



## Case report

## Thigh and iliopsoas abscess as a rare presentation of perforated mucinous appendix carcinoma. A case report

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## ABSTRACT

**Introduction:** Classic presentation of appendicular neoplasms in early stage includes appendicitis-like symptoms. For mucinous adenocarcinoma, it presents at an average age of 60 years, this is why when they present these symptoms a high index of suspicion must be maintained. Only one case has been reported of an appendiceal neoplasm with a thigh abscess.

**Presentation of case:** We present a 65-year-old with a preoperative diagnosis of an appendiceal phlegmon with and iliopsoas and thigh abscess. Percutaneous drainage and thigh drainage were initially performed. Due to persisting fever and increased abdominal symptoms, 48 h postoperative hours, on multidisciplinary discussion, exploratory laparoscopy was decided, finding the iliac abscess and a perforated appendix. Right hemicolectomy was performed, revealing a mucinous appendicular carcinoma.

**Discussion:** Conservative management of a mass or appendiceal abscess has a high success rate and low complication rate during the initial period but despite this, some patients must undergo emergency surgery. Right hemicolectomy was performed because of the large inflammatory compromise and adhesions of the appendix and caecum and a more conservative approach could not be performed due to the deformation of anatomic structures.

**Conclusion:** This has been a complex case, not only for its different approaches but also because of its singularity of presentation, this is why it has to be taken into account the group age that it has to be dealt with, clinical presentation, anamnesis, etc. There are no guidelines for the management of this disease but it is unquestionable that multidisciplinary management leads to better outcomes.

## 1. Introduction

Although the prevalent etiology of retroperitoneal abscesses is renal diseases and postoperative, other inflammatory and oncological etiologies must be taken into account in order to find the correct treatment [1].

The classic presentation of appendicular neoplasms in early stage includes symptoms like acute pain in the right lower quadrant (RLQ) and other signs of inflammation such as fever and leukocytosis [2], all of them similar to the clinical presentation of acute appendicitis, this is why 32 % of patients receive a preoperative diagnosis of acute appendicitis, while 23 % are incidentally diagnosed [3]. For mucinous adenocarcinoma, it presents at an average age of 60 years similar both to men and women [4,5], this is why when this type of patients presents with symptoms compatible with acute appendicitis a high index of

suspicion of malign disease must be maintained, even though appendicitis is often the most likely diagnosis.

Only one case has been reported of an appendiceal neoplasm with a thigh abscess [6]. This encouraged us to report this case of an uncommon disease and more rare clinical presentation, which was successfully treated with right hemicolectomy and thigh drainage, highlighting that a multidisciplinary management and an aggressive treatment is the approach that best worked for us, even when there are no guidelines for this kind of presentation.

This patient was managed in a public healthcare system setting.

The work has been reported in line with the SCARE criteria and the revised 2020 SCARE guidelines [7].

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## 2. Presentation of case

A 65-year-old Caucasian female was admitted walking to the emergency room complaining about RLQ pain, associated with hyporexia and weight loss (7 kg in 3 months). She had no history of surgical procedures or chronic diseases.

At admission, physical examination revealed local RLQ pain and tenderness with a palpable mass, the right leg was also painful and showed signs of edema, with a diminished palpable pulse on the right femoral artery. Color Doppler did not show any signs of thrombosis. A Computed Tomography (CT) scan revealed a large pericecal abscess of 8 cm with septa inside (Fig. 1) that may correspond to an appendicular phlegmon. Multiple small abscesses on the iliac muscle, and another one lying in the psoas muscle, and extending to the rectus femoris muscle on the thigh measuring 16 cm long were also revealed (Fig. 2).

