Case Report Article | J Adv Med Biomed Res. 2025; 33(159): 335-340

Category: Clinical Medicine

Peer Reviewed | Open Access

Journal of Advances in Medical and Biomedical Research | ISSN:2676-6264

A Case Report of Appendiceal Mucocele: Clinical Presentation and Surgical Considerations

Yasin Sohrani[1+], Fatemeh Mohammadivahedi[2+], Hamzeh Mohammadi Sardoo[1], Sana Sadr[1], Fatemeh Fakhrealizadeh[3], Azimeh Afsharzarandi[4,5], Reza Tavakkol[6], Farzad Abaszadeh[4,5,7*]

1. *Clinical Research Development Unit of Imam Khomeini Hospital, Jiroft University of Medical Sciences, Jiroft, Iran*
2. *Clinical Research Development Unit of Shafa Hospital, Kerman University of Medical Sciences, Kerman, Iran*
3. *Department of Operating Room, Shahid Beheshti University of Medical Sciences, Tehran, Iran*
4. *Student Research Committee, Faculty of Allied Medicine, Kerman University of Medical Sciences, Kerman, Iran*
5. *Department of Operating Room Technology, Faculty of Allied Medicine, Kerman University of Medical Sciences, kerman, Iran*
6. *Department of Operating Room, School of Nursing and Midwifery, Torbat Heydariyeh University of Medical Sciences, Torbat Heydarieh, Iran*
7. *Clinical Education Research Center, Department of Medical Education, School of Medicine, Shiraz University of Medical Sciences, Shiraz, Iran*

Article Info

10.30699/jambr.33.159.335

Received: 2025/05/15;
Accepted: 2025/09/03;
Published Online: 29 Sept 2025;

Use your device to scan and read the article online

***Corresponding author:**
Farzad Abaszadeh,
Student Research Committee, Faculty of Allied Medicine, Kerman University of Medical Sciences, Kerman, Iran

Email: fabaszadeh99@gmail.com

ABSTRACT

Appendiceal mucocele is a rare condition, characterized by the dilation and obstruction of the appendix owing to the accumulation of intraluminal mucus. This study presents a case of appendiceal mucocele and outlines the diagnostic as well as therapeutic approach employed.

A 54-year-old female patient presented with abdominal pain, nausea, a bitter taste in her mouth, and constipation which had persisted for 20 days. Upon admission, she underwent laboratory tests and imaging diagnostics. Although initially scheduled for laparoscopic surgery, the procedure was converted to open surgery following the diagnosis of appendiceal mucocele. Torsion of the appendix in three loops was observed intraoperatively. An abdominal assessment revealed no signs of malignancy, with only the distended appendix resected. Postoperatively, the patient experienced no complications and was discharged without pain or infection.

Given the potential presence of appendiceal mucocele, for patients presenting with symptoms that mimic acute appendicitis, including abdominal pain, nausea, and vomiting, diagnostic investigations such as computed tomography (CT) and ultrasound are essential.

Keywords: Appendiceal Mucocele, Appendicitis, Appendix Mucocele, Appendiceal Cancer, Appendiceal Neoplasm, Cancer of Appendix, Diagnosis

+ The first and second authors contributed equally to this paper.

1. Introduction

Appendiceal mucocele is a rare condition often diagnosed incidentally during routine diagnostic evaluations or surgical procedures in patients suspected of having acute appendicitis (1). Mucoceles typically arise from dilation and obstruction of the appendiceal lumen because of accumulation of mucus, a phenomenon that can mimic the clinical presentation of acute appendicitis (2, 3). The incidence of appendiceal mucocele among patients presenting with acute appendicitis reportedly ranges from

0.2% to 0.3%. Further, the occurrence of this condition is affected by both age and gender, with a higher prevalence observed in women and those over the age of 50 (4, 5).

The clinical presentation of appendiceal mucocele is frequently delayed, as symptoms may be either non-existent or mild in severity (6). When symptoms do occur, they commonly include a palpable mass in the lower abdomen, abdominal pain, weight loss, vomiting, and nausea (2, 6). The preoperative diagnosis of appendiceal mucocele is often challenging, even when imaging techniques are utilized (7, 8). A conclusive diagnosis can be made through histopathological examination (8). The treatment involves surgical resection, with particular attention to avoiding spillage of the contents to prevent pseudomyxoma peritonei, a condition associated with a poor prognosis (9, 10).

