RESEARCH PAPER

A Giant Ovarian Mucinous Cystadenoma Masquerading as a Peritoneal Inclusion Cyst in a Post-Hysterectomy Patient: A Case Report

[1]Dr. Preethika Murugesan, [*2]Dr. Karthikeyan, [3]Dr. Kambala Prasanna Kumar, [4]Dr. Sasikumar P, [5]Dr. Balakrishnan

[1]Junior resident, Department of General surgery, Sree Balaji Medical College, Chennai Email: preethikamapkg@gmail.com
[*2]Assosiate Professor, Department of General surgery, Sree Balaji Medical College, Chennai Email: drsk1287@gmail.com
[3]Assistant Professor, Department of General surgery, Sree Balaji Medical College, Chennai Email: prasannakumarkambala@gmail.com
[4]Professor, Department of General surgery, Sree Balaji Medical College, Chennai Email: psk_66in@yahoo.com
[5]Professor, Department of General surgery, Sree Balaji Medical College, Chennai Email: balakrishnansubramani@gmail.com

ABSTRACT

Introduction: Large abdominopelvic cystic masses in post-hysterectomy patients present significant diagnostic challenges due to altered pelvic anatomy and overlapping radiological features. Peritoneal inclusion cysts may closely mimic ovarian neoplasms on imaging, leading to diagnostic uncertainty.

Presentation of Case: A 55-year-old woman, eight years post vaginal hysterectomy, presented with progressive abdominal distension and abdominal discomfort. Clinical examination revealed a large cystic mass occupying the lower and central abdomen. Routine laboratory investigations and tumor markers, including CA-125 and CEA, were within normal limits. Magnetic resonance imaging suggested a peritoneal inclusion cyst, and both ovaries could not be clearly visualized. Diagnostic laparoscopy failed to identify the origin of the lesion, necessitating conversion to exploratory laparotomy. A giant cystic mass arising from the left ovary was excised in toto, along with right salpingo-oophorectomy. Histopathological examination confirmed benign mucinous cystadenoma of the left ovary.

Discussion: Giant ovarian mucinous cystadenomas may lose their typical adnexal appearance and present as diffuse abdominopelvic cystic masses, particularly in patients with prior pelvic surgery. Limitations of imaging modalities and distorted pelvic anatomy contribute to frequent misdiagnosis. This case emphasizes the importance of maintaining clinical suspicion and considering surgical exploration when radiological findings are inconclusive.

Conclusion: Ovarian mucinous cystadenomas should be considered in the differential diagnosis of large abdominopelvic cystic masses in post-hysterectomy patients. Timely surgical intervention remains essential for definitive diagnosis and effective management.

Keywords: Ovarian mucinous cystadenoma; Peritoneal inclusion cyst; Post-hysterectomy; Giant ovarian tumor; Diagnostic dilemma; Case report

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INTRODUCTION

Ovarian tumors constitute a significant proportion of gynecological pathologies encountered in clinical practice, with epithelial tumors representing the most common histological subtype. Among these, mucinous cystadenomas account for approximately 10–15% of all ovarian neoplasms and are predominantly benign in nature [2,3]. They are characterized by slow growth and may attain considerable size before becoming clinically apparent. Although most mucinous cystadenomas are diagnosed at an early stage, delayed presentation may result in giant abdominopelvic masses causing pressure symptoms and diagnostic difficulties.

Peritoneal inclusion cysts are benign, reactive fluid collections that develop secondary to peritoneal adhesions, commonly following pelvic surgery, endometriosis, pelvic inflammatory disease, or trauma [1]. These cysts are formed by entrapment of physiologic peritoneal fluid within fibrous adhesions surrounding the ovary. Radiologically, they typically appear as multiloculated cystic lesions encasing the adnexa and may closely resemble ovarian cystic tumors. Differentiation between peritoneal inclusion cysts and ovarian neoplasms is often challenging, particularly in patients with a history of prior pelvic surgery. In post-hysterectomy patients, altered pelvic anatomy and absence of uterine landmarks further complicate radiological interpretation. Displacement of pelvic organs, formation of adhesions, and distortion of normal anatomical planes may obscure the origin of abdominopelvic masses. Consequently, even advanced imaging modalities such as ultrasonography, computed tomography, and magnetic resonance imaging may fail to accurately localize the lesion or determine its true etiology. This may lead to misdiagnosis, inappropriate

*Author for Correspondence: drsk1287@gmail.com

preoperative planning, and delayed definitive management.

