

A Good Surprise of a Radiological Appendicular Mucocele: Case Report

Uma Boa Surpresa de um Mucocele Apendicular Radiológico: Caso Clínico

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Abstract

This case report presents a 42-year-old female patient with chronic right lower abdominal quadrant pain, extending to the mid-inguinal region, persisting for two years. Her medical history included right-sided kidney stones and treated atrial fibrillation. Family history included breast cancer on her mother's side. Comprehensive clinical evaluation revealed persistent abdominal pain without physical signs of tenderness or irritation.

Imaging tests initially suggested an appendicular mucocele but lacked definitive confirmation. Subsequent computed tomography scans and laboratory tests indicated a peritoneal inclusion cyst, presenting diagnostic challenges. After multidisciplinary consultation, surgical excision was recommended. Laparoscopy revealed a peritoneal cyst intimately associated with the ileocecal appendix, leading to their simultaneous removal. Pathological examination confirmed a benign mesenteric cyst.

This case highlights the diagnostic challenges posed by mesenteric cysts and appendiceal mucoceles, which share similar clinical and radiological presentations. Differential diagnosis requires a comprehensive approach involving patient history, physical examination, and imaging. Mesenteric cysts typically necessitate complete surgical excision, while appendiceal mucoceles require appendectomy, considering the potential for malignancy. In this case, initial suspicion of an appendiceal mucocele led to simultaneous resection of the ileocecal appendix and cyst during laparoscopy, with subsequent pathology confirming a benign mesenteric cyst and normal appendix. Early diagnosis and proper management of mesenteric cysts are vital for optimizing patient outcomes and quality of life.

Resumo

Este artigo reporta um caso clínico de uma doente do sexo feminino, 42 anos com dor crónica no quadrante abdominal inferior direito, irradiada para a região média-inguinal, persistindo por dois anos. A sua história médica passada incluía litíase renal direita e fibrilação atrial tratada. História familiar de cancro da mama no lado materno. Uma avaliação clínica abrangente revelou dor abdominal persistente sem sinais físicos de dor ou irritação.

Exames de imagem inicialmente sugeriram um mucocele apendicular, mas não confirmaram o diagnóstico de forma definitiva. Exames subsequentes de tomografia e análises laboratoriais indicaram a presença de um quisto de inclusão peritoneal. Após consulta multidisciplinar, a excisão cirúrgica foi recomendada. A laparoscopia revelou um quisto peritoneal intimamente associado ao apêndice ileocecal, levando à remoção simultânea de ambos. O exame patológico confirmou a natureza benigna de um quisto mesentérico.

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Este caso destaca os desafios diagnósticos apresentados por quistos mesentéricos e mucocelos apendiculares, que compartilham apresentações clínicas e radiológicas semelhantes. O diagnóstico diferencial requer uma abordagem abrangente envolvendo história completa do paciente, exame físico e exames de imagem. Quistos mesentéricos geralmente requerem excisão cirúrgica completa, enquanto mucocelos apendiculares envolvem apendicectomia, considerando o potencial de malignidade. Neste caso, a suspeita inicial de um mucocele apendicular levou à remoção simultânea do apêndice ileocecal e do quisto durante a laparoscopia, com confirmação patológica subsequente de um quisto mesentérico benigno e apêndice normal. O diagnóstico precoce e o tratamento adequado são vitais para otimizar os resultados do paciente e sua qualidade de vida.

Keywords: Mesenteric Cyst/diagnosis; Mesenteric Cyst/surgery; Mucocele/diagnosis

Palavras-chave: Quisto Mesentérico/cirurgia; Quisto Mesentérico/diagnóstico; Mucocele/diagnóstico

Introduction

Appendectomy is considered the most common emergency surgical operation performed worldwide.¹ Although acute appendicitis is the predominant underlying cause behind this procedure, many other appendicular diseases have been recognized.² Appendicular cysts, although uncommon, present intriguing challenges in the field of abdominal pathology. One of the defining characteristics of appendicular cysts is their diagnostic complexity. They often share clinical symptoms with various abdominal conditions, making it challenging to differentiate them based solely on clinical presentation. Radiological imaging, such as ultrasound, computed tomography (CT) scans, or magnetic resonance imaging (MRI), plays a pivotal role in identifying these cysts. However, even with advanced imaging, a definitive diagnosis may remain elusive.

A simple benign cyst, also known as an appendicular cyst, is a non-malignant cystic structure originating from the appendix. It can contain various fluids, including clear serous fluid, pus, or mucus. The clinical significance of appendicular cysts lies in their potential to cause abdominal pain and discomfort. In some cases, they may remain asymptomatic, while in others, they can lead to severe complications, such as rupture or infection. Thus, understanding their clinical relevance is crucial for timely intervention and appropriate management.