In this study, we present a case of a 54-year-old female diagnosed with appendiceal mucocele, while examining various aspects of the disease, including its clinical presentation, diagnostic challenges, treatment options, and potential complications, in order to enhance understanding and management of this rare condition.

2. Case Presentation

A 54-year-old female was admitted to Imam Khomeini Hospital in Jiroft, Iran, with a chief complaint of abdominal pain which initially localized to the hypogastric region and subsequently shifted to the right lower quadrant (RLQ), persisting for a duration of 20 days. The pain intensified while lying down and was associated with nausea, as well as increased abdominal discomfort following meals.

Clinical examinations indicated a bitter taste in the mouth and constipation. The patient reported no significant medical history. Upon admission, her vital signs were within normal limits: blood pressure was 120/80 mmHg, pulse was 84 bpm, respiratory rate was 16 bpm, and temperature was 36 °C. Table 1 summarizes the laboratory test results.

Ultrasonography identified a tubular structure in the RLQ adjacent to the right adnexa. To exclude the possibility of ectopic pregnancy, a BETA-HCG test was performed. Further evaluation was recommended through contrast-enhanced CT imaging, indicating a lesion measuring 84 × 32 mm in the RLQ, with no clear visualization of the normal appendix (Figure 1). The primary differential diagnosis considered was appendiceal mucocele, while also taking a para-ovarian cyst into account.

Following admission, the patient underwent laparoscopic surgery at Imam Khomeini Hospital in Jiroft, Iran. A 10-mm port was initially inserted in the umbilical region, serving as the primary entry point for the camera. Subsequently, a 5 mm port was placed in the right lower quadrant (RLQ). Adhesions were meticulously released, facilitating visualization of the intestines and pelvic floor. A mass adherent to the cecum was identified within the right iliac fossa. The diagnosis of an appendiceal mucocele necessitated conversion to open surgery, which was undertaken through a Mc Burney incision extended proximally. Further exploration manifested torsion of the appendix, which was entwined in three loops. An abdominal assessment did not indicate any malignancy; thus, only the distended appendix was resected (Figure 2). The surgical site was irrigated postoperatively, and the abdomen was carefully sutured as well as dressed.

The subsequent pathology report described the excised specimen as a cystically dilated appendix measuring 11 cm in length and 6 cm in greatest diameter. Upon sectioning, profuse mucin was observed, with a maximum wall thickness of 0.4 cm. Microscopic examination confirmed the presence of a mucocele, characterized by columnar cells with basally located nuclei and ample cytoplasm. Further, focal areas exhibited pseudostratification, severe calcification, and mucosal atrophy. Mucin extravasation into the appendiceal wall was evident, with no discernible mitotic activity or nuclear atypia. The diagnosis indicated a low-grade appendiceal mucinous neoplasm, concurrent with acute appendicitis. Notably, no extra-appendiceal mucin was present, with negative margins reported for the mucinous neoplasm.

Table 1. The clinical and pathological features of breast cancer patients.

Index	Value	Index	Value
WBC	9.39 (10^3/µL)	MCV	91.0 (fL)
Neutrophil	44.2 (10^3/µL)	MCH	28.3(pg)
Basophile	1.4 (10^3/µL)	MCHC	31.1 (g/dl)
Lymphocyte	4.1 (10^3/µL)	Platelets	351.2 (10^3/µL)
RBC	4.60 (10^6/µL)	PDW	19.9 (10(GSD))
Hemoglobin	13.0 (g/dl)	AST	32 (U/L)
Hematocrit	41.9 (g/dl)	ALT	55 (U/L)

