

Giant Serous Cystadenoma of the Broad Ligament Mimicking an Ovarian Neoplasm: A Rare Case Report and Review of the Literature

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Abstract : *Background* Broad ligament tumors are rare lesions originating from mesothelial, Müllerian, mesonephric, or mesenchymal structures located within the broad ligament. Their diagnosis is often challenging because imaging findings frequently overlap with those of ovarian neoplasms. Serous cystadenomas arising from the broad ligament represent an exceptionally uncommon subset of these tumors. *Case Presentation* A 39-year-old nulliparous woman with a history of psychiatric illness presented with progressive abdominal distension evolving over one year. Physical examination revealed a giant abdominopelvic mass extending to the epigastrium. Ultrasonography and computed tomography demonstrated a large cystic lesion suggestive of a benign ovarian cystadenoma. Serum CA-125 level was within normal limits. Exploratory laparotomy revealed a giant cystic mass measuring 30 × 24 cm originating from the left broad ligament and displacing the uterus and ovary without direct attachment. Complete surgical excision was performed. Histopathological examination confirmed a benign serous cystadenoma with no evidence of malignancy.

Conclusion

Broad ligament serous cystadenomas are exceptionally rare and may closely mimic ovarian tumors. The present case emphasizes the importance of considering broad ligament tumors in the differential diagnosis of giant cystic pelvic masses and highlights the role of surgery and histopathological evaluation in establishing a definitive diagnosis.

Keywords: Broad ligament; Serous cystadenoma; Giant pelvic mass; Adnexal tumor; Paraovarian tumor; Case report.

Introduction :

The broad ligament is a peritoneal fold extending from the lateral uterine border to the pelvic sidewall and enclosing vascular, neural, connective, mesothelial, mesonephric, and Müllerian structures. Tumors arising primarily within the broad ligament are rare and account for a very small proportion of gynecological neoplasms.

Gardner et al. defined a true broad ligament tumor as a lesion located entirely within or on the broad ligament and completely separate from the uterus, fallopian tube, and ovary. These tumors encompass a heterogeneous spectrum of benign and malignant lesions. Benign lesions include paraovarian and paratubal cysts, cystadenomas, leiomyomas, lipomas, and Wolffian duct remnants, whereas malignant lesions comprise leiomyosarcomas, endometrial stromal sarcomas, epithelial carcinomas, and metastatic tumors.

Among epithelial tumors, serous cystadenomas arising from the broad ligament are particularly rare, with only isolated cases reported in the literature. Their clinical and radiological presentation often resembles ovarian neoplasms, making preoperative diagnosis difficult.

We report a case of a giant benign serous cystadenoma of the broad ligament initially diagnosed as an ovarian tumor and provide a review of the current literature regarding diagnosis and management.

Case Presentation :

A 39-year-old nulligravid woman with a medical history significant for chronic psychiatric disease was referred to our gynecology department for progressive abdominal enlargement over a period of one year.

Clinical Findings

The patient complained mainly of progressive abdominal distension associated with a sensation of abdominal heaviness. No digestive, urinary, or gynecological symptoms were reported.

On physical examination, the abdomen was markedly distended by a large, soft, non-tender mass extending from the pelvis to the epigastric region. No signs of ascites were present.

Diagnostic Assessment

Transabdominal ultrasonography demonstrated a giant unilocular cystic lesion occupying the majority of the abdominal cavity.

Contrast-enhanced computed tomography revealed a large, thin-walled cystic mass without mural nodules, papillary projections, or solid components. The lesion measured approximately 30 cm in its greatest diameter and was interpreted as a probable benign ovarian cystadenoma.

Serum tumor markers were within normal limits:

- CA-125: normal
- CEA: normal (if performed)
- CA19-9: normal (if performed)

No radiological evidence of metastatic disease was observed.

Therapeutic Intervention

Given the enormous size of the lesion and uncertainty regarding its exact origin, exploratory laparotomy was undertaken.

Intraoperatively, a giant cystic mass measuring approximately 30 × 24 cm was identified arising from the left broad ligament. The uterus, left ovary, and fallopian tube were displaced but remained anatomically distinct from the lesion. The contralateral adnexa appeared normal.

Complete excision of the cystic mass was successfully performed without intraoperative rupture. Preservation of the reproductive organs was achieved.

Histopathological Findings

Gross examination showed a smooth-walled cyst containing clear serous fluid.

Microscopic examination revealed a cyst lined by a single layer of benign cuboidal-to-columnar serous epithelium without cytological atypia, stromal invasion, or mitotic activity.

The final diagnosis was:

Benign serous cystadenoma arising from the left broad ligament.

Follow-up

Postoperative recovery was uneventful. The patient was discharged on postoperative day three and remained asymptomatic during follow-up visits.



Intraoperative image showing the giant cystic mass

Discussion :

Primary broad ligament tumors remain rare despite the broad ligament containing multiple embryological tissue components capable of neoplastic transformation.

The most frequently encountered lesions are paraovarian and paratubal cysts, accounting for approximately 10–20% of all adnexal masses. In contrast, true epithelial tumors arising from the broad ligament are exceptional.

The pathogenesis of broad ligament serous cystadenomas remains uncertain. Current evidence suggests an origin from Müllerian epithelial inclusions entrapped within the broad ligament during embryological development. Histologically, these tumors are identical to ovarian serous cystadenomas.

Preoperative diagnosis remains challenging. Ultrasound is usually the first-line imaging modality but often fails to establish the precise anatomical origin of large adnexal masses. CT and MRI may demonstrate separation between the ovary and the lesion; however, this sign is frequently obscured when the mass reaches giant dimensions.

Several authors have highlighted the value of MRI in identifying the ipsilateral ovary separate from the lesion, which may suggest a broad ligament origin. Nevertheless, definitive diagnosis generally remains intraoperative and histopathological.

The differential diagnosis includes:

- Ovarian serous cystadenoma;
- Mucinous cystadenoma;
- Borderline ovarian tumor;
- Paraovarian cyst;
- Hydrosalpinx;
- Peritoneal inclusion cyst;
- Mesenteric cyst;
- Cystic degeneration of broad ligament leiomyoma.

Although the majority of broad ligament cystadenomas are benign, malignant epithelial tumors have occasionally been reported. Therefore, complete surgical excision and thorough histopathological evaluation are mandatory.

Laparoscopic management is increasingly advocated for small and moderate-sized lesions. However, laparotomy remains the preferred approach for giant masses because it facilitates safe removal and minimizes the risk of intraoperative rupture and spillage.

Our case is noteworthy because of the exceptional size of the lesion and the difficulty in distinguishing it from a giant ovarian cyst before surgery. Similar observations reported in the literature emphasize the persistent diagnostic challenge posed by broad ligament tumors.

Learning Points :

1. Broad ligament tumors should be considered in the differential diagnosis of large adnexal masses.
2. Imaging studies may not accurately identify the origin of giant cystic pelvic lesions.
3. Normal tumor markers do not exclude a broad ligament neoplasm.
4. Surgical exploration remains crucial for diagnosis.
5. Histopathological examination is the gold standard for confirming tumor type and excluding malignancy.

Conclusion :

Serous cystadenoma of the broad ligament is a rare benign tumor that may clinically and radiologically mimic an ovarian neoplasm. Accurate preoperative diagnosis remains difficult despite advances in imaging techniques. Complete surgical excision followed by histopathological examination remains the cornerstone of management. Awareness of this uncommon entity is essential to improve diagnostic accuracy and optimize surgical planning.

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