

# Role Of Ultrasound In The Diagnosis Of Appendagitis

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## 1. Abstract

Inflammation of the epiploic appendages defines appendagitis, which is one of the little-known causes of acute abdominal pain. Mimicking appendicitis or diverticulitis, it is CT imaging that can decide between these different diagnoses. If this diagnosis is made in the presence of any single symptom of abdominal pain, the wrong indication for an operation can be avoided, and appropriate management and shorter hospital stays can be secured.

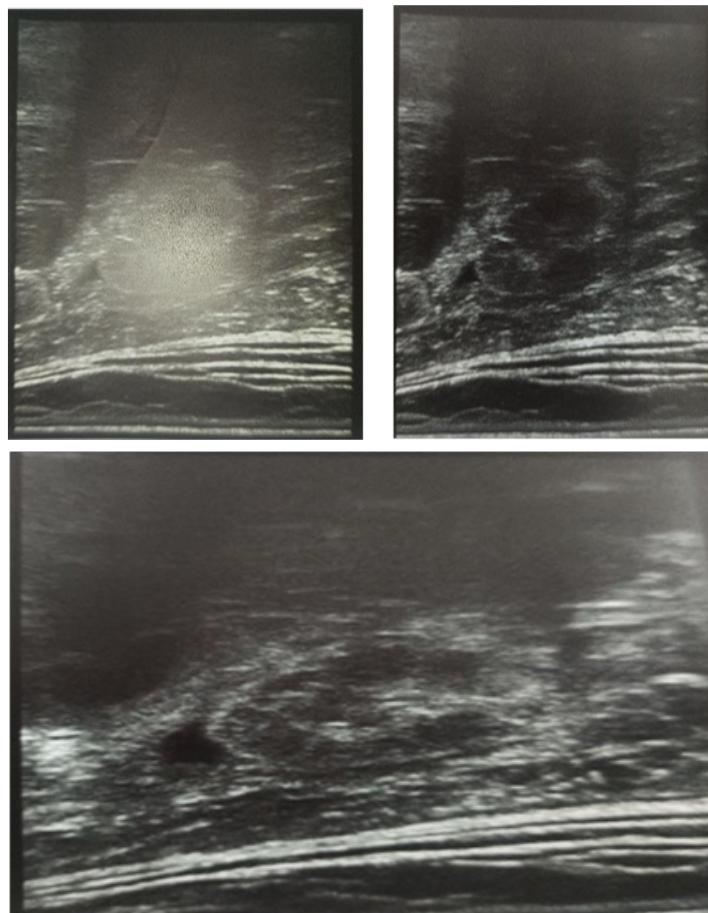
## 2. Introduction

Appendagitis or infarction of an epiploic fringe is a rare cause of acute abdomen. It was introduced by Dockerty 1956 and was first clinically described in 1941 by Pines. It is defined by inflammation of one of the epiploic fringes, which are fatty formations distributed along the colon from the cecum to the recto sigmoid junction. This inflammation is generally secondary to torsion of the epiploic fringe around its vascular axis, or by venous thrombosis, and may some times be secondary to inflammation of a neighbouring organ. This is an entity that is often misunderstood and difficult to diagnose clinically, as it can mimic acute appendicitis on the right and diverticulitis on the left. With advances in imaging technology, appendicitis is now easier to diagnose and unnecessary surgery can be avoided, thanks in particular to abdominal CT scans. In rare cases, abdominal ultra sound may be all that is required, as in the case of our patients. The aim of our work is to clarify the contribution

of abdominal ultra sound in the diagnosis of appendagitis based on two observations and a review of the literature.

