Journal of Clinical and Investigative Surgery

https://doi.org/10.25083/2559-5555
https://proscholar.org/jcis/
ISSN: 2559-5555

An appendiceal diverticulitis patient presenting with acute appendicitis symptoms

Hossein Torabi[1], Kasra Shirini[2*], Rona Ghaffari[1], Yalda Ashoorian[3]

[1]*Poursina Medical and Educational Center, Guilan University of Medical Sciences, Department of General Surgery, Guilan, Iran*
[2]*Iran University of Medical Science, Department of General Surgery, Tehran, Iran*
[3]*Guilan University of Medical Science, Department of Pathology and Laboratory Medicine, Guilan, Iran*

ABSTRACT

Appendiceal diverticulitis is a very infrequent cause of pain in the right lower quadrant of the abdominal area. To have good management, it is essential to understand its clinical evolution, whether it is symptomatic or discovered incidentally during an appendectomy or barium enema. So far, few cases of appendiceal diverticulitis in different people have been reported. It is important in this case to avoid misdiagnosis in the form of another disease, especially acute appendicitis and/or possible complications. In this report we present the case of a 45-year-old man who came to the emergency room with symptoms of acute appendicitis. CT scan showed suspicious mass-like tissue in the appendiceal region, while pathological examination showed inflammation with no malignancy. An open appendicectomy was performed in this patient and appendicular diverticulitis was established as the final diagnosis.

Category: Case Presentation

Received: December 12, 2021
Accepted: February 14, 2022
Published: May 15, 2022

Keywords:

diverticulitis, appendicitis, emergency surgery, laparotomy, open appendectomy

***Corresponding author:**

Kasra Shirini,

Iran University of Medical Science, Department of General Surgery, P.O Box: 14665-354, Tehran, Iran

E-mail: Kasrashirini21@gmail.com

Introduction

In 1893, the pathologist Kelynack fist described the appendiceal diverticular disease as a "greatly distended appendix, totally shut off from the cecum, having two distinct diverticular processes directed between the folds of the mesentery" [1,2]. Appendiceal diverticulitis (AD) is a rare condition, with a prevalence rate between 1.4 % and 3.7%, as reported by several authors [3,4]. Despite the similarity between AD symptoms and early acute or chronic appendicitis, recognizing the differences between AD and appendicitis is important, as these similar symptoms could be signs of serious diseases such as neuroendocrine tumors (carcinoids) and mucinous adenomas, tubular adenomas, and adenocarcinomas. It is also important to note that the risk of being perforated is four times higher in AD [5,6]. Although some technological-based methods such as CT scan and sonography are helpful in diagnosis, the relation of these valuable facilities with the expression of technicians is inevitable [6,7]. Thus, there are no definite factors and precise algorithms for AD recognition, and its diagnosis must be completed intraoperatively and histopathologically.

Case report

A 45-year-old Iranian male presented to the emergency department with a 5-day history of periumbilical and epigastric pain, shifting to the right lower quadrant and not accompanied by nausea and vomiting. Moreover, the patient did not suffer from fever, constipation, diarrhea, and weight loss and claimed that those periodically 5-day pains suddenly emerged since 5-years ago. Our further investigations showed that he did not have any past medical history. The abdominal examination revealed right lower quadrant tenderness and a positive psoas sign but no guarding and rebound tenderness. Further investigation and professional treatment were done after admitting the patient to the department of general surgery. Abdominal ultrasonography showed intensive fat haziness with a 7mm diameter non-compression blind loop, distended bowels, a minimal fluid collection, and a non-vascular hypoechoic region in the ceco-appendiceal region. The patient was advised to have a CT scan. The CT scan showed suspicious mass-like tissue in the appendiceal region (Figures 1-2). Therefore, the patient underwent a colonoscopy on suspicion of malignancy. Colonoscopy reported an

To cite this article: Hossein Torabi, Kasra Shirini, Rona Ghaffari, Yalda Ashoorian. An appendiceal diverticulitis patient presenting with acute appendicitis symptoms. *J Clin Investig Surg*. 2022;7(1):109-112. doi: 10.25083/2559.5555/7.1.19

edematous area with inflammation in the appendiceal orifice and ileocecal valve, but no mass was detected. During the colonoscopy, samples taken from the different parts of the colon were sent for pathological examination, and the pathology report showed inflammation with no malignancy.