Magnetic resonance imaging is considered the preferred modality for characterization of complex adnexal masses due to its superior soft tissue contrast and multiplanar capability [3,6]. However, in cases of giant cystic lesions occupying the entire abdominopelvic cavity, MRI findings may be nonspecific. Loss of ovarian contour, compression of adjacent structures, and overlapping imaging features may result in erroneous interpretation, as demonstrated in cases where ovarian tumors are misdiagnosed as peritoneal inclusion cysts.

From a surgical perspective, accurate preoperative diagnosis is essential for determining the optimal operative approach and minimizing intraoperative complications. Minimally invasive procedures are preferred when feasible; however, in cases of large or indeterminate masses, diagnostic laparoscopy may be limited by restricted visualization and adhesions, necessitating conversion to laparotomy [7]. Surgical exploration remains the gold standard for definitive diagnosis in such complex presentations.

Although several reports have described peritoneal inclusion cysts and giant ovarian tumors individually, cases demonstrating diagnostic confusion between these two entities in post-hysterectomy patients remain relatively uncommon. Awareness of this potential pitfall is crucial for clinicians involved in the evaluation and management of abdominopelvic masses.

In this report, we present a rare case of a giant ovarian mucinous cystadenoma in a post-hysterectomy patient that was preoperatively misdiagnosed as a peritoneal inclusion cyst. This case highlights the limitations of radiological assessment, emphasizes the importance of comprehensive clinical evaluation, and underscores the role of timely surgical intervention in achieving accurate diagnosis and optimal patient outcomes.

Case Presentation

A 55-year-old woman presented to the outpatient department with complaints of intermittent, dull aching pain in the left iliac fossa for the past few months. The pain was insidious in onset, non-radiating, and not associated with bowel or bladder disturbances, vomiting, weight loss, or constitutional symptoms. She had noticed an abdominal lump following her hysterectomy eight years earlier but had not observed any significant increase in size until recently, when she developed pain prompting medical consultation.

She had no known comorbidities such as diabetes mellitus, hypertension, or cardiovascular disease. Her obstetric history was P1L1, with one full-term normal vaginal delivery. She had a normal menstrual history prior to hysterectomy. She had undergone vaginal hysterectomy eight years earlier for uterine fibroids and an open appendectomy approximately 30 years earlier. There was no significant family history of malignancy.

On general examination, the patient was conscious, oriented, and afebrile. Her vital parameters were stable. Systemic examination, including cardiovascular, respiratory, and neurological systems, was unremarkable.

Abdominal Examination

On inspection, the abdomen was uniformly distended with fullness of both flanks. No visible dilated veins, scars apart from previous surgical scars, or skin changes were noted. The umbilicus was centrally placed and not everted.

On palpation, a well-defined, non-tender, cystic mass measuring approximately 20 × 15 cm was felt occupying the epigastric, umbilical, right iliac, left iliac, and lumbar regions, extending into the pelvis. The mass was smooth in surface, ballotable, and had restricted mobility. No localized rise in temperature or overlying skin changes were present.

On percussion, the swelling was resonant, with dullness in dependent areas. Auscultation revealed normal bowel sounds. There was no evidence of ascites.Pelvic examination was unremarkable, with no palpable adnexal masses per vaginum due to the large size of the lesion.

