

2023

A Rare Appendiceal Mucocele of the Appendix Captured on the Ultrasound: Case Report

Vera Shulgina
vshulgin@sgu.edu

Meghan Single
Rochester Regional Health, meghan.single@rochesterregional.org

Joel Thompson
Rochester Regional Health, Joel.Thompson@rochesterregional.org

Follow this and additional works at: <https://scholar.rochesterregional.org/advances>



Part of the [Primary Care Commons](#), and the [Radiology Commons](#)



This work is licensed under a [Creative Commons Attribution-NonCommercial 4.0 International License](#)

Recommended Citation

Shulgina V, Single M, Thompson J. A Rare Appendiceal Mucocele of the Appendix Captured on the Ultrasound: Case Report. *Advances in Clinical Medical Research and Healthcare Delivery*. 2024; 4(1). doi: 10.53785/2769-2779.1197.

ISSN: 2769-2779

This Case Report is brought to you for free and open access by RocScholar. It has been accepted for inclusion in *Advances in Clinical Medical Research and Healthcare Delivery* by an authorized editor of RocScholar. For more information, please contact Advances@rochesterregional.org.

A Rare Appendiceal Mucocele of the Appendix Captured on the Ultrasound: Case Report

Abstract

Appendiceal mucocele is a rare disease which results from an accumulation of mucus in the lumen of the appendix, leading to distension and obstruction of the lumen. Clinical diagnosis is often delayed, as the presenting symptoms are usually non-specific. Even with the use of imaging, preoperative diagnosis is difficult. The treatment is surgical, with the extent determined by the surgical specimen. Definitive diagnosis is by histopathology. Our case report presents a rare case of appendiceal mucocele originally captured by ultrasound. The aim of this paper is to further understand the clinical presentation, discuss key ultrasound findings, and examine the proper treatment of this rare disease. This case report can aid radiologists, primary care physicians, and surgeons in the accurate diagnosis and early intervention to prevent the devastating consequence of pseudomyxoma peritonei.

Keywords

appendiceal mucocele, appendiceal mass, ultrasound, pseudomyxoma peritonei.

Creative Commons License



This work is licensed under a [Creative Commons Attribution-NonCommercial 4.0 International License](https://creativecommons.org/licenses/by-nc/4.0/)

Conflict of Interest Statement

No Conflict of Interests

CASE REPORT

A Rare Appendiceal Mucocele of the Appendix Captured on the Ultrasound: Case Report

Vera Shulgina ^{a,*}, Meghan Single ^b, Joel Thompson ^b

^a St. George's University

^b Rochester Regional Health, Rochester, NY, USA

Abstract

Appendiceal mucocele is a rare disease which results from an accumulation of mucus in the lumen of the appendix, leading to distension and obstruction of the lumen. Clinical diagnosis is often delayed, as the presenting symptoms are usually non-specific. Even with the use of imaging, preoperative diagnosis is difficult. The treatment is surgical, with the extent determined by the surgical specimen. Definitive diagnosis is by histopathology. Our case report presents a rare case of appendiceal mucocele originally captured by ultrasound. The aim of this paper is to further understand the clinical presentation, discuss key ultrasound findings, and examine the proper treatment of this rare disease. This case report can aid radiologists, primary care physicians, and surgeons in the accurate diagnosis and early intervention to prevent the devastating consequence of pseudomyxoma peritonei.

Keywords: Appendiceal mucocele, Appendiceal mass, Ultrasound, Pseudomyxoma peritonei

1. Introduction

Mucocele of the appendix is a rare disease, detected in only 0.1–0.7 % of all appendiceal specimens.¹ It is characterized by accumulation of mucus in the lumen of the appendix. Presentation can be variable it maybe asymptomatic and non-specific symptoms with pain in the right lower quadrant of the abdomen.¹ Due to clinical suspicion of appendicitis, mucocele of the appendix is usually diagnosed with CT and rarely with ultrasound.¹ Although ultrasound is only 83 % sensitive and 92 % specific for the mucocele appendiceal, if utilized properly, it can lead to faster diagnosis and initiation of appropriate therapy.¹ We present a case of asymptomatic appendiceal mucocele which was diagnosed with ultrasound on presentation.

2. Case presentation

Patient is a 66-year-old gentleman with past medical history of hypothyroidism, hyperlipidemia, and pre-diabetes who was noted to have

transaminitis on routine laboratory blood work ordered by his primary care physician. At the time of diagnosis, patient did not endorse any abdominal pain, nausea, vomiting, changes in bowel habits, unintentional weight loss, or constitutional symptoms. In addition, patient had colonoscopy done two years prior which was significant only for a hyperplastic polyp. To further work up the abnormal liver panel, the patient had an abdominal ultrasound, which showed a hypoechoic and heterogenous tubular lesion within right lower quadrant measuring 12.5 cm × 4.3 cm × 5 cm (Fig. 1). This lesion was of uncertain etiology, and a CT scan was obtained for further characterization. CT images demonstrated that the mass was localized to the right paracolic gutter abutting the cecum within the right abdomen, and demonstrated internal low attenuation, with multiple internal septations. Calcifications were present within some of the septations as well as along the inferior aspect, suggesting it was not an acute process (Fig. 2). A large mucocele of the appendix was the foremost consideration based on location and imaging appearance. The

Accepted 2 October 2023.
Available online ■ ■ ■

* Corresponding author.

