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Retrospective Study

Epiploic Appendagitis, a Rare Cause of Acute Abdomen in Adult: A Case Series

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Abstract

Background: Appendagitis is due to the inflammation of an epiploic appendage spontaneously or to torsion or ischemia. Clinically, the most common manifestation are located in the ileocaecal region. Our study highlight different clinical presentation of epiploic appendagitis that should help clinicians in the differential diagnosis of acute pseudo surgical abdomen.

Methods: This is a retrospective study, conducted in the adult emergency department of university hospital of Fez, which have approximately 15,000 consultations per year. All patients admitted in the surgical emergency unit.

Results: Diagnostic assumptions based on clinical presentation were diverticulitis (n=5), appendicitis (n = 2), gastric ulcer perforation (n = 1) and epiploic appendicitis (n = 2). CT scan was done in six of our patients who had a non specific aspects in ultrasonography. The treatment was surgical in half cases and conservative in the other half.

Conclusion: The treatment of the typical forms is generally conservative, while the complicated form requires surgery because of the potential pathology associated with surgical treatment is adopted in most cases (5 cases), some studies have shown that there is a tendency for recurrence in 40% of cases when the treatment is conservative.

Keywords: *Epiploic Appendagitis; Abdomen; Adult*

Abbreviations

CT: Computerized Tomography; BMI: Body Mass Index

Introduction

The epiploic appendage is a fatty structure covered with peritoneum and containing vessels of the vascular system of the colon [1]. The entire colonic tract is made up of appendages, the most common of which are at the expense of the sigmoid and the caecum. In obese patients, these structures are frequently found [2].

Appendagitis is due to the inflammation of an epiploic appendage spontaneously or to torsion or ischaemia [3].

Clinically, the most common manifestation are located in the ileocaecal region [4].

Our study highlight different clinical presentation of epiploic appendagitis that should help clinicians in the differential diagnosis of acute pseudosurgical abdomen.

Methods

This study is a retrospective study, conducted in the adult emergency department of university hospital of Fez, which have approximately 15,000 consultations per year.

The study was approved by the ethics committee. Patients includes gave their written and informed consent.

All patients admitted in the surgical emergency unit surgeon were identified through a review of visit records using the electronic patient medical record system (Hosix.NET) and were included in the study for the extend period of between January 2018 to July 2020. 10 patients with confirmed epiploic appendagitis were included. All of them underwent physical examination, biological assessment including, white cell count and CRP dosage, as well as abdominal ultrasound. CT was performed for 06 patients in the delay of 24 hours of admission. The CT scans were performed using a 64-section scanning system (GE medical system). The acquisitions were made in a supine position at the end of inspiration. The scanner parameters were as follows: 5 mm section thickness with 1.25 mm reconstruction; tube voltage 120 kV; tube current 100 - 200 mAs; collimation 3 mm; pitch 1 - 1.5; matrix size 512 x 512, FOV 35 cm.

The clinical observations of the surgical intern and the senior surgeon caring for the patient were analyzed for significant signs of local tenderness, vomiting, alteration of general condition, fever.

All CT images were reviewed by two senior radiology residents and approved by a qualified digestive radiology specialist.

Laboratory results were also collected.

Clinical reevaluation of the patients was done after 06 months regarding the recurrence of epiploic appendagitis.

The data collected was compiled in an electronic database. The mean values of the numerical elements were calculated.

Results

Concerning demographic and clinical characteristics, of the 10 patients included in the current study, 07 were men and 03 were women. The median age of the patients was 52 years with a range of 38 to 67 years. Half of the patients were obese with a mean BMI of 34.

Clinically, abdominal pain was the most common symptom present in 06 patients. The pain was localized to the left flank in 04 cases, the epigastric region in 02 patients and para umbilical in 01 case. The intensity of the abdominal pain ranked from 7 to 9 on the Pain Scale (VAS- Scale). 02 patients presented with abdominal discomfort and the other two for vomiting.

The physical examination revealed local tenderness in 07 patients, localized abdominal defense in 02 patients and generalized abdominal defense in 01 patient. Regarding their temperature, 02 had a moderate fever -38 and 38,5 Celsius.

Diagnostic assumptions based on clinical presentation were diverticulitis (n = 5), appendicitis (n = 2), gastric ulcer perforation (n = 1) and epiploic appendicitis (n = 2).

Laboratory results revealed hyper leukocytosis (predominantly polynuclear neutrophils) in 05 patients. All patients had positive CRP at mostly moderate level.

