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Abbreviated Key Title: MedPeer

ISSN : 3066-2737

homepage: <https://www.medpeerpublishers.com>

Postoperative Peritoneal Inclusion Cyst in a Postmenopausal Patient: A Case Report

DOI: 10.70780/medpeer.000QGXE

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ABSTRACT

Introduction

Peritoneal inclusion cysts are benign postoperative fluid collections associated with intraperitoneal adhesions.

They may mimic recurrent malignancy, particularly in oncological patients.

We report an unusual case occurring after surgery for endometrial cancer.

Case Presentation

A 61-year-old woman developed a large pelvic fluid collection three months after surgery for endometrial cancer.

MRI showed a thin-walled cystic lesion without enhancement or diffusion restriction.

Despite three drainages, the collection repeatedly recurred, with negative cytology and sterile cultures.

Discussion

MRI was essential for characterizing the lesion and excluding malignant recurrence.

Drainage provided temporary relief but was followed by recurrent fluid accumulation.

This highlights the limited efficacy of aspiration alone in recurrent peritoneal inclusion cysts.

Conclusion

Peritoneal inclusion cysts should be considered in postoperative pelvic collections, including in postmenopausal women.

MRI plays a key role in distinguishing them from recurrent malignancy.

Accurate diagnosis may avoid unnecessary surgery and allow continuation of oncological treatment.

KEYWORDS

Peritoneal inclusion cyst; Peritoneal pseudocyst; Endometrial neoplasms; Magnetic resonance imaging; Postoperative complications; Drainage

MAIN ARTICLE

INTRODUCTION

A peritoneal inclusion cyst is a benign fluid collection trapped between intraperitoneal adhesions, most commonly following abdominopelvic surgery, endometriosis, infection, or inflammation [1–4]. Its incidence remains unknown, and its radiological appearance may mimic an ovarian tumor, postoperative complication, or peritoneal recurrence. Which imaging findings allow a postoperative peritoneal inclusion cyst to be differentiated from recurrent malignancy in a postmenopausal patient?

We present a case of a patient presenting a peritoneal inclusion cyst following pelvic surgery.

CASE PRESENTATION

A 61-year-old postmenopausal woman presented with a one-year history of postmenopausal bleeding and pelvic pain. Pelvic ultrasonography demonstrated diffuse endometrial thickening, and pelvic magnetic resonance imaging (MRI) suggested an endometrial polyp. Results of the initial biopsy was in favor of **endometrial polyp with complex hyperplasia and atypia**

She subsequently underwent a total hysterectomy. Histopathological examination revealed grade 1 endometrioid adenocarcinoma with deep myometrial invasion exceeding 50%.

Molecular biology revealed POLE non pathogenic mutation , MMR proficient , P53 abnormal

Staging thoracoabdominopelvic computed tomography (CT) showed no locoregional or distant metastases.

The patient subsequently underwent bilateral salpingo-oophorectomy with pelvic lymph node dissection. Histopathological examination demonstrated no residual tumor or lymph node metastases.

Following multidisciplinary team discussion, adjuvant pelvic radiochemotherapy and adjuvant chemotherapy was recommended.

A large pelvic fluid collection was incidentally identified on the CT simulation performed for radiotherapy planning. Given the patient's oncological history, a postoperative complication or recurrent disease was initially considered, prompting further evaluation with pelvic MRI. Pelvic MRI demonstrated a large, well-defined cystic collection with homogeneous fluid signal intensity, showing low signal intensity on T1-weighted images and marked hyperintensity on T2-weighted images. The lesion had a thin wall containing a delicate internal septum and conformed to the contours of the pelvic cavity, extending superiorly to the umbilicus and inferiorly to the lower rectum (**Figure 1**). No diffusion restriction was observed, and neither the cyst wall nor the septum enhanced following gadolinium administration. No mural nodules or solid enhancing components were identified. These findings strongly suggested a postoperative peritoneal inclusion cyst.