E-mail addresses: vshulgin@sgu.edu (V. Shulgina), meghan.single@rochesterregional.org (M. Single), joel.thompson@rochesterregional.org (J. Thompson).

<https://doi.org/10.53785/2769-2779.1197>

2769-2779/© 2023 Rochester Regional Health.

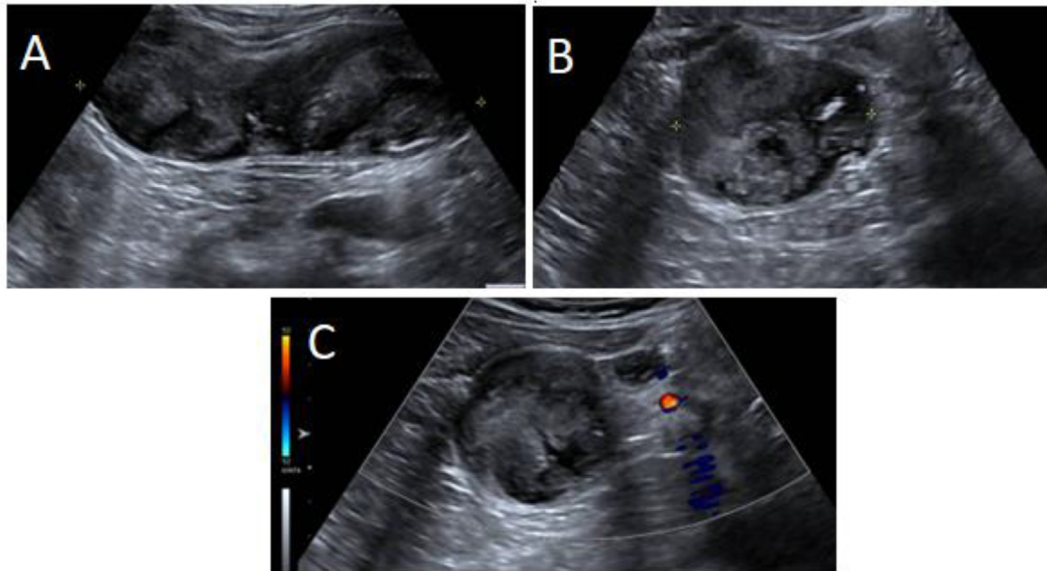


Fig. 1. Ultrasound appearance of mucocoele of appendix. A: Sagittal view demonstrates a heterogeneous hypoechoic, tubular lesion in the right lower quadrant. B: Transverse view demonstrates the mass with calcification (yellow arrow). C: Transverse color Doppler view of the right lower quadrant mass demonstrating no internal vascularity.

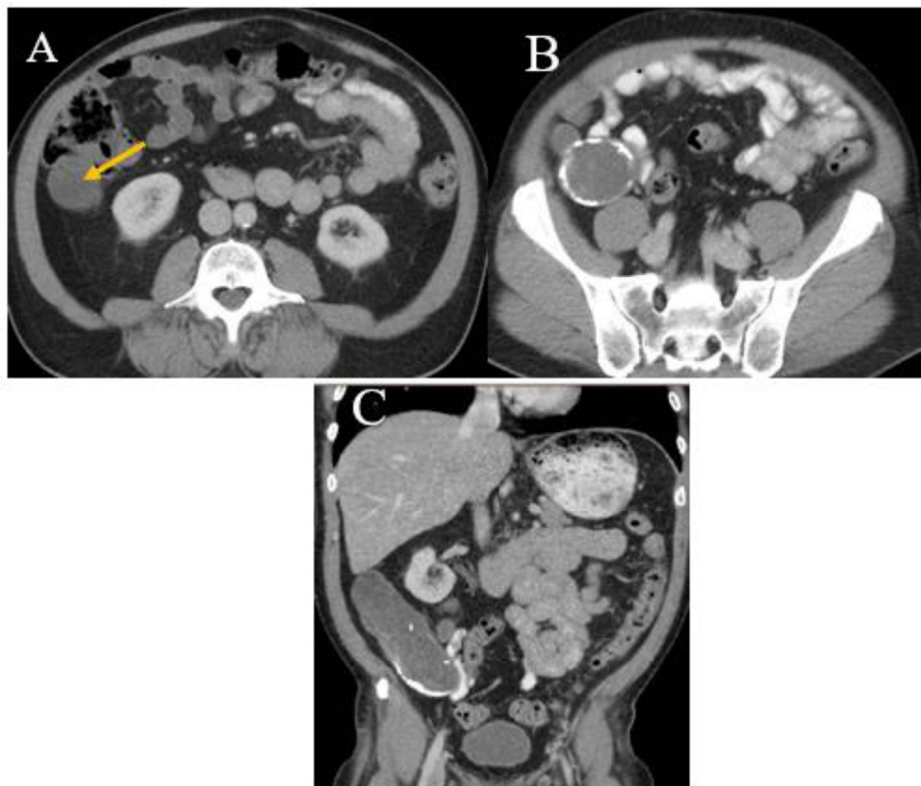


Fig. 2. Contrast-enhanced CT appearance of the appendiceal mucocoele. A: Axial CT image demonstrates a round hypoattenuating mass (yellow arrow) in the right paracolic gutter abutting the cecum. B: Axial CT image of the tubular, low-attenuation right abdominal mass with coarse calcifications mainly along the periphery. C: Coronal CT view of the appendiceal mass in the right lower quadrant with coarse calcifications in the periphery and some in the lumen of the appendix.