Laboratory Investigations

Routine hematological and biochemical investigations were within normal limits. Tumor markers including cancer antigen 125 (CA-125) and carcinoembryonic antigen (CEA) were within normal reference ranges.

Radiological Evaluation

Ultrasonography of the abdomen and pelvis revealed a large cystic mass occupying the abdominopelvic cavity; however, the lesion could not be adequately characterized due to its size. Further evaluation with magnetic resonance imaging was advised.

Magnetic resonance imaging of the abdomen and pelvis demonstrated a large, thin-walled, well-defined cystic lesion measuring approximately 22.5 × 13.5 × 22.3 cm (craniocaudal × anteroposterior × transverse) occupying the entire lower abdomen and pelvis, extending from the level of the L2 vertebra to S5 vertebra. The lesion appeared hypointense on T1-weighted images and hyperintense on T2-weighted images. There was no evidence of restricted diffusion, solid components, mural nodules, internal septations, or blooming on gradient echo sequences. Both ovaries could not be clearly visualized. These findings were suggestive of a benign peritoneal inclusion cyst.

Preoperative Assessment

Pre-anesthetic evaluation was performed, and the patient was classified as American Society of Anesthesiologists (ASA) physical status II. After obtaining informed consent, she was planned for diagnostic laparoscopy.

Surgical Procedure

Under aseptic precautions, combined epidural and general anesthesia was administered. The patient was positioned supine, and the abdomen was painted and draped. Diagnostic laparoscopy was initiated using Palmer's point with a 5-mm port and a 10-mm epigastric

port placed below the xiphisternum. Intraoperatively, a huge cystic structure occupying the peritoneal cavity was visualized. The cyst wall was seen; however, the site of origin could not be clearly identified due to its massive size and restricted working space. Further laparoscopic dissection was not feasible. Hence, the procedure was converted to exploratory midline laparotomy.

On opening the abdomen in layers, a thin-walled, fluid-filled cyst measuring approximately 20 × 15 × 10 cm was identified arising from the left ovary. The mass was attached to the pelvic wall by the left infundibulopelvic ligament and occupied the left iliac, right iliac, umbilical, left lumbar, right lumbar, and epigastric regions.

The left infundibulopelvic ligament and ovarian vessels were isolated, clamped, ligated, and transfixed. The cyst, weighing approximately 4.2 kg, was removed en toto without spillage and sent for histopathological examination. The right ovary was identified and found to be atrophied. Right salpingo-oophorectomy was performed, and the specimen was sent for histopathology.

The urinary bladder was filled intraoperatively and inspected for integrity, and no leakage was noted. The peritoneal cavity was irrigated with normal saline, and meticulous hemostasis was achieved.

The abdomen was closed in layers using loop Ethilon for fascia, 2-0 Vicryl for subcutaneous tissue, and skin staples. A sterile compression dressing was applied.

Postoperative Course

The intraoperative and postoperative periods were uneventful. The patient tolerated the procedure well and had an uncomplicated recovery. Oral feeding was resumed gradually, and she was mobilized early. She was discharged on postoperative day five in stable condition.

Histopathological Examination

Gross examination of the left ovarian specimen revealed a cyst measuring 44 × 40 × 13 cm and weighing 4.3 kg. The external surface was smooth with congested vessels. Cut section showed a uniloculated cyst with a wall thickness of approximately 0.3 cm, filled with gelatinous material.

Microscopic examination of left ovary showed the cyst wall lined by ciliated columnar and mucinous epithelium with minimal fibrocollagenous stroma and few congested blood vessels. No atypia or malignancy was noted. These features were consistent with

Benign Seromucinous Cystadenoma.

Histopathological examination of the right ovary revealed normal ovarian tissue.