The abdominal ultrasound examination found a specific aspect was found in two of our patients and revealed an infiltration of epiploic fat with rounded borders which was painful under the probe. In addition, other signs of accompaniment were found such as minimal intra-peritoneal fluid, and inflammatory ganglions.

CT scan was done in six of our patients who had a non specific aspects in ultrasonography. It revealed complicated forms of appendagitis in two of our patients, which were an abscess form and an infarction of the large omentum.

The treatment was surgical in half cases and conservative in the other half. Surgical treatment was made by laparoscopy and sub-sequential excision of the inflammatory epiploid appendix (n = 4), and by conventional laparotomy in an abscessed form (n = 1).

A fortuitous discovery of gastric ulcer was diagnosed in one case.

Medical treatment was based on antibiotics and anti-inflammatory.

After 06 months, all patients reported no recurrence of symptoms (Table 1).

Patient Number	1	2	3	4	5	6	7	8	9	10
Sex Age Temperature	Female 39 37°	Male 58 38	Male 55 38,5	Male 38 36,5°	Female 67 37°	Male 60 37°	Male 52 37,5°	Male 50 37°	Female 54	Male 50
WBC CRP	15 000 28	12 000 98	15 000 170	10 000 86	7 800 60	5 500 80	8 000 88	11 000 129	6 000 20	13 000 56
Radiologic Diagnosis CT-Scan	Simple epiploic appendagitis	Simple epiploic appendagitis	Pseudo mass an abcess of the appendage	Simple epiploic appendagitis	Simple epiploic appendagitis	Simple epiploic appendagitis	Simple epiploic appendagitis	Simple epiploic appendagitis, multifocal	Simple epiploic appendagitis	Epigastric, Fortuitous discovery Pneumoperitoneum
Radiologic Duration of Pain Diagnosis (days)	07	05	03	10	08	02	06	05	03	05
Symptoms Operative diagnosis typically for	Diverticulitis	appendicitis	Pseudo surgical abdomen	Appendicitis	Diverticulitis	Epiploic appendagitis	Epiploic appendagitis	Diverticulitis	Diverticulitis	Gastric Ulcer Surgical abdomen
Size (cm)	3 cm	2cm	5cm	1 cm	1,5cm	1 cm	1,5 cm	2,5 cm Greater	2 cm	Multiple 2 cm Greater
Localisation	Left iliac fossa	Right iliac fossa	Epigastic omentum	Right iliac fossa	Hypogastric	Left flank	Left flank	Multiple	Left Flank	Left iliac fossa
Treatment	Surgical: Laparoscopy	Conservative	Surgical: Laparotomy	Conservative	Surgical Laparoscopy	Surgical Laparoscopy	Surgical Laparoscopy	Conservative	Conservative	Surgical excision

Table 1: *Clinical data of 10 patients with epiploic appendagitis.*

Discussion

Epiploic appendagitis results from an inflammation of the epiploic appendage and is generally characterized by acute abdominal pain and sometimes localized defense.

This symptomatology is due to the torsion of an epiploic fringe [5], which is a small (0.5 to 5 cm long, 1 to 2 cm wide) formation of sub peritoneal fat composed of a duplication of the visceral peritoneum covering the colon.

The entire colonic framework is lined by 50 to 100 appendages, which are distributed in order of frequency as follows: recto-sigmoid (57%), ileo-caecal region (26%), ascending colon (9%), transverse colon (6%) and descending colon (2%) [8]. In our study, sigmoid localization was the most common.

Two arterioles ensure the vascularization of a single epiploic fringe, they are pedicled and mobile, which facilitate torsion on their axis, resulting in thrombosis of the vessels, ischemia and necrosis of the epiploic fringe [5,6,8].

There is a distinction in the physiopathology, between primary epiploic appendicitis, when the torsion or thrombosis occurs spontaneously, and secondary epiploic appendicitis, when it results from the spread of inflammation from neighboring organs, particularly in cases of diverticulitis, appendicitis or pancreatitis [7,18].

Some authors have stated that this condition, which remains rare, can sometimes only be diagnosed at the laparoscopic or laparotomy stage [5], as in our context (Figure 1). The average age of onset is 35 years with a sex ratio close to 1. In our study, the male predominance was evident, with the older age of onset at 52 years, as in some authors [18]. The clinical signs are not specific. The history reports constant pain, which may be colic type. Diarrhea is present in 25% of cases, moderate fever in 15% of cases [4].