patient was scheduled for laparoscopic excision of the appendiceal mass. The surgical specimen was described as a large appendiceal mucinous mass. The final pathology report characterized the specimen as a low-grade appendiceal mucinous neoplasm with acellular dissecting mucin and evidence of perforation, staging tumor to T4 with positive margins. Due to the positive margins, patient was scheduled for a right hemicolectomy followed by CT surveillance in 6 months.

3. Discussion

Appendiceal mucocoele is the descriptive term for a group of mucus-filled lesions that can cause obstruction of the lumen. The disease was first described in 1842 by Rokitsky and then by Feren in 1876 who defined this entity as enlargement of the cecal appendix by excessive accumulation of mucus.² There are four different pathological characteristics of appendiceal mucocoele: simple mucocoele of the appendix or retention cyst, hyperplastic polyp, mucous cystadenoma, and mucinous cystadenocarcinoma. The last two subgroups represent malignant transformation.²

Appendiceal mucocoele is more likely to occur in females and usually in patients younger than 50 years of age.³ Clinical presentation can resemble appendicitis with right lower quadrant pain, but can also include a variety of vague symptoms such as right lower quadrant pain, intermittent colicky pain, diarrhea, and/or rectal bleeding.³ It can also be asymptomatic and detected incidentally on imaging. There are a wide variety of pathologies present in the right lower quadrant, which includes acute appendicitis, right cystic ovarian/adnexal mass, peri-appendiceal abscess, right tubo-ovarian abscess, right hydrosalpinx, lymphocele, and enteric duplication cyst.⁴ Failure to make the diagnosis of appendiceal mucocoele in a timely manner may result in rupture of the appendix, resulting in spillage of contents into the abdominal cavity and development of pseudomyxoma peritonei.⁴

Due to the broad spectrum of conditions that can cause a similar presentation, it is important to understand imaging characteristics of appendiceal mucocoele to aid the diagnosis in a timely manner. On ultrasound, mucocoele of the appendix appears

as an ovoid or pear-shaped cystic mass with dystrophic mural calcifications which can be described as “onion-skin”.⁴ On CT, the appendix appears as a tubular structure continuous with the cecum and distended with homogenous, low-attenuation contents with characteristic curvilinear mural calcification.⁴ Although CT provides approximately 90 % diagnostic accuracy, histopathological examination is required for final confirmation.⁵

Once the diagnosis of appendiceal mucocoele is made, the treatment is usually surgical removal of the appendix.⁶ Currently, open surgery is the standard procedure for the removal of the appendix as it has lower risk of spillage of appendiceal contents into the abdominal cavity.⁶ Preoperative identification of the mucocoele is important; hemicolectomy is necessary when the contents have been spilled or positive margins are found.⁶

In conclusion, mucocoele of appendix is a rare condition that if not diagnosed and treated in timely manner can lead to the development of pseudomyxoma peritonei. Familiarization with both the ultrasound and CT appearances of appendiceal mucocoele can help effectively diagnose this condition in a timely manner.

Conflicts of interest

The authors state there are no conflicts on interest.

References

1. Demetrashvili Z, Chkhaidze M, Khutsishvili K, et al. Mucocoele of the appendix: case report and review of literature. *Int Surg.* 2012;97(3):266–269. <https://doi.org/10.9738/CC139.1>.
2. Haritopoulos KN, Brown DC, Lewis P, et al. Appendiceal mucocoele: a case report and review of the literature. *Int Surg.* 2001;86(4):259–262.
3. SK BB, Jasuja P. Appendiceal mucocoele-A rare case report. *Int J Surg Case Rep.* 2019;58:21–25. <https://doi.org/10.1016/j.ijscr.2019.04.008>.
4. Santos SF, Horta M, Rosa F, Rito M, Cunha TM. Mucocoele of the appendix: what to expect. *Radiol Bras.* 2022;55(3):193–198. <https://doi.org/10.1590/0100-3984.2021.0075>.
5. Singh MP. A general overview of mucocoele of appendix. *J Fam Med Prim Care.* 2020;9(12):5867–5871. https://doi.org/10.4103/jfmpc.jfmpc_1547_20. Published 2020 Dec 31.
6. Jeleu G, Vassilev I, Usheva S, Yanev T, Sedloev T. A case of a mucocoele of the appendix - a diagnostic and therapeutic dilemma. *Int J Surg Case Rep.* 2023;105:108082. <https://doi.org/10.1016/j.ijscr.2023.108082>.