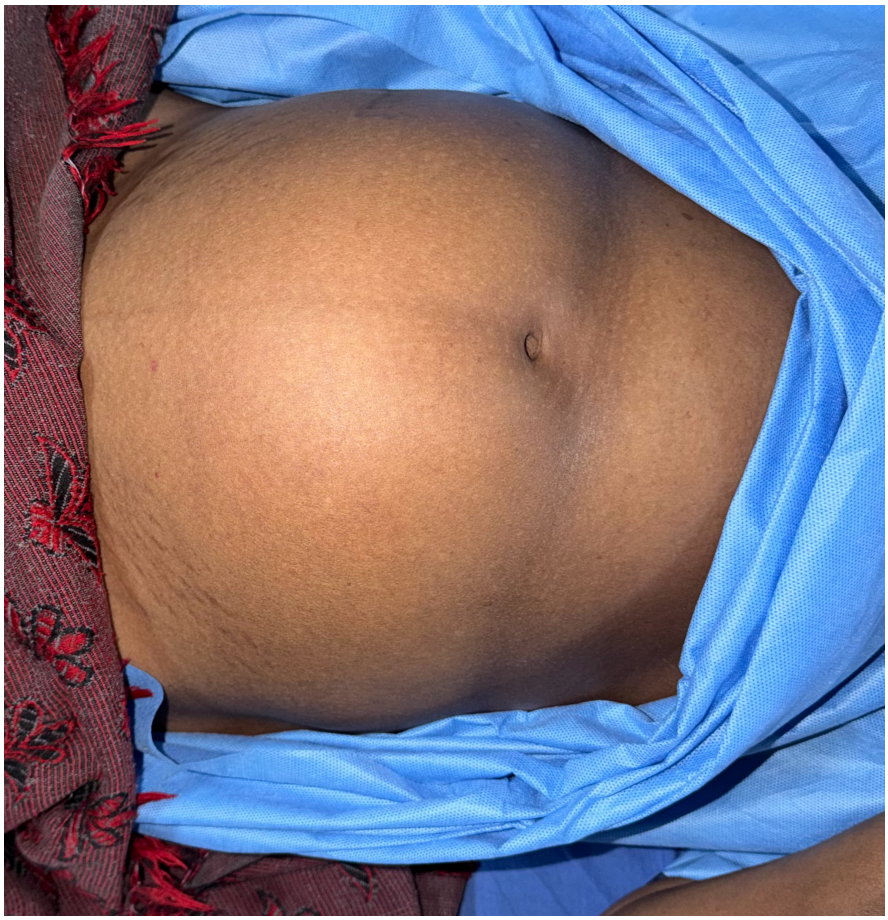

Figure 1. Preoperative Abdominal Photograph

Preoperative clinical photograph showing uniform abdominal distension with fullness of bilateral flanks due to a large underlying cystic mass extending from the epigastrium to the pelvis.