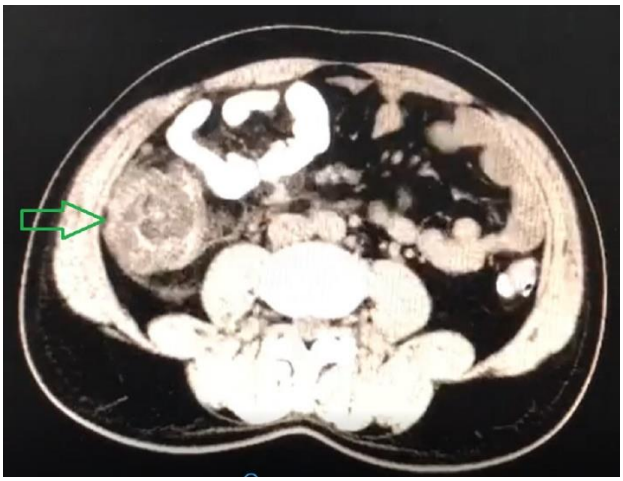

Figure 1. Mass-like lesion in abdominal CT scan, axial view

Figure 2. Mass-like lesion in abdominal CT scan, coronal view

Blood tests analyzed presented a high level of ESR = 51 (usually should be under 15 in males) and CRP = 38 (usually under 6 in males). In addition, a white blood cell count of 6900 g/dL with a neutrophil differential of 68.1% was obtained during other laboratory studies within normal limits.

Further, due to the suspicion of mass and malignancy, an open appendectomy operation was performed. Detection of extensive adhesions around the appendix showed chronic appendiceal inflammation. The adhesions were lysed, and the perforated appendix which was grossly abnormal (8 cm x 2 cm) was removed. During this process, tissue thickening was seen in the ileocecal region, and due to suspicion of malignancy, right hemicolectomy (RHC) was performed for the patient. After ileocolic anastomosis, the abdomen was closed. The patient had an uneven recovery. On postoperative day 1, his vital signs were within normal limits, and after five days, he was discharged home. The post-operative histological examination showed appendiceal diverticulitis, which is characterized by acutely inflamed pseudodiverticula (herniated mucosa and submucosa through the muscularis propria), associated with per diverticulitis per appendicitis, suggesting perforation (Figures 3-4).

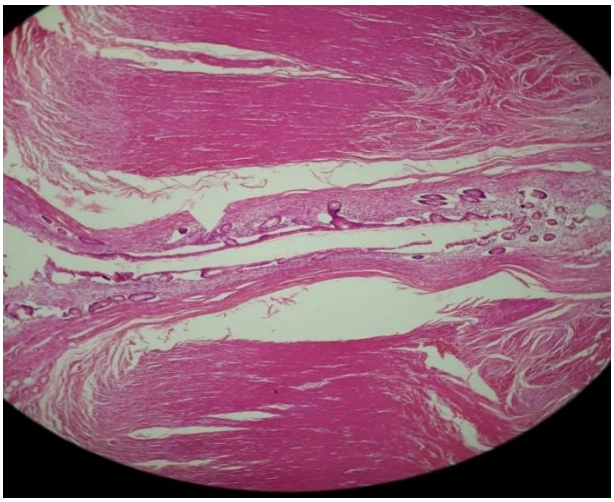

Figure 3. Microscopic view of appendix tissue

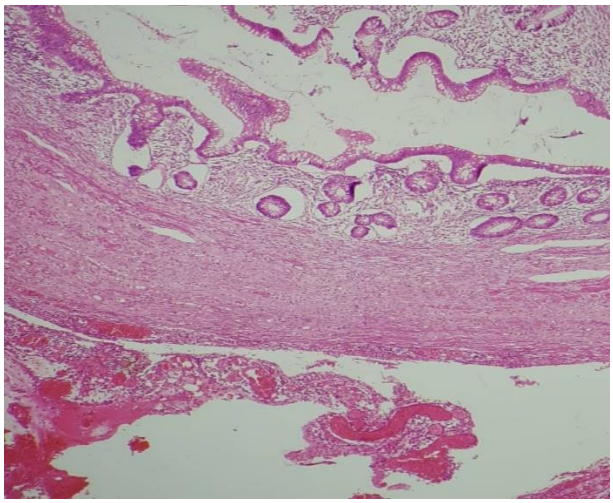

Figure 4. Microscopic view of appendix tissue

Discussion

So far, few cases of appendiceal diverticulitis in different people (with and without specific past medical history and various ages) have been reported as case reports [8-10]. So, given the importance of the issue and the importance of paying attention to this disease, we have reported a new case in this article. Based on the number of layers herniating through the standard wall, appendiceal

diverticulitis could be classified into two groups: congenital and acquired [2,10]. In the acquired form, also known as pseudodiverticula, mucosa with submucosa herniates through the wall, being the most common form. In contrast, mucosa and submucosa and the muscular layer herniate through the wall in the congenital form, which is a true diverticulum on the mesenteric border of the appendix; this type (congenital) is very rare [11,12].

AD's risk factors comprise age> 30 years, male gender, Hirschsprung's disease, and cystic fibrosis [13].

The postoperative pathology report showed acute suppurative diverticulitis of the appendix with per appendicitis. Thus, according to Phillip's appendiceal diverticular disease classification, this case was diagnosed as type 2 [14,15] (Table 1).