Percutaneous drainage of the abdominal abscess was initially performed, and antibiotic therapy was administered. Thigh drainage was also performed and the wound was left open for everyday cleansing. Within 48 h post minimally invasive treatment, the patient evolved unfavorably: she remained febrile, persisted with abdominal symptoms, and had an increasing leukocytosis, so on multidisciplinary discussion, due to persisting fever and increased abdominal symptoms, exploratory laparoscopy was decided, finding the iliac abscess and also a perforated appendix (Figs. 3, 4). Right hemicolectomy was performed, standard technique, adhesiolysis using blunt spreading dissection was used for multiple adhesions and the iliac and psoas abscesses were drained. Anatomic-pathology examination revealed a well-differentiated mucinous appendicular carcinoma invading the ostium of the appendix (Fig. 5). The postoperative outcome was uneventful. The patient was discharged from the hospital on the 8th day, taking oral Ciprofloxacin (1 mg/day) due to an *Escherichia Coli* abscess culture. Total colonoscopy was performed after the acute event and CT scan 3 months after with no evidence of disseminated disease. Patient nowadays after a 12-month follow-up continues cancer free. Planned follow-up are serological tests and CT scan every six months for the next 3–5 years. The patient accepted receiving eight cycles of chemotherapy treatment with Capecitabine and Oxaliplatin.

## 3. Discussion

A low extremity abscess originated from an appendicular neoplasm is an extremely rare complication, to our knowledge only 1 case has been reported [6]. As well as on this article both were due to perforation. Although computed tomography is the gold standard for the diagnosis of an appendiceal mass, the fact that results can be very similar between a phlegmon or abscess and a neoplasm can be confusing. Non-tumoral perforated appendicitis and perforated mucinous appendiceal tumors

are mainly difficult to differentiate [8].

Colonoscopy is one of the initial studies for colonic and rectal neoplasms. It has a utility on colon cancer emergencies such as obstructive tumors [9], but in this case it has no benefit as treatment is subject to the patient's evolution. When a high index of suspicion for a tumoral disease is kept and surgical treatment is postponed, an elective colonoscopy has a role in confirming its diagnosis and an oncological resection can be outlined, otherwise a full pre-surgical staging must be left for after the acute event is over.

The most used method for an appendiceal abscedated mass is the conservative one, this includes giving wide-spectrum antibiotics and infusion therapy. For an appendiceal abscess percutaneous drainage must be performed, and if the patient's condition does not get any better surgical exploration must be done [10]. While the concept of drainage in the management of abscesses of benign colon diseases is clear, optimal management of colorectal cancer with abscess remains controversial. This patient presented with an appendiceal and thigh abscess with no evident cause, so we opted for percutaneous and open drainage respectively.

Conservative management of a mass or appendiceal abscess has a high success rate and low complication rate during the initial period but despite this, some patients must undergo emergency surgery [11]. After initial conservative management of symptoms, the necessity of interval surgery for an appendiceal mass is still thought for patients with familial cancer history of such diseases and high-risk patients including those older than 40 years due to an increased rate of appendix carcinoma [12]. Right hemicolectomy was performed because of the large inflammatory compromise and visceral adhesions, a more conservative approach could not be performed due to the deformation of structures.

If a preoperative diagnosis is found, staging work-up should be performed and further treatment depends on disease progression and histology. For appendix adenocarcinomas with no dissemination appendicectomy alone is not recommended, a right hemicolectomy is indicated to determine the lymph nodes involved. For tumors that have spread away to the abdominal cavity chemotherapy and/or cytoreduction and hyperthermic intraperitoneal chemotherapy should be considered [13].

No National Comprehensive Cancer Network guidelines exist for adenocarcinomas in the appendix because the data is quite limited. Its recommendation is to be treated with systemic therapy according to the Colon Cancer Guidelines. The best response reported was a rate of 39 % with a median progression-free survival of 1,2 years [14].

## 4. Conclusion

This has been a complex case, not only for its different approaches but also because of its singularity of presentation, this is why it has to be



Fig. 1. Computed tomography of the cecal abscess (arrows).