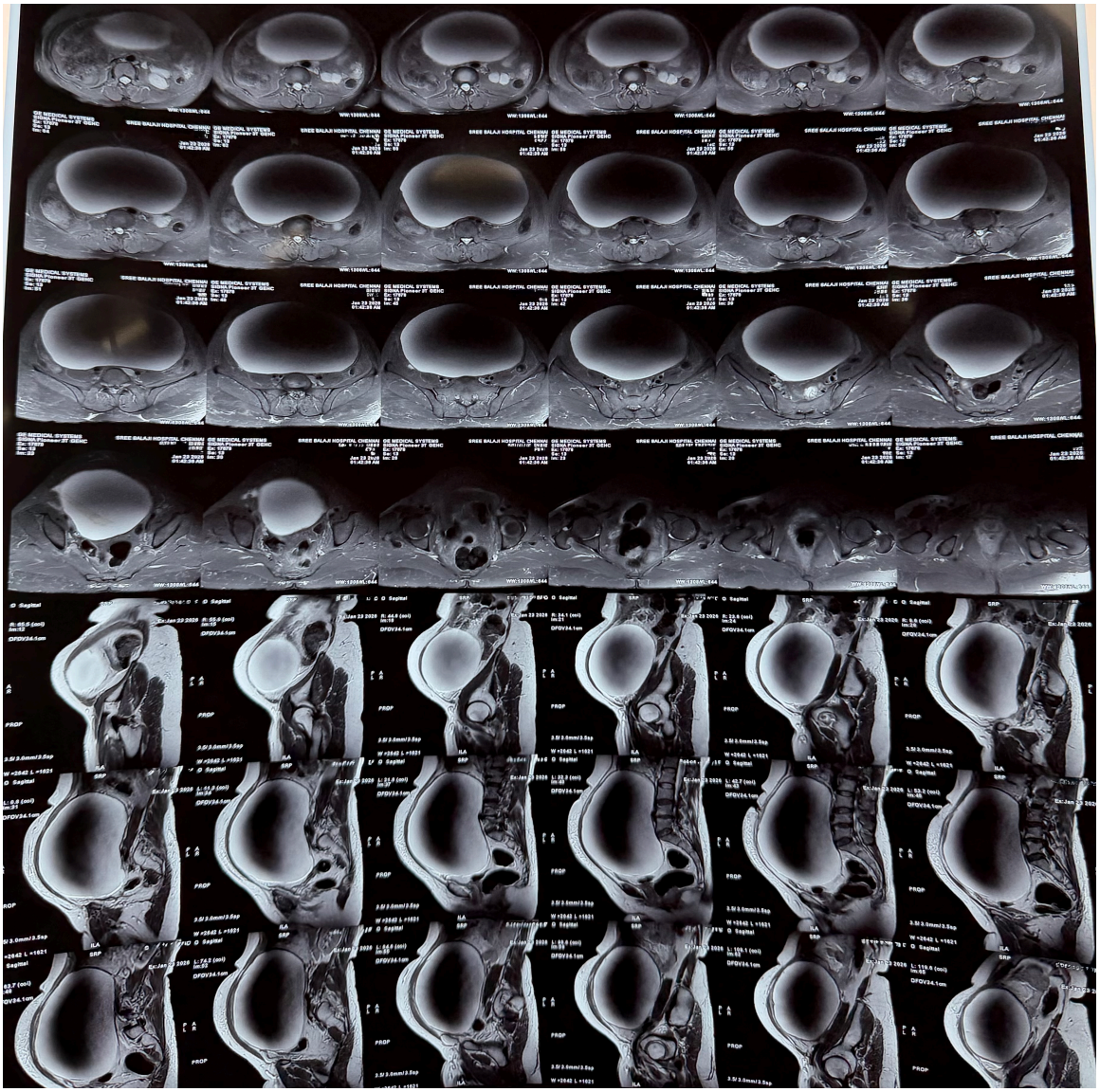

Figure 2. MRI Abdomen and Pelvis

T2-weighted magnetic resonance image showing a large, well-defined, thin-walled, hyperintense cystic lesion occupying the abdominopelvic cavity, extending from L2 to S5 vertebral levels, with no solid components or internal septations- suggestive of a benign peritoneal inclusion cyst.

