the epiploic appendages, as well as enlargement due to lipomas, malignant tumors (including metastasis), and incarceration in hernias.^{1,8-11}

The incidence of torsion and necrosis is almost impossible to estimate. Aronsky et al¹² reported that abdominal fat tissue necrosis (including the omentum) occurs in 1.1% of patients with abdominal pain. Some authors have found the disease to be more common during the 4th and 5th decades of life,^{1,13} while others cannot find a preferred age group.⁶ A slight male preponderance has been described in a review by Carmichael and Organ.¹ Primary epiploic appendagitis with subsequent necrosis is caused by torsion with compromise of its blood supply or by venous thrombosis of its draining system.^{12,14} It tends to occur in the sigmoid colon in more than 40% of the cases.^{12,15,16} Factors such as obesity and a narrow epiploic appendix base have been implicated in the etiology of torsion,¹ whereas exertion has been related to events of venous thrombosis.¹⁷

Epiploic appendagitis has no specific manifestations.¹⁸⁻²⁰ Focal abdominal pain is the most important symptom, and, depending on the localization of the affected appendage, the clinical picture might resemble that of colonic diverticulitis, acute appendicitis, a gynecological disorder, or even acute cholecystitis.^{1,8,11,12,21-23} As Shvetzov¹⁸ states referring to the torsion of an EA, "It occurs under the mask of other emergencies." Abdulzhavadov²⁴ describes "two new characteristic symptoms of this disease": 1) pain appearing or intensifying when the abdomen is thrust forward and in mild tapping on the healthy side of the anterior abdominal wall with the fingertips, and 2) intensification of pain when the skin fold on the abdomen is pulled upward. This, of course, needs to be confirmed by others. Although pain is acute in most cases, Chatziioannou et al²⁵ have reported a patient with abdominal pain of three weeks' duration that was caused by a necrotic EA. In the majority of patients, there are no other significant signs or

symptoms, although nausea, vomiting, fever and a palpable mass have been mentioned frequently.^{1,15} Asymptomatic infarctions are sometime found incidentally as loose bodies at laparotomy performed for other reasons.¹

Epiploic appendagitis has been, until recently, exceptionally diagnosed before laparotomy^{17,26,27} due to the fact that the clinical picture is non-specific and confusing.^{1,7,8,18,19,21} However, Shvetsov et al¹⁸ claim they have been able to diagnose two-thirds of their patients on clinical findings.

Laboratory tests are also non-specific and may reveal only a mild increase in the white blood cell count and rarely a shift to the left.^{12,15}

Ultrasound (US) and computed tomography (CT) may suggest the diagnosis preoperatively.²⁶ Characteristic US findings show a hyperechoic mass localized under the site of maximum pain, adjacent to the anterior peritoneal wall and fixed during breathing.⁷ CT may reveal "pathognomonic" signs such as a 1-4 cm pericolonic oval shaped lesion with fat density, bowel wall thickening or compression, thickened peritoneum and fat stranding.^{6,8,21,22} In the case herein presented, these findings were neither seen either preoperatively nor in a retrospective analysis with the radiologists. In spite of the aforementioned advances in imaging techniques, it would be reasonable to expect that most cases of epiploic appendagitis will continue to be diagnosed at laparotomy or laparoscopy.

The value of mini-invasive surgery in the diagnosis and treatment of acute abdominal pain of unclear etiology is very well known.²⁸⁻³⁴ As we and others have mentioned, by using the laparoscopic approach and a prolonged period of clinical observation, the incidence of perforation and unnecessary laparotomies can be reduced dramatically.^{28,35} This may result in a shortened hospital stay and decreased costs.³⁵

Also, laparoscopy enables the surgeon to inspect the complete abdominal cavity, which is an advantage over a limited open access (eg, a small McBurney incision in suspected appendicitis).^{12,28} When CT suggests the diagnosis, some studies report successful conservative treatment (no surgery or antibiotics).^{6,22,36,37} However, CT follow-up is required, and pain is mentioned to resolve within days or up to four weeks. Again, this approach is difficult to recommend since many other patients with

much more virulent pathologies may suffer serious septic complications if they are not operated promptly.^{9,18,35} It must be kept in mind that there are reports of pericolic abscesses and intestinal obstruction,^{38,39} massive bleeding,⁴⁰ colon perforations⁹ and even fatalities¹⁹ in patients with complications of acute conditions of the epiploic appendages.

In conclusion, like many authors^{12,15,27,39} have stressed—and the case herein reported supports this approach—the feasibility, safety and efficacy of mini-invasive surgery is well established in the diagnosis and treatment of acute epiploic appendagitis.

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