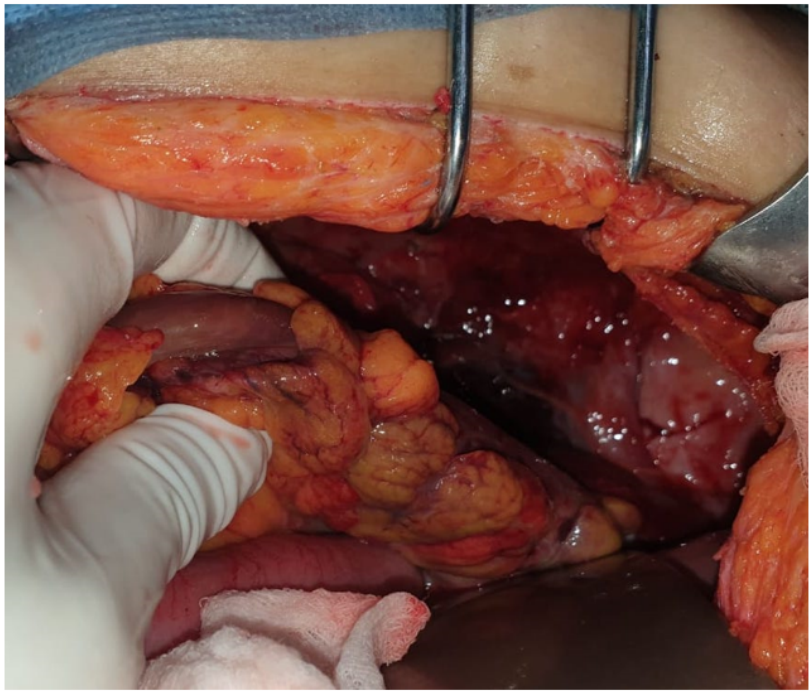

Figure 1: *Per operative image: Sigmoid inflammatory appendages (star).*

Clinical examination reveals intense pain on palpation or even a localized defense as we have seen in our case [3]. In most cases, this clinical presentation can mimic other pathological conditions, such as acute appendicitis and diverticulitis [16].

Atypical signs such as respiratory symptoms may be found in cases of epiploic appendicitis on the transverse colon as observed in our study or at the corners of the colon and may exceptionally simulate clinical forms of cholecystitis [4,5].

Biologically, epiploic appendicitis is not often associated with biological changes such as hyperleukocytosis or inflammatory syndrome. However, changes in these parameters do not necessarily mean that the diagnosis is excluded, but may suggest complications such as abscess, as in a patient included in our series [4,8,19].

In our case series, the body mass index (BMI) was high at 34, which made it difficult to perform an ultrasound examination and therefore required an abdominal CT scan. Ultrasound revealed a non-compressible, rounded lesion in the painful area, and these aspects are compatible with those described in the literature [5].

Computed tomography is the main diagnosis method, avoiding unnecessary surgery, showing on unimproved CT images a solitary mass adjacent to the colon, a shuttle-shaped ovoid mass with a higher density than normal peritoneal fat, surrounded by a high density border [1 mm thick] that shows inflammation of the visceral peritoneum covering the epiploid appendix, infiltration of peripheral fat is usually associated with the mass (Figure 2).