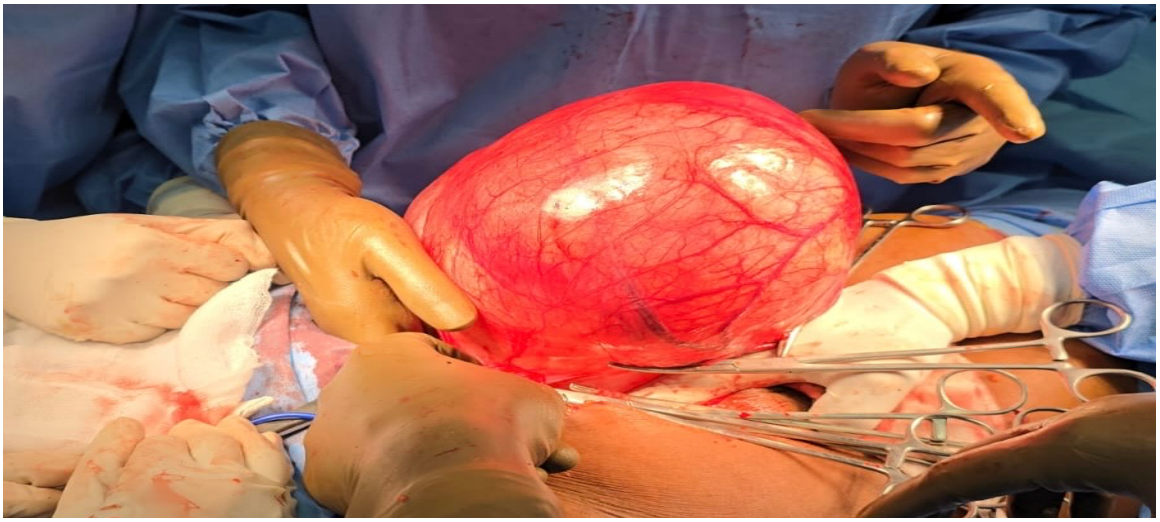

Figure 3. Intraoperative Photograph of the Cystic Mass

Intraoperative image demonstrating a giant, thin-walled cystic mass occupying the abdominopelvic cavity and arising from the left ovary following exploratory laparotomy.