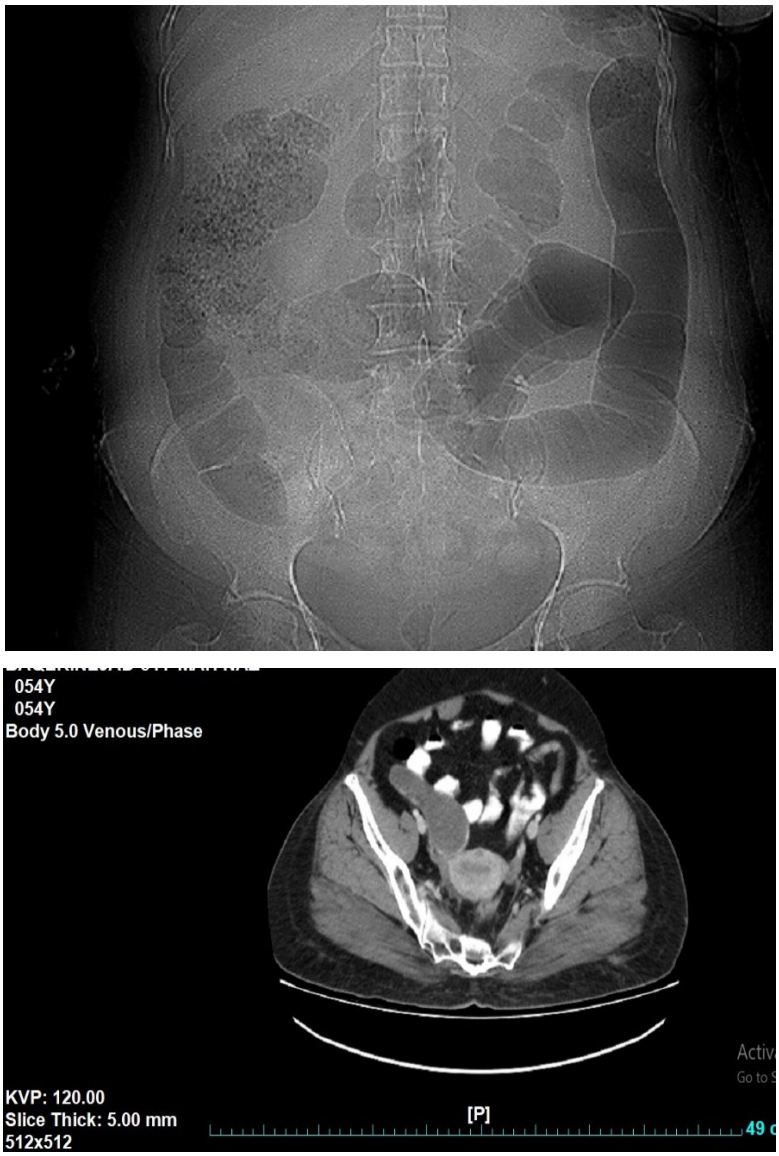

Figure 1. Radiological findings: Abdominal CT scan demonstrating the location of the appendiceal lesion (**by Authors, 2025**).

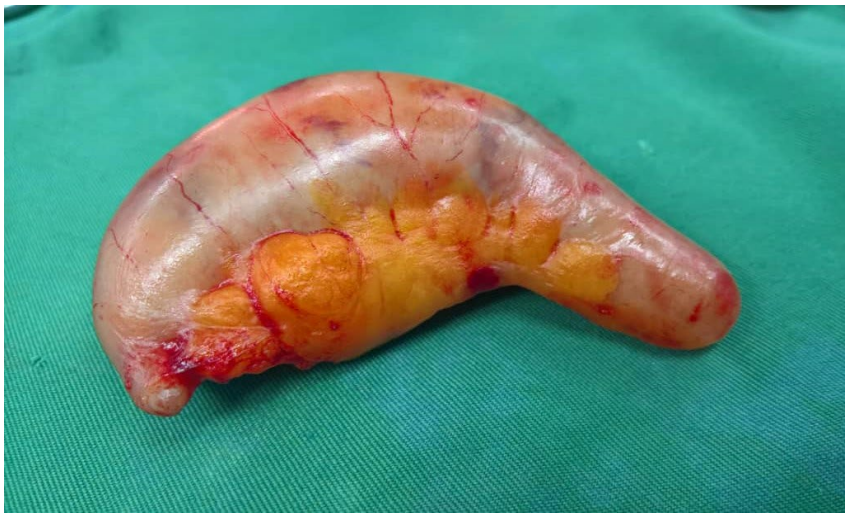

Figure 2. Intraoperative findings of an appendiceal mucocele (**by Authors, 2025**).

3. Discussions

In this report, we presented a case of appendiceal mucocele complicated by a rare triple-loop torsion, a phenomenon rarely documented in the existing literature. This unusual torsion not only necessitated conversion from laparoscopic to open surgery but also posed distinct diagnostic and therapeutic challenges. Moreover, the patient exhibited an atypical presenting symptom of a bitter taste in the mouth, which has rarely been described in association with appendiceal mucocele. These unique clinical and surgical features highlight the significance of recognizing atypical presentations and rare complications to enhance the diagnostic accuracy and optimize management strategies for this uncommon condition.