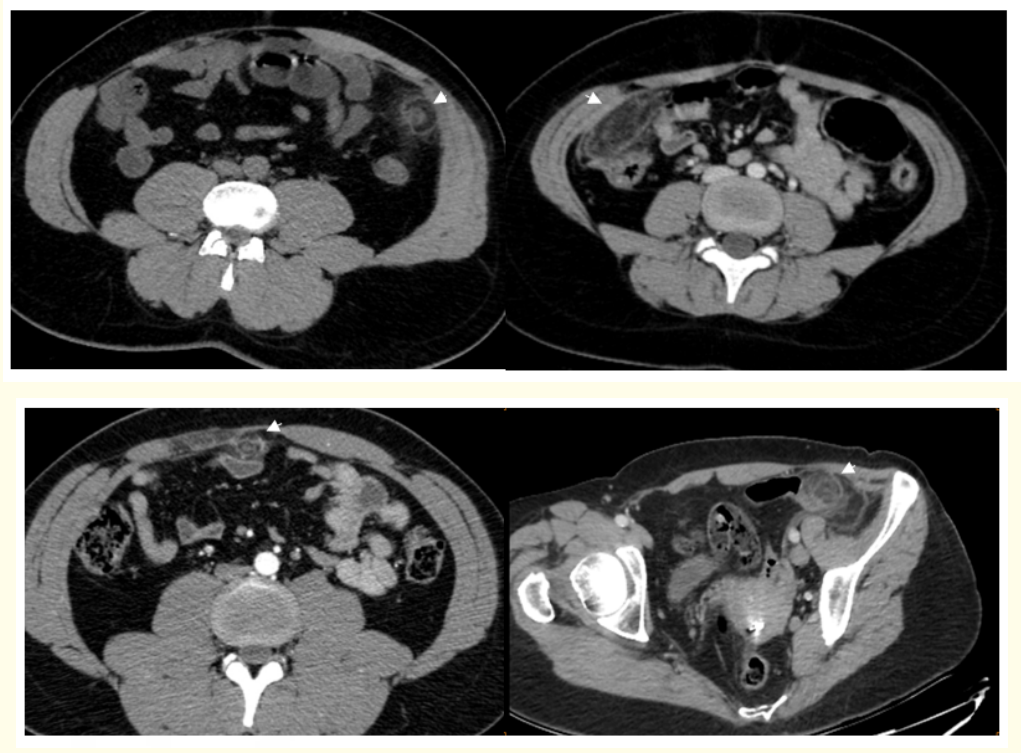

Figure 2: *Abdominal CT scan: transversal sections of four different patients with epiploic appendagitis (arrowheads).*

A high-density central focus can be seen as a "dot sign" (Figure 2a), which is very suggestive of venous thrombus in an inflamed epiploic appendix [7,8]. Post-contrast CT images show no improvement of the epiploic appendix or the adjacent peritoneum.

In general, treatment of uncomplicated forms is conservative, and requires 24-hour observation, analgesic and hypocaloric regimen. However, some authors have suggested that the surgical method of ligation and excision of inflamed epiploid appendages is the only way to prevent recurrence [16].

Reported complications of primary epiploic appendicitis have rarely been documented in the literature [14,15]. In fact, the inflammatory process can sometimes cause adhesions and lead to obstruction of the small intestine and thus require surgical treatment. Another rarer complication is epiploid appendicitis with associated abscess [19]. In this condition, the diagnosis of epiploic appendicitis secondary to complicated diverticulitis should also be sought. For the therapeutic management of this complication, much attention has been paid to the use of minimally invasive techniques such as percutaneous drainage to minimize the morbidity and mortality associated with surgery.

Actually, there are no clear guidelines to suggest which patients should undergo percutaneous drainage versus surgery [12]. Although some authors have shown that laparoscopy or midline laparotomy is necessary in the event of an unexpected diagnosis if acute appendicitis or diverticulitis is suspected [8,16,17], a recent case report has revealed an abcessed form of epiploic appendicitis which may be misinterpreted as a tumor form [19], this case has been included in our current series.

Anatomopathological study of operative epiploic appendicitis usually reveals inflammatory changes, the presence of fibrin and neutrophilic polynuclear cells, with an associated peritoneal reaction including congestion, edema, and hemorrhage in the peripheral adipose area [10,19].

Surgical treatment is adopted in most cases (5 cases), some studies have shown that there is a tendency for recurrence in 40% of cases when only one drug has been administered [18].

Conclusion

The diagnosis of epiploic appendagitis is still infrequent, but it is important for a clinician to consider it given the availability of several imaging modalities, particularly abdominal CT scanning, which can rule out other conditions presenting as acute abdominal pain, such as diverticulitis and appendicitis.

The treatment of the typical forms is generally conservative, while the complicated form requires surgery because of the potential pathology associated with surgical treatment is adopted in most cases (5 cases), some studies have shown that there is a tendency for recurrence in 40% of cases when the treatment is conservative [18].

Ethics Approval and Consent to Participate

Not applicable.

Consent Information

Oral and signed consent was obtained from the patient concerned. The study was conducted anonymously.

Availability of Data and Materials

The data sets are generated on the data system of the CHU Hassan II of Fes, including the biological data, the operative report, and the data of the anatomopathological analysis.

Competing Interests

The authors declare that they have no competing interests.

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Authors' Contributions

Doctor Charifi Yahya is the corresponding author, he participated in the organization and writing of the article and studying the cases with Professor Alaoui Lamrani Youssef. Professor N. Bouardi, Haloua.M, Alami.B supervised working and validated the figures.

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