Appendiceal mucocele is a rare disease with an incidence of 0.2%-0.7% of all appendectomy specimens.³ It was first described in 1842 by Rokitansky and characterized by the dilation of the appendix lumen with mucus accumulation.^{4,5} It is characterized by the accumulation of mucus within the appendix, and while most mucocelas are benign, they can, in some cases, be associated with mucinous tumours, which have the potential for malignancy. These tumours can include adenocarcinomas or other malignant neoplasms.

The primary management strategy for appendicular cysts involves surgical intervention. The extent of surgery varies depending on the size and characteristics of the cyst. In some

cases, a laparoscopic approach may be suitable, while others may necessitate open surgery to ensure complete removal and minimize the risk of complications. Inadequate treatment of an appendiceal mucocele may cause its advancement into pseudomyxoma peritonei, a condition resulting from the release of epithelial cells into the peritoneal cavity.⁶

Appendicular cysts represent a unique area of interest within abdominal pathology. Their diagnostic intricacies, clinical implications, and the surgical approach required for their management underscore the importance of thorough understanding and appropriate intervention in cases where they are encountered.

Case Report

We report a case of a 42-year-old female patient with a two years-long pain in the right lower abdominal quadrant.

The patient had a history of right-sided kidney stones treated with percutaneous surgery and underwent ablation for atrial fibrillation (AF). Additionally, there is a family history of breast cancer in three members on the maternal side. The patient was not taking any medications and had no known medication allergies or intolerances.

The patient was evaluated in November 2021 reporting chronic pain in the right lower quadrant (RLQ) irradiating to the mid-inguinal region (MID) for the past 2 years. The pain was not relieved by any factor or medication. On physical examination, the patient was in good overall health and nutrition, with hydrated mucous membranes. The abdomen was soft and depressible upon deep palpation, with no signs of tenderness or irritation.

Before our evaluation, the patient performed two imagological exams because of these complaints:

- Ultrasound (March 2021): hypoechoic formation, approximately 6x2.9 cm in size, located retroperitoneally anterior

to the psoas muscle in the right flank, consistent with a cystic structure was mentioned.

- Magnetic resonance image (August 2021): revealed a tubular image originating from the cecum, displaying hypersignal in T2 without diffusion restriction or abnormal contrast

uptake. The dimensions were measured at 47x19x55 mm in anteroposterior and longitudinal diameters. The imaging characteristics were compatible with an appendicular mucocele, with no suggestive signs of malignant transformation (Fig. 1).

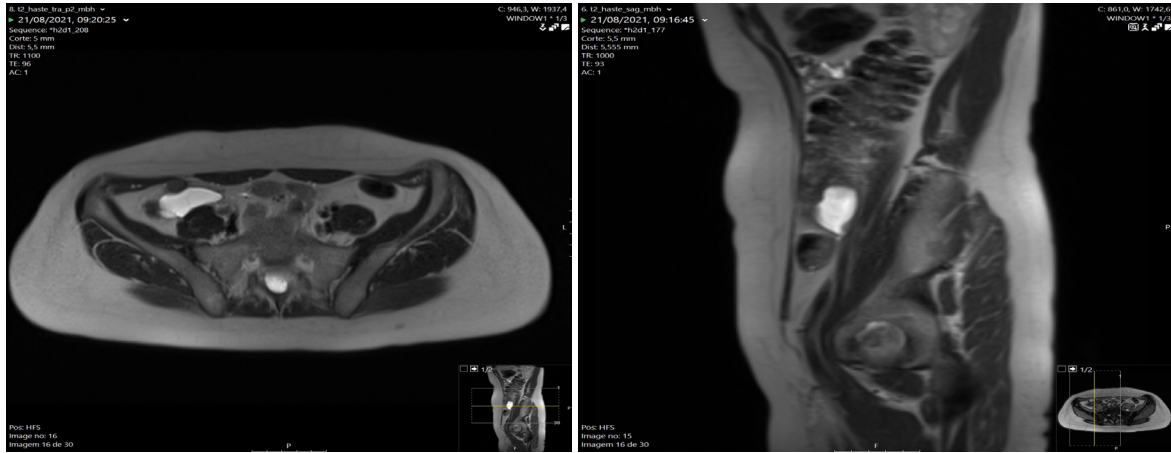


Figure 1. Appendicular mucocele in MRI

A CT scan and laboratory tests were collected. The blood tests were normal, and the CT scan revealed: "In the right iliac fossa, anterior to the external iliac vessels, a fluid collection with a maximum calibre of 39 mm was seen on the axial plane, near the cecum. However, it did not appear to be dependent on

this structure. The possibility of a peritoneal inclusion cyst was considered, but due to the inability to definitively identify the ileocecal appendix, an appendicular mucocele could not be entirely ruled out" (Fig. 2).



Figure 2. CT scan reporting a possible peritoneal inclusion cyst, but with no secure rule out of a appendicular mucocele

After a multidisciplinary discussion, we decided to propose surgical excision. The patient consented to undergo diagnostic laparoscopy, during which an apparent simple peritoneal cyst was found in very intimate contact with the ileocecal appendix. The laparoscopic *en bloc* excision with appendectomy was successfully completed by laparoscopy (Fig. 3).