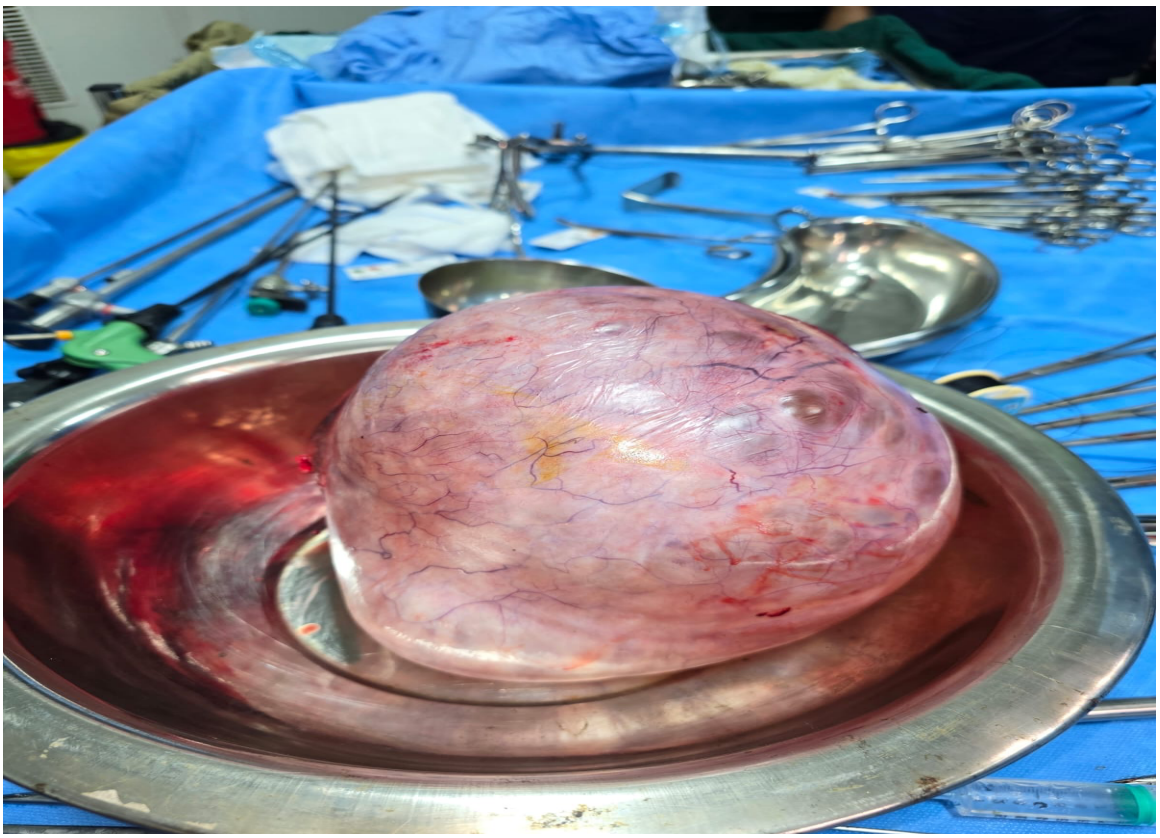

Figure 4. Excised Specimen

Gross specimen of the excised left ovarian cyst showing a large, smooth-surfaced, uniloculated cystic lesion removed en toto.

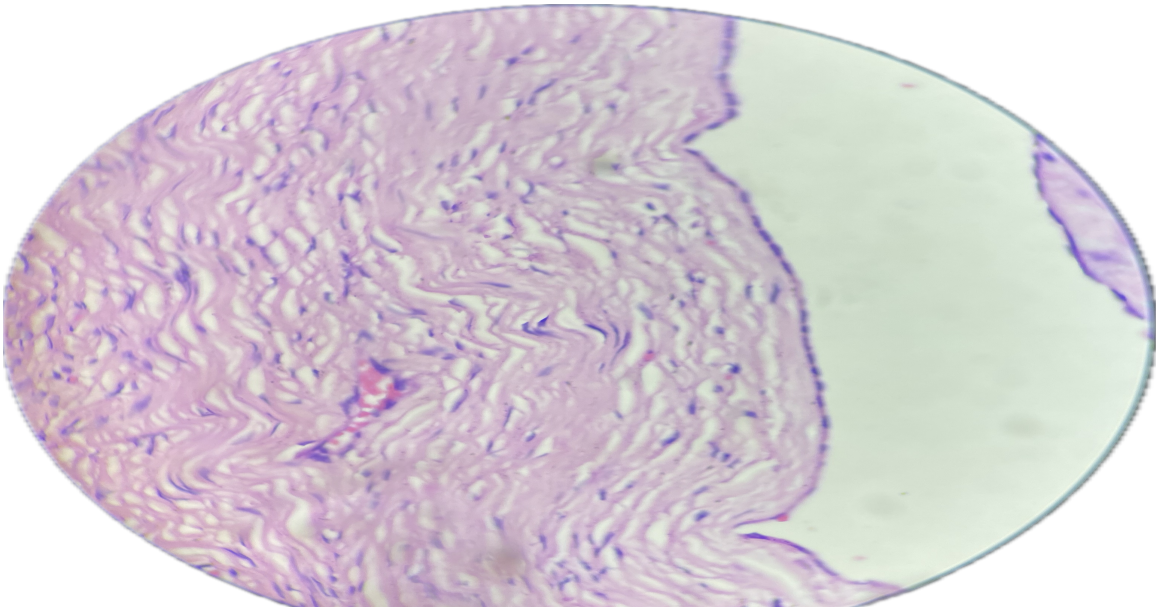

Figure 5. Histopathological Examination (H&E Stain)

Photomicrograph showing cyst wall lined by ciliated columnar and mucinous epithelium with minimal fibrocollagenous stroma, consistent with benign seromucinous cystadenoma.

Discussion

Ovarian mucinous cystadenomas are benign epithelial tumors that commonly occur in women between the third and fifth decades of life and account for approximately 10–15% of all ovarian neoplasms [2,3]. They are characterized by slow growth and may attain considerable size before becoming symptomatic. Giant mucinous cystadenomas, although uncommon in current clinical practice due to widespread availability of imaging, continue to be reported, particularly in resource-limited settings or in patients with delayed presentation.

Peritoneal inclusion cysts are benign reactive fluid collections that develop secondary to peritoneal adhesions following pelvic surgery, inflammation, or endometriosis. These cysts form when physiologic ovarian fluid becomes entrapped within fibrous adhesions, creating multiloculated cystic spaces surrounding the ovary. Radiologically, they typically appear as thin-walled, septated, fluid-filled structures that conform to surrounding anatomical spaces and often encase the ovary. However, in cases of large lesions, classical imaging features may be absent.