The term "appendiceal mucocele" refers to the distension and obstruction of the appendiceal lumen resulting from accumulation of mucous secretions. This process typically occurs gradually, with the initial stages often lacking specific symptoms. Although prevailing evidence suggests a higher prevalence among women, conflicting reports also indicate a higher incidence among men (11, 12). Appendiceal mucoceles are classified into four types based on the nature of luminal obstruction: 1) Simple or retention mucoceles, characterized by normal epithelium and luminal dilation of up to 1 cm; 2) Hyperplastic mucoceles, exhibiting mild luminal dilatation and hyperplastic epithelium; 3) Mucinous cystadenomas, the most common subtype, accounting for 63–84% of cases and often presenting with mucoceles exceeding 6 cm in size; and 4) Malignant cystadenocarcinomas, comprising 10%–20% of cases and characterized by glandular stromal invasion, significant luminal distention, and an increased risk of rupture, often associated with pseudomyxoma peritonei (13, 14).

Accurate preoperative diagnosis presents challenges given the nonspecific clinical manifestations associated with the disease. However, advancements in diagnostic imaging, particularly abdominal computed tomography (CT) scans, have significantly improved preoperative detection rates (15). Appendiceal mucoceles typically appear as encapsulated, round masses with thin walls, and low density in the right lower quadrant (RLQ) on abdominal CT imaging (16).

Differentiating acute appendicitis from a mucocele relies on specific imaging criteria. In cases of acute appendicitis, the appendix wall thickness generally measures less than 6 mm, while mucoceles exhibit an outer diameter exceeding 15 mm (17, 18).

Additional diagnostic modalities, such as magnetic resonance imaging (MRI) and ultrasonography, provide effective alternatives for confirming the diagnosis of appendiceal mucocele. MRI is especially useful in differentiating mucoceles from other RLQ lesions, while ultrasonography may manifest the characteristic "onion skin sign," which is indicative of the presence of a mucocele (2, 6).

Colonoscopy may reveal a soft, erythematous, ball-shaped mass with a central orifice, accompanied by the discharge of yellowish mucus, a phenomenon referred to as the "volcano sign." (19). Given the risk of pseudomyxoma peritonei, proper surgical planning is essential to prevent mucocele rupture along the procedure. While surgical therapy is recommended, laparoscopic approaches are generally discouraged towing to the increased risk of perforation (20).

The choice of surgical intervention is contingent upon the histological characteristics of the mucocele. Benign cases typically warrant an appendectomy, whereas cystadenomas with extensive bases may necessitate cecal resection. Cystadenocarcinomas often require a right hemicolectomy (21, 22).

Appendiceal mucoceles may coexist alongside other tumors, notably colon carcinoma (11–20%) and ovarian tumors, emphasizing the importance of a thorough abdominal assessment during surgery. Notably, instances of benign or simple mucoceles demonstrate a remarkable 5-year survival rate of 90–100%. In contrast, pseudomyxoma peritonei can significantly diminish survival rates post-treatment, underscoring the necessity for comprehensive management strategies (23).

Clinical Lessons

1- Appendiceal mucocele can present with rare mechanical complications such as triple-loop torsion, which may significantly alter the surgical approach and elevate the risk of rupture. Surgeons should maintain a high index of suspicion for torsion in patients with prolonged right lower quadrant pain and atypical imaging findings.

2- The presence of unusual symptoms, such as a bitter taste in the mouth, may reflect autonomic nerve involvement and widen the recognized clinical spectrum of appendiceal mucocele. Awareness of such atypical presentations can aid earlier diagnosis.

3- Preoperative imaging, including CT and ultrasound, may not always detect torsion or distinguish mucocele from other right lower quadrant masses. Thus, intraoperative vigilance and preparedness to convert from laparoscopic to open surgery are necessary to prevent complications.

4- Surgical planning should prioritize avoiding rupture and mucin spillage to lower the risk of pseudomyxoma peritonei, particularly in cases complicated by torsion or large mucoceles.

