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Case Report

Innocent or guilty? a case of diverticular appendix

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ABSTRACT

Appendix diverticulosis is a relatively rare pathological finding, more common in adult men over the age of 60 years. It is generally an incidental finding on computed tomography (CT) and is clinically asymptomatic. When symptomatic, it is generally complicated by acute or chronic diverticulitis, with or without acute appendicitis. Appendix diverticulosis may be associated with appendix tumors, particularly mucinous ones. The article reports a clinical case of a 68-year-old man referred to a general surgery consultation due to densification of retrocecal fat with associated adenopathies, in the context of investigating abdominal pain. Prophylactic appendectomy is the recommended treatment given the potential for inflammation, perforation and the risk of developing tumors.

Keywords: Appendix diverticulosis**,** Computed tomography, Acute appendicitis

INTRODUCTION

Diverticulosis of the appendix is a relatively rare pathological finding, about 1%, more frequent in adult men over 60 years of age.[1] It is usually an incidental finding on CT and sometimes difficult to identify in case of advanced inflammatory changes or perforation.[2] Diverticulosis of the appendix is usually asymptomatic and when symptomatic, it is usually complicated by acute or chronic diverticulitis, with or without acute appendicitis.[1] The incidence of diverticulosis of the appendix may be underestimated, due to the difficulty in interpreting radiological findings, which are sometimes subtle, and the clinical-imaging overlap with acute appendicitis. Late diagnosis is associated with significant complications, including a sixfold increased risk of perforation.[3]

Appendix diverticulosis has a significant association with appendix neoplasms, approximately 42%, and prophylactic appendectomy is recommended to prevent the risk of complications and rule out the possibility of a coexisting neoplasm.[3]

CASE REPORT

A 68-year-old man was referred to a general surgery consultation due to densification of retrocecal fat with associated adenopathies, a finding in the context of abdominal pain research in primary health care. Physical examination shows no alterations. He underwent colonoscopy, which showed diverticula in the left colon, with no other alterations. CT revealed distal thickening of the ileocecal appendix and densification of the peri appendicular fat, with some pericecal and mesenteric adenopathies, raising the hypothesis of ileocecal appendix neoplasia (Figure 1). In this context, it was proposed for exploratory laparotomy. Intraoperatively, a cecal appendix adhering to the mesentery and a distal ileum were observed, with a nodule in the distal 1/3 of the appendix, with no associated signs of acute appendicitis. Appendectomy was performed. Histology revealed that it was a diverticulum in the distal third of the cecal appendix, with no signs of acute appendicitis or malignancy. The postoperative period was uneventful and the patient was discharged on the third day.

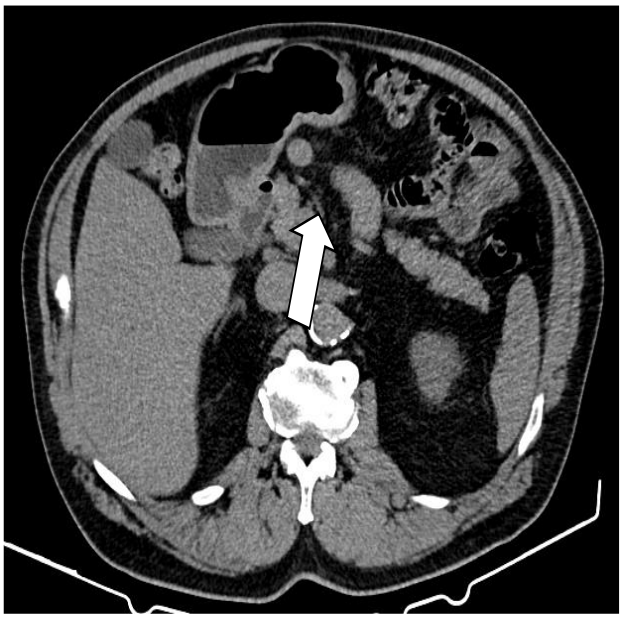

Figure 1: CT scan image with distal thickening of the ileocecal appendix and densification of the peri appendicular fat.

DISCUSSION

Appendix diverticula can be congenital or acquired. Congenital diverticula are true, rare diverticula and arise on the antimesenteric border of the ileocecal appendix and may be associated with developmental or congenital anomalies, such as trisomy 13 or 15.[4]

Acquired diverticula are pseudodiverticula and an uncommon finding with a prevalence of about 1.4%. They are most commonly seen in adult men (M:F ratio 1.8:1) (>60 years).[4] Their incidence is higher in cystic fibrosis patients, in about 14% of cases.[4] They usually present as multiple small diverticula, about 2-5 mm, located in the distal third of the ileocecal appendix and are found mainly at the mesenteric border.4 This supports the theory that they may be caused by high pressure on the ileocecal appendix, due to an obstruction caused by a fecalite, an adhesion or a tumor. Its chronic obstruction can result in appendicular diverticulitis.[4]