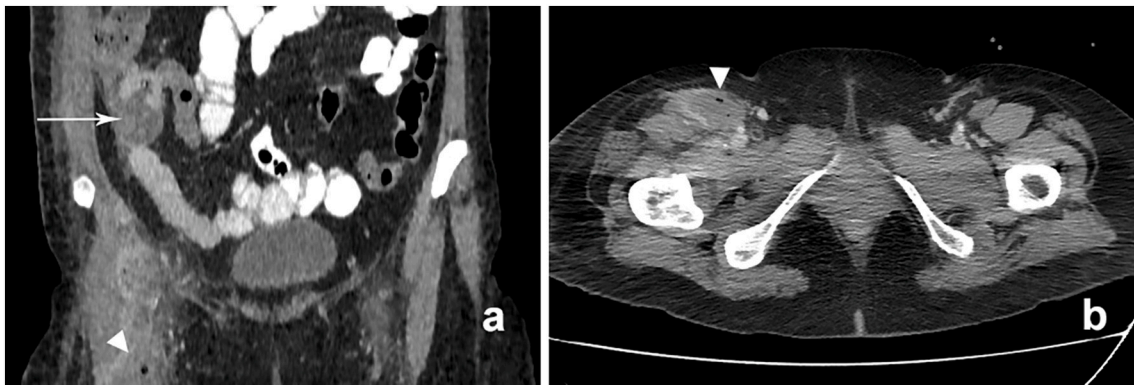


Fig. 2. Computed tomography showing the right thigh abscess with a bubble inside (arrowheads) and cecal abscess (arrow).

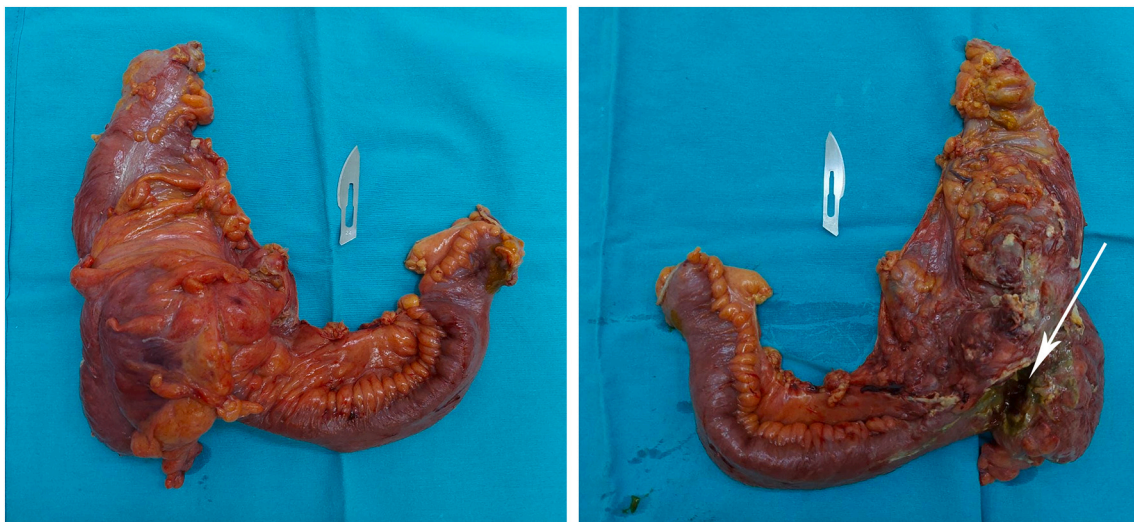


Fig. 3. Right colon and terminal ileum with appendix tumor. Cecum perforation (arrow).