Because of recurrent fluid reaccumulation, the patient underwent three image-guided percutaneous drainage procedures. During the final procedure, approximately 1.5 L of clear serous fluid was aspirated. Cytological examination demonstrated inflammatory cells without malignant cells, and microbiological cultures remained sterile. The combined clinical, radiological, cytological, and microbiological findings supported the diagnosis of a postoperative peritoneal inclusion cyst. Following exclusion of recurrent disease, our patient underwent 4 cycles of adjuvant chemotherapy (paclitaxel and carboplatin) and adjuvant pelvic radiochemotherapy proceeded as planned.

DISCUSSION

Peritoneal inclusion cysts occur predominantly in women of reproductive age with previous abdominopelvic surgery or inflammation [1,2,4]. Vallerie et al. reported an interval of 6 months to 20 years between surgery and diagnosis, whereas Pereira described a lesion detected six years after pelvic surgery [1,3]. In contrast, our patient was postmenopausal and developed the collection approximately three months after surgery. Abdominopelvic pain and a palpable mass are the most frequent manifestations, but approximately 10% of lesions are incidentally detected, as in our patient [1,4].

Imaging is essential for diagnosis. Ultrasonography typically demonstrates a thin-walled, uni- or multilocular collection surrounding or adjacent to a normal ovary, sometimes producing the "spider in a web" appearance [1,4]. CT better defines the extent of the collection and characteristically shows a fluid-density lesion conforming to and displacing adjacent pelvic structures without invasion. Ho-Fung et al. and Pereira emphasized the value of MRI for identifying the ovaries, assessing lesion extent, and excluding enhancing solid components

[3,4]. In our case, homogeneous low T1 and high T2 signal intensity, a thin non-enhancing wall and septum, and the absence of diffusion restriction, mural nodules, or solid components strongly supported a benign inclusion cyst rather than recurrent malignancy.

Management depends on symptoms, recurrence, and diagnostic certainty. Observation is appropriate for asymptomatic lesions with typical benign imaging features, as illustrated by Pereira, whose patient remained recurrence-free four months after spontaneous cyst rupture [3]. Aspiration provides rapid decompression and allows cytological analysis, but recurrence is common. Ho-Fung et al. reported symptomatic improvement after drainage, although a residual collection persisted at one month [4]. Natkanska et al. described a severe recurrent form requiring repeated aspirations of 2–4.8 L and subsequent surgery [2]. Similarly, our patient required three drainage procedures, demonstrating the limited durability of aspiration alone.

Sclerotherapy may reduce recurrence after drainage; however, the favorable results summarized by Vallerie et al. were derived from small series with limited follow-up [1]. Surgery provides definitive tissue diagnosis and is reserved for persistent symptoms, repeated recurrence, or suspected malignancy, but may cause further adhesions. Vallerie et al. and Natkanska et al. reported recurrence rates of up to 30–50% after surgery [1,2], whereas Karpathiou et al. found reoperation for recurrence in only 2.5% of their histologically confirmed mesothelial cysts [5]. This discrepancy probably reflects differences in terminology, lesion selection, and follow-up, and confirms the absence of a standardized therapeutic approach.

CONCLUSION

Postoperative peritoneal inclusion cysts should be considered when a newly developed pelvic fluid collection is detected after pelvic surgery, even in postmenopausal patients with a history of malignancy. CT defines the extent and anatomical relationships of the collection, while MRI helps distinguish a benign fluid collection from infection or recurrent tumor. Recognition of the characteristic imaging features, supported by sterile fluid cultures and negative cytology, may prevent unnecessary surgery and allow the planned oncological treatment to proceed.

FIGURES:

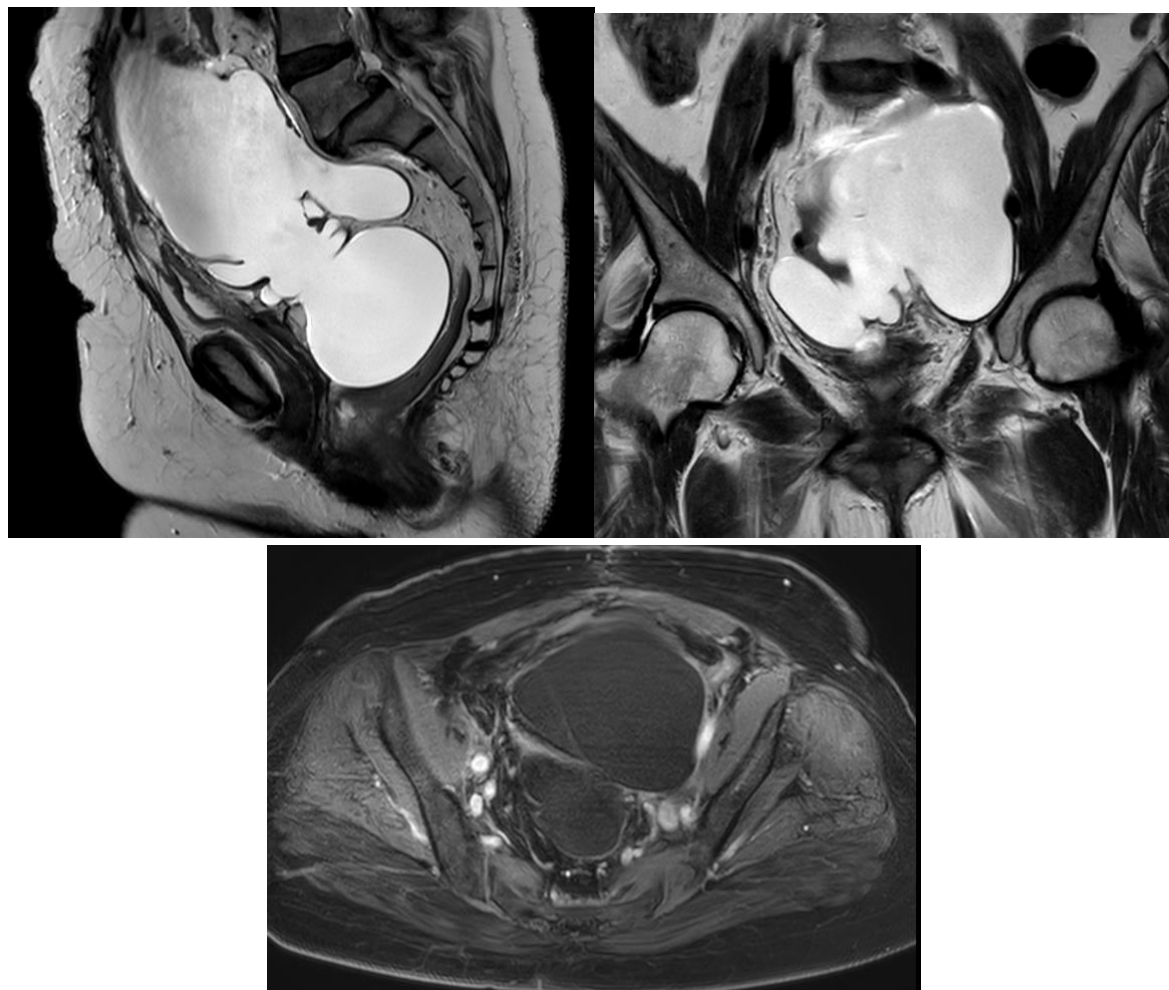


Figure 1. Pelvic magnetic resonance imaging demonstrating a postoperative peritoneal inclusion cyst. **(A)** Coronal T2-weighted image and **(B)** sagittal T2-weighted image show a large homogeneous hyperintense pelvic cystic collection conforming to the contours of the pelvic cavity, extending superiorly to the level of the umbilicus and inferiorly to the lower rectum. **(C)** Axial contrast-enhanced T1-weighted image demonstrates a thin non-enhancing wall with a delicate internal septation and no mural nodules or solid enhancing components.

ACKNOWLEDGEMENTS

None.

DECLARATIONS

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

Conflicts of interest: The authors declare no conflicts of interest.

Ethics approval: Ethical approval was not required for this single-patient case report in accordance with the institutional policy of the National Institute of Oncology, Rabat.

Informed consent: Written informed consent was obtained from the patient for publication of this case report and the accompanying images.

Author contributions:

Mehdi Farina: conceptualization, data collection, writing – original draft.

Yahya Bousbaa: conceptualization, data collection, writing – original draft.

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Hassouni: writing – review and editing.

Data availability: All data relevant to this case are included in the article. Further information is available from the corresponding author upon reasonable request.

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