A 35-year-old man with Gitelman's syndrome, ACFA with atrial flutter and peripheral hyperthyroidism came to the emergency department with abdominal pain in the left iliac fossa with no transit disorders, vomiting, urinary signs or fever. On examination, the patient was afebrile and in good general condition. Palpation of the abdomen revealed clear tenderness in the left iliac fossa, with no palpable mass; the hernial orifices were free, the TR was painless, and there were no abnormalities. The laboratory work-up was strictly normal, in particular the absence of any biological inflammatory syndrome (normal blood count with a WBC of 5900 and a CRP of 20 mg/l). An emergency abdominal ultra sound was ordered, which revealed a hyperechoic formation in the FIG with an anechoic effusion, suggestive of appendicitis. Given the patient's history, an abdominal CT scan was not requested. The patient was admitted to hospital for monitoring and started on non-steroidal anti-inflammatory drugs (NSAIDs) and painkillers, with clear clinical improvement after 4 days.

Figure 1: Sonographic appearance of appendicitis



### 3. Case history

A 28-year-old woman with no previous pathological history of note, 15 weeks' gestation pregnant, came to the emergency department with left iliac fossa pain that had been present for 24 hours, with no other associated signs. On examination, the patient was in good general condition, afebrile with tenderness in the left iliac fossa. Biological tests were strictly normal and there was no gynaecological or obstetric emergency. Abdominal ultrasound showed an appearance consistent with appendicitis (torsion of an epiploic fringe) in the left iliac fossa in contact with the sigmoid, which perfectly explains her elective point of pain. The patient was placed under clinical supervision and started on analgesics with good clinical progression after a week.

### 4. Discussion

Appendicitis is a general term used to describe primary or secondary inflammation of the epiploic appendix, which consists of fatty formations numbering around one hundred, distributed in two rows along the colonic frame as far as the rectosigmoid junction. Its essential role is not yet well established, but according to some authors, it has a bacteriostatic and anti-inflammatory action, as well as being a vascular reservoir, so it plays a role in colonic absorption [1-3]. Their precarious vascularisation from the colonic arterial branches and their pedic morphology make them susceptible to the two physio-pathological mechanisms mentioned, namely torsion of the epiploic appendix and thrombosis of the central vein draining the latter. [4-6] This is a rare entity, the prevalence of which is not well known; it affects subjects aged between 20 and 50, with obesity [4,7] as the only risk factor, with a male predominance [4]. The majority of cases involve the recto sigmoid hinge (57%) and less frequently the ileocaecal region, the ascending colon, then the transverse and finally the descending colon, in descending order [3]. In rare cases, the diagnosis is only made intraoperatively, and this is thanks to the CT scan, which makes a major contribution to the diagnosis of appendicitis by showing certainty, such as an extraluminal mass with a density greater than that of normal fat, surrounded by a hyperdense ring which is slightly enhanced after injection of the contrast product, associated with infiltration all around.

In a few rare cases, such as those of our two patients, abdominal CT is too risky, especially in the first patient who presents with hyperthyroidism which could decompensate following injection of the iodine-rich contrast agent, which in turn could decompensate the heart rhythm disorder with a life-threatening risk. CT scans are not recommended for pregnant women, which is why abdominal ultrasound is so useful. Abdominal ultrasound is generally the first-line examination for any acute abdomen, and in cases of appendicitis it shows an ovoid mass, hyperechoic in relation to the adjacent fat and surrounded by a peripheral hypoechoic halo. The mass is non-depressible and painful under the probe [3,8]. However, ultrasound is still an operator-dependent examination, which is why the patient needs to be admitted to hospital for clinical, biological and even radiological monitoring. In the event of the slightest worsening, coeliac diagnosis may

be indicated. Management is usually based on non-operative treatment [4] based on analgesics and anti-inflammatories, with disappearance of the pain after 4-5 days, thus preserving surgical treatment for complicated forms involving ligation and resection of the inflamed appendix [1,3].

### 5. Conclusion

In view of its rarity, appendicitis remains an under-diagnosed pathology, and knowledge of it and appropriate and early medical management would make it possible to avoid unnecessary surgery. A definitive diagnosis can be made using CT imaging, but in rare cases where a CT scan is not indicated, ultrasound may be useful, subject to close clinical monitoring.

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