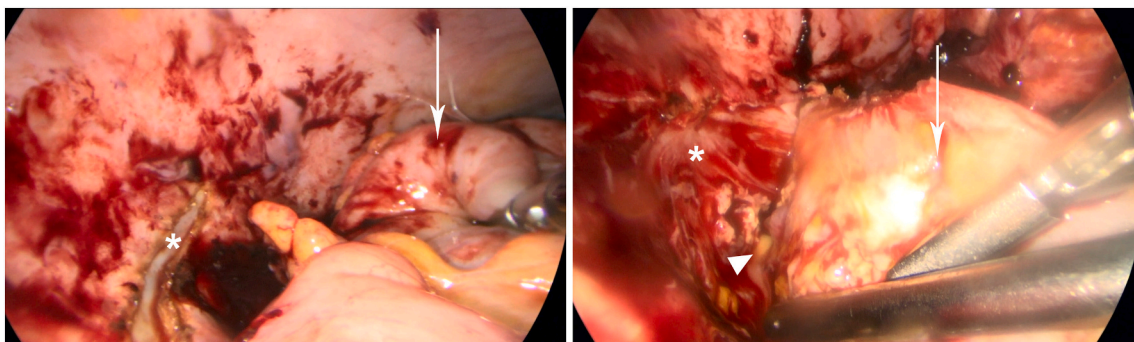


Fig. 4. Laparoscopic view of left lower quadrant showing the cecum (arrow), mobilization of right colon starting from iliac muscle (asterisk), and pus draining from the iliac abscess (arrowhead).

taken into account the group age that it has to be dealt with, clinical presentation, anamnesis, etc. There are no guidelines for the management of this disease but it is unquestionable that multidisciplinary management and an aggressive treatment leads to better outcomes. This case leads the way for further investigations into an unusual pathology and an even more unusual clinical presentation.

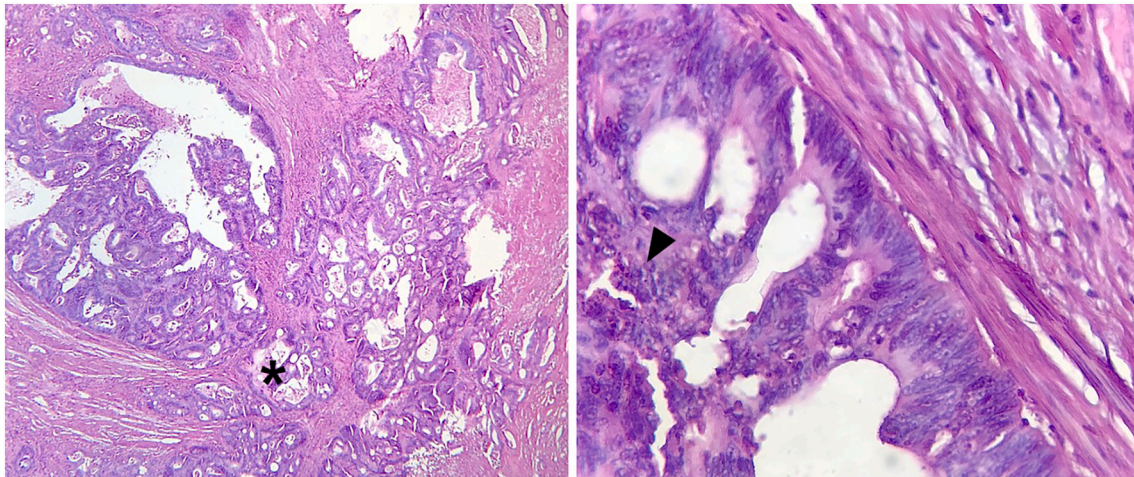
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None.

#### Ethical approval

The institutional review board (IRB) approved this study. This study was conducted in conformance with the 2008 Helsinki Declaration.





**Fig. 5.** Infiltration by complex atypical glandular structures, (asterisk) (stain, hematoxylin and eosin; magnification,  $\times 10$ ) marked atypia and frequent mitoses with an explosive appearance (arrowhead) (magnification,  $\times 40$ ).

### Consent

Written informed consent was obtained from the patient for publication of this case report and accompanying images. A copy of the written consent is available for review by the Editor-in-Chief of this journal on request.

### Author contribution

Osácar P. wrote the manuscript and is the article guarantor. Ramallo D. wrote and revised the manuscript for intellectual content. Elizalde L. edited the manuscript and provided de photos.

### Registration of research studies

Not applicable.

### Guarantor

Pedro Osácar.

### Declaration of competing interest

None.

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