Table 1. Phillip classification of appendiceal diverticular disease

Type	Classification
1.	Primary acute diverticulitis, with or without acute peri-diverticulitis
2.	Acute diverticulitis secondary to acute appendicitis
3.	Diverticulum without inflammation
4.	Diverticulum with acute appendicitis
5.	Chronic peri-diverticulitis with acute appendicitis

Although CT scan images or ultrasonography could be used to diagnose preoperatively in some cases, they did not help diagnose the disease in our patient. So, the postoperative pathology report, which is the most accurate way to diagnose similar cases and pathologies [2,11,14], has also been applied by us.

Conclusions

This article is about a 45-year-old man who went to the emergency room with a misdiagnosis of primary acute appendicitis instead of appendicitis diverticulitis. This case is an instance to show how symptomatology could help us, making a more definite diagnosis than radiographic findings in such patients. Although the decisive treatment for both of them is an appendectomy, each has its complications, which makes preoperative diagnosis more important. For instance, appendiceal diverticulitis may be more associated with a higher risk of perforation and appendiceal malignancies. Therefore, surgeons should be aware of these distinct possibilities, which means better radiographic differentiation and the use of more complex clinical indicators for a preoperative diagnosis as complete as possible.

Conflict of interest disclosure

There are no known conflicts of interest in the publication of this article. The manuscript was read and approved by all authors.

Compliance with ethical standards

Any aspect of the work covered in this manuscript has been conducted with the ethical approval of all relevant bodies and that such approvals are acknowledged within the manuscript.

Abbreviation

AD = appendiceal Diverticulitis

References

1. Kelynack TN. A contribution to the pathology of the vermiform appendix. London, England: HK Lewis; 1893:60.
2. Albeeshi MZ, Alwanyan AA, Salim AA, Albabtain IT. Appendiceal diverticulitis presenting as acute appendicitis diagnosed postoperatively. *J Surg Case Rep*. 2019;2019(12):rjz332. doi: 10.1093/jscr/rjz332
3. Abdullgaffar B. Diverticulosis and diverticulitis of the appendix. *Int J Surg Pathol*. 2009 Jun;17(3):231-7. doi: 10.1177/1066896909332728
4. Collins DC. A study of 50,000 specimens of the human vermiform appendix. *Surg Gynecol Obstet*. 1955 Oct;101(4):437-45.
5. Heffernan DS, Saqib N, Terry M. A case of appendiceal diverticulitis, and a review of the literature. *Ir J Med Sci*. 2009 Dec;178(4):519-21. doi: 10.1007/s11845-008-0177-4
6. Khan SL, Siddeswarappa M, Khan MF. A case report describing diverticulosis of the appendix presenting as acute appendicitis. *Int J Surg Case Rep*. 2016;29:155-157. doi: 10.1016/j.ijscr.2016.10.074
7. Konen O, Edelstein E, Osadchi A, Shapiro M, Rathaus V. Sonographic appearance of an appendiceal diverticulum. *J Clin Ultrasound*. 2002 Jan;30(1):45-7. doi: 10.1002/jcu.10023
8. Altieri ML, Piozzi GN, Salvatori P, Mirra M, Piccolo G, Olivari N. Appendiceal diverticulitis, a rare relevant pathology: Presentation of a case report and review of the literature. *Int J Surg Case Rep*. 2017;33:31-34. doi: 10.1016/j.ijscr.2017.02.027
9. Kim Y, Kesar V, Grider D, Chitnavis MV. An Alarming Mimicry of Intra-Abdominal Infections: Acute Appendiceal Diverticulitis. *Case Rep Gastrointest Med*. 2021 Nov 12;2021:6131015. doi: 10.1155/2021/6131015
10. Drew ZJ, Chakrabarty S, Malghan R. Complicated appendicular diverticulitis. *J Med Radiat Sci*. 2022 Feb 23. doi: 10.1002/jmrs.573

11. Dupre MP, Jadavji I, Matshes E, Urbanski SJ. Diverticular disease of the vermiform appendix: a diagnostic clue to underlying appendiceal neoplasm. *Hum Pathol*. 2008 Dec;39(12):1823-6. doi: 10.1016/j.humpath.2008.06.001
12. Keskin A, KarsliogluB. Did Covid-19 pandemic narrow the spectrum of surgical indications? *J Clin Investig Surg*. 2021;6(1):58-63. doi: 10.25083/2559.5555/6.1.11
13. Abdulmomen AA, AlZahrani AS, Al Mulla LA, Alaqeel FO. Acute Perforated Appendicitis Associated with Appendiceal Diverticulitis in a Young Man: A Case Report with Literature Review. *Am J Case Rep*. 2022 Jan 13;23:e934838. doi: 10.12659/AJCR.934838
14. Phillips BJ, Perry CW. Appendiceal diverticulitis. *Mayo Clin Proc*. 1999 Sep;74(9):890-2. doi: 10.4065/74.9.890
15. Mesina C, Dumitrescu TV, Ciorbagiu MC, et al. Colonic diverticulosis - diagnostic and therapeutic difficulties. *J Mind Med Sci*. 2022;9(1):152-161. doi: 10.22543/7674.91.P152161