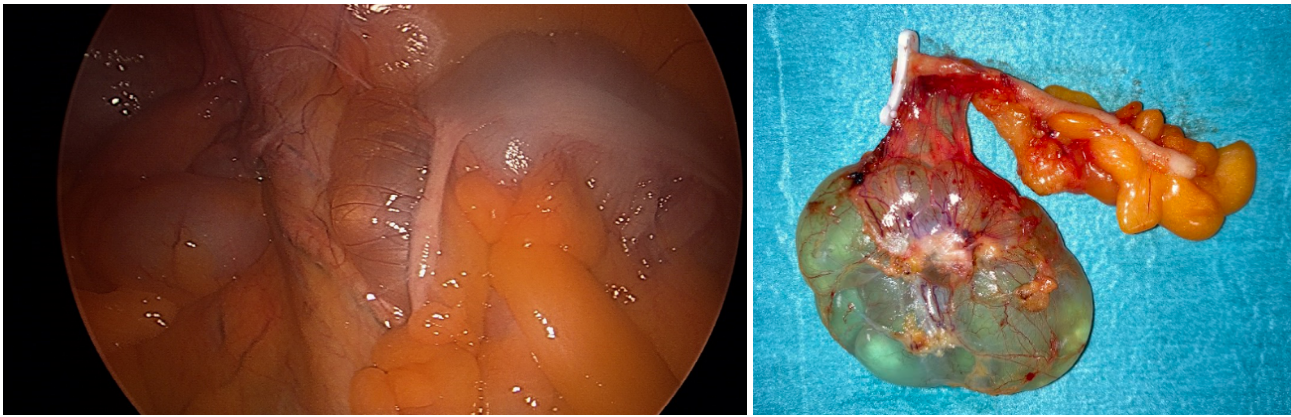


Figure 3. Laparoscopic view and the *in bloc* appendicular and cyst excision specimen

The pathology report revealed a normal appendectomy specimen measuring 5.5 cm in length. The serosa of the appendix appeared smooth, and the lumen was completely blocked. Near the proximal end of the appendix, a multiloculated cystic formation measuring 5.5 cm in its largest dimension was identified. The content of the cyst appeared serous and translucent. Microscopic examination showed that the cyst had a mesothelial lining without any signs of atypia or malignancy, indicating a benign nature.

The patient was discharged same day of the surgery, with no reported complications. The abdominal pain was solved with no recurrence reported until June 2023.

Discussion

Mesenteric cysts and appendiceal mucoceles are distinct intra-abdominal conditions with similar clinical presentations, posing challenges in their differential diagnosis. There are four known histological types of appendiceal mucocele: retention cysts, cystadenomas, cystadenocarcinomas, and mucosal hyperplasia.⁶ Both entities can manifest as cystic masses in the abdomen, leading to overlapping radiological findings. Mesenteric cysts arise from the mesentery and may be true cysts or pseudocysts, while appendiceal mucoceles result from abnormal mucus accumulation in the appendix, with malignant potential. Radiological investigations, such as ultrasonography, computed tomography (CT), and magnetic resonance imaging (MRI), play a crucial role in visualizing the cystic lesions and their relationship with adjacent structures. However, despite similarities in imaging features, a comprehensive evaluation, including patient history and physical examination, is essential to differentiate between these conditions and define a treatment plan.

The differential outcomes for mesenteric cysts and appendiceal mucoceles depend on their distinct pathologies. The diagnosis of appendiceal mucocele preoperatively is challenging. Abdominal ultrasonography (US) is usually to be the first-line

diagnostic method in any patient presenting with abdominal pain. In the case of mucocele of the appendix, it can be distinguished between benign and malignant mucoceles and usually shows a well-encapsulated cystic lesion containing onion skin-like layers with variable echogenicity.⁷ Complete surgical excision is the preferred treatment for symptomatic or large cysts but the best surgical approach is controversial, and laparotomy has been recommended by many authors to avoid rupture of the mucocele and seeding of trocar sites.⁸ However, laparoscopic surgery provides the advantages of good exposure and evaluation of the entire abdominal cavity, as well as faster recovery with the avoidance of a large incision and a better cosmetic result.⁹ If a laparoscopic approach is adopted, care must be taken intraoperatively not to cause content spillage leading to the formation of pseudomyxoma peritonei.¹⁰

In the reported case, the suspected mucocele demonstrated a closely adherent relationship between the cyst and the ileocecal appendix, necessitating *en bloc* resection of both structures during laparoscopy to ensure complete excision of the lesion with intact margins. As the last CT scan indicated and our intra-operative assessment showed, the lesion was definitively diagnosed as a benign mesenteric cyst in the pathological exam, and the normalcy of the appendix was proven.

Conclusion

Mesenteric cysts are uncommon intra-abdominal anomalies that warrant careful consideration and management. Early diagnosis and appropriate treatment, often through surgical excision, are essential to optimize patient outcomes and quality of life.

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JPP: Article writing

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