The diverticula of the ileocecal appendix have their own classification, the Lipton classification, according to morphology and form of presentation, divided into four subtypes: type I-acute diverticulitis, type II-acute appendicitis+acute diverticulitis, type III-acute appendicitis+diverticular disease, and type IV-diverticular disease and normal appendix, like in this case.[5]

Diverticulosis of the appendix is commonly asymptomatic. It is estimated that two-thirds develop to acute or chronic diverticulitis. Its presentation ranges from mild pain in the right iliac fossa that extends over several years to severe episodic pain.[3] In acute presentation, the pain usually does not begin in the periumbilical region and is not as commonly associated with gastrointestinal symptoms as in acute appendicitis.[5]

Appendicular diverticulitis is usually a perioperative diagnosis, rare, with an incidence of up to 3.7%.[5]

Studies show that associated acute appendicitis is often secondary to acute diverticulitis and that these two subtypes (i.e., diverticulitis with or without appendicitis) represent different stages in the progression of the same disease process.[6]

Appendix diverticulitis is postulated to arise from primary inflammation in the appendix diverticula, which may then lead to reactive changes in the adjacent subserosa/serous and peri appendicular space.[6]

The most frequent complication of diverticular disease of the appendix is perforation. The perforation rate of acute appendicitis is estimated at 6.6% and increases to 27% when associated with diverticular disease, with a mortality rate 30 times higher. Other complications described are the formation of abscesses or cysts, peritonitis, massive hemorrhage, and vesico appendicular fistula. Congenital appendicular diverticula are less associated with complications.[5]

CT is the exam of choice by which patterns of appendicular diverticular disease can be recognized and is useful for distinguishing acute appendicitis from appendix diverticulitis, despite a false positive rate of about 50%. It is therefore a rare finding, diagnosed in less than 7% of incidental findings on CT.[5]

Diverticular disease of the appendix is associated with appendix neoplasms. The incidence of appendix neoplasms is 1.28% and increases to 26.94% in the presence of diverticular disease. More than half of the neoplasms are low-grade mucinous neoplasms (LGMN), and it is not yet clear whether the high pressure caused by LGMN is the cause of the diverticula or whether they develop inside the diverticula by weakening their walls. Due to its strong association with LGMN, diverticular disease of the appendix is thought to be associated with pseudomyxoma peritoneal.[5]

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Regarding the therapeutic approach, there is growing evidence and support for performing early appendectomy in cases of appendicular diverticulitis and also in cases of diverticular disease.[1] Recent scientific studies discuss prophylactic appendectomy when appendicular diverticula are found incidentally during abdominal

surgery due to the high risk of acute diverticulitis, perforation, and increased risk of concomitant neoplasia.[3]

In summary, significant complications and morbidity associated with appendicular diverticular disease can potentially be prevented by early diagnosis and treatment.[6]

CONCLUSION

Diverticular disease of the appendix is an uncommon diagnosis that can easily be overlooked. Appendix diverticulosis has an incidence of 0.004 to 21% on the histological specimen. Clinically, it may be asymptomatic or mimic the clinical condition of acute appendicitis. It can be associated with appendicular neoplasms, namely mucinous ones, and therefore a thorough examination of the appendix should be done after each appendectomy, as well as a careful inspection of the abdominal cavity. Considering the high rate of complications, mortality, and association with neoplasms, an urgent appendectomy in case of appendicular diverticulitis and an elective appendectomy in case of incidental finding of appendicular diverticulosis are recommended. If appendectomy cannot be performed safely, a laparoscopic right hemicolectomy may be considered.

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REFERENCES

1. Lesi OK. Diverticulitis and Diverticulosis of the Appendix: A case series. Cureus. 2022;14(10):e30786.
2. Bujold-Pitre K., Mailloux O. Diverticulitis of the Apendix: Case report and literature review, J Surge Case Rep. 2021(10):rjab488.
3. Albeeshi M, Alwanyan Z, Salim AA, Albabtain IT. Appendiceal diverticulitis presenting as acute appendicitis diagnosed postoperatively: Case report. J Surg Case Rep. 2019;(12):rjz332.
4. Sugiura K, Miyake H, Nagai H, Yoshioka Y, Shibata K, Norihiro Y, et al. Clinical features and risk factors for appendiceal diverticulitis: a comparative study with acute appendicitis. Surg Today. 2024;54(6):551-64.
5. Ergenç M, Uprak TK. Appendiceal Diverticulitis Presenting as Acute Appendicitis and Diagnosed After Appendectomy. Cureus. 2022;14(3):e23050.
6. Abdelrahim A, Yusuf Y, Ali O, Abudeeb H. Acute diverticulitis of the appendix. BMJ Case Rep. 2024;17(4):e259552.

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