In post-hysterectomy patients, altered pelvic anatomy significantly complicates radiological interpretation. Loss of uterine landmarks, displacement of adnexal structures, and presence of postoperative adhesions may obscure the site of origin of abdominopelvic masses. In the present case, prior vaginal hysterectomy and appendectomy likely contributed to adhesion formation and distortion of normal anatomy, resulting in misinterpretation of the lesion as a peritoneal inclusion cyst [1].

Magnetic resonance imaging is considered the modality of choice for evaluation of complex adnexal masses owing to its superior soft tissue contrast and ability to characterize tissue composition however, giant lesions may lose typical features, leading to misinterpretation [3,5,6]. Typical MRI features of benign mucinous cystadenomas include multiloculated cystic lesions with variable signal intensity depending on mucin content, thin walls, and absence of solid components. Conversely, peritoneal inclusion cysts usually demonstrate fluid-filled collections with irregular contours surrounding normal ovarian tissue. However, in giant cystic masses occupying the entire abdominopelvic cavity, these distinguishing features may be lost. In our patient, the absence of solid components, septations, or restricted diffusion favored a benign diagnosis, but failed to accurately identify the ovarian origin.

Diagnostic laparoscopy is often the initial surgical approach for evaluation of indeterminate abdominopelvic masses, as it allows direct visualization and minimally invasive management. However, large cystic lesions may limit working space, compromise visualization, and increase the risk of inadvertent rupture. In the present case, laparoscopy was attempted but could not be continued due to the massive size of the lesion, necessitating conversion to laparotomy. This highlights the importance of individualized surgical planning and readiness for conversion in complex cases [4,7]

Complete surgical excision remains the definitive treatment for large ovarian cystic tumors. En bloc removal without spillage is essential to prevent chemical peritonitis, pseudomyxoma peritonei, and recurrence, particularly in mucinous lesions. In our patient, the cyst was removed intact, and no intraoperative spillage occurred, thereby minimizing postoperative complications. Prophylactic removal of the contralateral

atrophied ovary was also performed to reduce future risk of pathology.

Histopathological examination remains the gold standard for diagnosis [9,10]. In this case, microscopic findings of cyst lining by ciliated columnar and mucinous epithelium with minimal stromal proliferation confirmed the diagnosis of benign seromucinous cystadenoma. Absence of cellular atypia, mitotic activity, or invasion excluded borderline or malignant pathology.

This case emphasizes several important clinical lessons. First, giant ovarian tumors should remain an important differential diagnosis in post-hysterectomy patients presenting with large abdominopelvic cystic masses, even when imaging suggests peritoneal inclusion cysts. Second, radiological findings must always be interpreted in conjunction with clinical history and examination. Third, surgical exploration remains indispensable when diagnostic uncertainty persists.

Early recognition and timely intervention can prevent complications such as torsion, rupture, infection, pressure effects on adjacent organs, and malignant transformation. Multidisciplinary collaboration between surgeons, radiologists, and pathologists is crucial for optimal management of such complex presentations.

Conclusion

Giant ovarian mucinous cystadenomas can present as large abdominopelvic cystic masses and may closely mimic peritoneal inclusion cysts, particularly in post-hysterectomy patients with altered pelvic anatomy. Radiological evaluation, although valuable, may be inconclusive in such cases. Therefore, a high index of clinical suspicion and careful correlation of imaging with clinical findings are essential. When diagnostic uncertainty persists, timely surgical exploration remains the cornerstone for establishing definitive diagnosis and ensuring optimal patient outcomes. Complete excision without spillage is crucial to prevent complications and recurrence. This case highlights the importance of considering ovarian pathology in the differential diagnosis of large cystic abdominal masses in post-hysterectomy women.

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