4. Conclusion

This study presented a case of appendiceal mucocele successfully diagnosed and resected. Although malignancy is rare in appendiceal mucoceles, diligent preoperative evaluation is critical to mitigate postoperative complications. Ultrasound and CT scans play pivotal roles in facilitating accurate diagnosis, with careful consideration dedicated to preventing mucocele

rupture, which may precipitate pseudomyxoma peritonei and compromise patient outcomes.

6. Declarations

6.1 Acknowledgments

Not applicable.

6.2 Ethical Considerations

This case report was conducted in accordance with the Declaration of Helsinki and was approved by the Ethics Committee of Jiroft University of Medical Sciences (Ethical code: IR.JMU.REC.1401.031). Written informed consent was obtained from the patient for both participation in this report and the publication of the case details and any accompanying images. The patient was fully informed about the nature and purpose of the publication, and confidentiality and anonymity were assured.

6.3 Authors' Contributions

YS collected and analysed clinical data, drafted the initial manuscript and coordinated revisions based on feedback, and also ensured the accuracy of all data presented in the report. FM conceptualized and designed the case report, and conducted a comprehensive literature review to contextualize the findings, and also contributed to the study design and methodology. HM provided clinical insights and expertise throughout the study, and supervised data collection and ensured ethical compliance. SS contributed to the analysis of results and their implications. FF reviewed the final draft for accuracy and completeness. AA assisted in data collection and patient follow-up. RT assisted in data collection. FA conceptualized and designed the case report, and reviewed multiple drafts of the manuscript and provided critical feedback, and also reviewed relevant literature to assist in framing the discussion section.

6.4 Conflict of Interest

The authors have no conflict of interest.

6.5 Fund or Financial Support

This research received no specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

6.6 Using Artificial Intelligence Tools (AI Tools)

AI-powered tools were used to check grammar, paraphrase text, and improve the academic quality of the manuscript. The initial draft was written by the authors, and all content generated or modified with the assistance of AI tools was subsequently reviewed and edited by the authors. The authors take full responsibility for the integrity and accuracy of the final manuscript.

6.7 Data Availability

The clinical data supporting the findings of this case report are available from the corresponding author upon reasonable request, with appropriate safeguards to protect patient confidentiality.

References

1. Oyeh E, Nsaful J, Bediako-Bowan A, Gbadamosi H, Mensah YB, Adu-Aryee NA, et al. Mucocoele of the appendix. Ghana Med J. 2024;58(1):109-14. [DOI:10.4314/gmj.v58i1.15]
2. Bhagwanani A, El-Sheikha J, Shah N, Thrower A, Carr NJ, Moran BJ. The appendix "mucocoele" misnomer: radiological terminology of "likely appendix mucinous neoplasm" better reflects pathology findings. Clin Radiol. 2023;78(3):234-8. [DOI:10.1016/j.crad.2022.10.005]
3. Santos SF, Horta M, Rosa F, Rito M, Cunha TM. Mucocele of the appendix: what to expect. Radiol Bras. 2022;55(3):193-8. [DOI:10.1590/0100-3984.2021.0075]
4. Farooqui F, Latif S, Altaf HN, Waseem S, Khan S, Amir M. Mucocoele of the appendix: A case report. J Pak Med Assoc. 2021;71(4):1260-3.
5. Kudelová E, Grajciar M, Smolar M, Kalman M, Laca L. Laparoscopic Right Hemicolectomy for Appendiceal Mucocele. Acta Medica (Hradec Kralove). 2021;64(3):165-9. [DOI:10.14712/18059694.2021.28]
6. Emile SH, Elfallal AH, Elshobaky A. Giant mucocele of the appendix. Surgery. 2022; 171(6):e29-e30. [DOI:10.1016/j.surg.2021.11.015]
7. Hassan Y, Anees A, Peer JA, Yadav M. Three Cases of Appendiceal Mucocele: From Diagnosis to Management. Saudi J Med Med Sci. 2022;10(3):276-80. [DOI:10.4103/sjmms.sjmms_646_21]
8. Khemir A, Ben Brahim E. Appendiceal mucocele. Ann Pathol. 2020;40(6):495. [DOI:10.1016/j.annpat.2020.08.002]
9. Válek VJ, Bartušek D, Svoboda M, Válek V, Procházka V. Appendiceal mucocele - a

radiologists view. Rozhl Chir. 2021;100(6): 266-70. [DOI:10.33699/PIS.2021.100.6.266-270]

10. Ayadi C, Naggar A, Andour H, Zahrae Chraa F, Jerguigue H, Latib R, et al. Appendiceal mucocele with pseudomyxoma peritonei mimicking ovarian tumor with peritoneal carcinomatosis. Radiol Case Rep. 2022;17(9): 3000-4. [DOI:10.1016/j.radcr.2022.05.028]
11. Şentürk M, Yavuz Y, Alkan S, Kafadar MT. The Investigation of 14 Appendiceal Mucocele Cases Encountered in 4850 Appendectomy Patients. J Gastrointest Cancer. 2021;52(2): 701-5. [DOI:10.1007/s12029-020-00462-4]
12. Singh MP. A general overview of mucocele of appendix. J Family Med Prim Care. 2020; 9(12):5867-71. [DOI:10.4103/jfmpc.jfmpc_1547_20]
13. Klos D, Riško J, Hanuliak J, Loveček M, Mohelníková-Duchoňová B, Lemstrová R, et al. Appendiceal tumors and pseudomyxoma peritonei: current recommendations for clinical practice. Rozhl Chir. 2023;102(1):5-10.
14. Sugarbaker PH, Chang D. Lymph node positive pseudomyxoma peritonei. Eur J Surg Oncol. 2022;48(12):2369-77. [DOI:10.1016/j.ejso.2022.07.018]
15. Charalambous C, Charalambous T, Nikitaras A, Christodoulou P. Superinfection of an Obstructive Appendiceal Mucocele: A Case Report. Cureus. 2022;14(4):e23974. [DOI:10.7759/cureus.23974]
16. Hunsaker JC, Aquino R, Wright B, Kobes P, Kennedy A, Dunn D. Review of appendicitis: routine, complicated, and mimics. Emerg Radiol. 2023;30(1):107-17. [DOI:10.1007/s10140-022-02098-2]
17. Gao J, Chu Z, Chen J, Zheng Y, Huang X, Hu K. Retrospective analysis of 9 cases of appendiceal mucocele in 3,071 cases of appendicitis. Biomed Rep. 2022;17(1):55. [DOI:10.3892/br.2022.1538]
18. Nasif HA, Salloum OH, Al-Atrash SI, Makhlouf TZ, Al-Fallah O, Salhab R. Type IV appendiceal intussusception with mucocele and acute appendicitis: a rare case and diagnostic challenge. J Surg Case Rep. 2025;2025(5): rjaf282. [DOI:10.1093/jscr/rjaf282]
19. Alakeel A, Mubarah A, Alshehri M, Alsannaa F. Incidental detection of appendiceal mucocele during colonoscopy: A case report. Int J Surg Case Rep. 2025;132:111488. [DOI:10.1016/j.ijscr.2025.111488]
20. Le Donne ME, Herman M. Appendiceal Mucocele Presenting as a Cecal Bulge on Surveillance Colonoscopy. Cureus. 2024; 16(9):e69283. [DOI:10.7759/cureus.69283]
21. Reddy S, Tote D, Zade A, Gopalan V, Bikkumalla S. Silent but Significant: A Case Report of Appendiceal Mucocele. Cureus. 2024;16(8):e66067. [DOI:10.7759/cureus.66067]
22. Kim HS, Kim HG, Yang SY, Han YD, Hur H, Min BS, et al. Single-incision laparoscopic surgery compared to conventional laparoscopic surgery for appendiceal mucocele: a series of 116 patients. Surg Endosc. 2022;36(1):244-51. [DOI:10.1007/s00464-020-08263-3]
23. Kaneko M, Kawai K, Nozawa H, Hata K, Tanaka T, Nishikawa T, et al. Utility of computed tomography and (18) F-fluorodeoxyglucose with positron emission tomography/computed tomography for distinguishing appendiceal mucocele caused by mucinous adenocarcinoma from other pathologies. Colorectal Dis. 2020;22(12):1984-90. [DOI:10.1111/codi.15308]

How to Cite This Article:

Sohrani Y, Mohammadivahedi F, Mohammadi Sardoo H, Sadr S, Fakhrealizadeh F, Afsharzarandi A, et al. A Case Report of Appendiceal Mucocele: Clinical Presentation and Surgical Considerations. J Adv Med Biomed Res. 2025;33(159):335-40.

Download citation:
BibTeX | RIS | EndNote | Medlars | ProCite | Reference Manager | RefWorks

Send citation to:
Mendeley Zotero RefWorks