

CASE REPORT

Parasitic mature cystic ovarian teratoma: A rare case of autoimplantation of a twisted dermoid cyst

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Key Clinical Message

Extragenadal parasitic dermoid cysts are rare. Diagnosis of such extragenadal parasitic teratoma is often done intraoperatively during surgical exploration of abdominal mass.

KEYWORDS

extragenadal teratoma, mature cystic teratoma, parasitic teratoma

1 | INTRODUCTION

Cystic ovarian teratomas are the most common type of ovarian tumor and represent about 20% of all ovarian tumors.¹ They are most commonly present in the ovary, but extragenadal and parasitic forms of dermoid cysts have been noted with the most common extragenadal site being the omentum. Extragenadal and parasitic teratomas, however, are rare. Such teratomas are frequently identified during exploratory surgery for an intra-abdominal mass. The commonest locations of such

extragenadal teratomas are the omentum and Pouch of Douglas.^{2,3} Parasitic teratomas are formed due to torsion of the ovarian mass leading to the blood supply being cut off, subsequent avulsion, aseptic inflammation, and implantation in the neighboring structures. A study done by Peterson WF et al. reported that only 0.04 % of 1007 teratomas studied were parasitic secondary to ovarian torsion.⁴

We report a case of omental parasitic teratoma in a 60-year female who presented with acute abdomen. This case has been reported in line with SCARE criteria.⁵

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2 | CASE PRESENTATION

A 60-year-old P₄ with a known intra-abdominal mass for 3 years presented with a complaint of abdominal pain for 4 days. The patient had not sought treatment for the abdominal mass despite the mass being palpable and having grown in size over the years. Basic investigations and ultrasound of the abdomen and pelvis were done. The patient was then referred to us for further management. Upon presentation, the patient was hypotensive with a blood pressure of 90/60 mmHg and complained of sudden severe lower abdominal pain, not relieved by medication, with no aggravating or relieving factors. Also, there was no family history of malignancy.

Upon inspection, the lower abdomen was distended up to the level of a centrally placed umbilicus. Approximately 10 cm × 10 cm well-circumscribed, nontender, nonmobile, firm mass with a smooth surface was noted over the lower abdomen. Per vaginal speculum examination revealed a normal cervix with no discharge or bleeding. On a bimanual examination, the uterus was normal in size and an approximately 10 cm × 10 cm mass was palpable as described in the abdomen. Fornices were freely movable and nontender. Laboratory investigations were normal; however, CA-125 and CEA were raised (Table 1). Ultrasonography of the abdomen and pelvis revealed a large abdominopelvic lesion measuring 10.5 cm × 11.5 cm with a fat fluid

level likely representing a dermoid cyst. No evidence of significant internal vascularity was seen. Minimal free fluid was seen in the pelvic cavity. Bilateral ovaries were not visible separately with normal appearing uterus. With suspected ovarian torsion, she was planned for an urgent laparotomy and salpingo-oophorectomy.

On midline laparotomy, an approximately 11 cm × 11.5 cm cyst was noted, which was densely adherent to the bladder on its anterior aspect and omentum and bowel on its posterior aspect. Adhesiolysis was done, and the cyst was removed. The left fallopian tube and ovary were not visualized, whereas the right fallopian tube and ovary appeared normal. The cut section of the excised mass revealed cheesy sebaceous material with hair and cartilage (Figure 1). Histopathology revealed a cyst wall partly lined by keratinized stratified squamous epithelium and partly by pseudostratified ciliated columnar epithelium with the keratin hair shaft, dilated lymphatics, cartilage, and adipocytes as cystic contents. No immature neural elements were identified during histopathological examination; features suggestive of mature cystic teratoma (Figure 2). The postoperative period was uneventful with normal laboratory values. The patient was seen in follow-up after 6 months and reported to have no complaints.

3 | DISCUSSION

Cystic teratomas arise from the totipotent germ cells and represent the most common form of ovarian tumor comprising 20% of all ovarian tumors.⁶ These germ cell tumors contain tissues from all three germ layers, endoderm, mesoderm, and ectoderm.

Torsion of the pedicle is the most common complication of mature ovarian dermoid cyst representing 10%–15% of all complications.⁷ This torsion could be acute, subacute, or chronic. Acute torsion could present with

TABLE 1 Tumor markers of the patient prior to surgery.

Lab investigation	Result	Normal range
CEA	13.7 ng/mL	0–2.5 ng/mL
AFP	11	0–40 ng/mL
CA-125	113.0 U/mL	0–35 U/mL
LDH	180	135–214 U/L
CA 19-9	22	0–37 U/mL

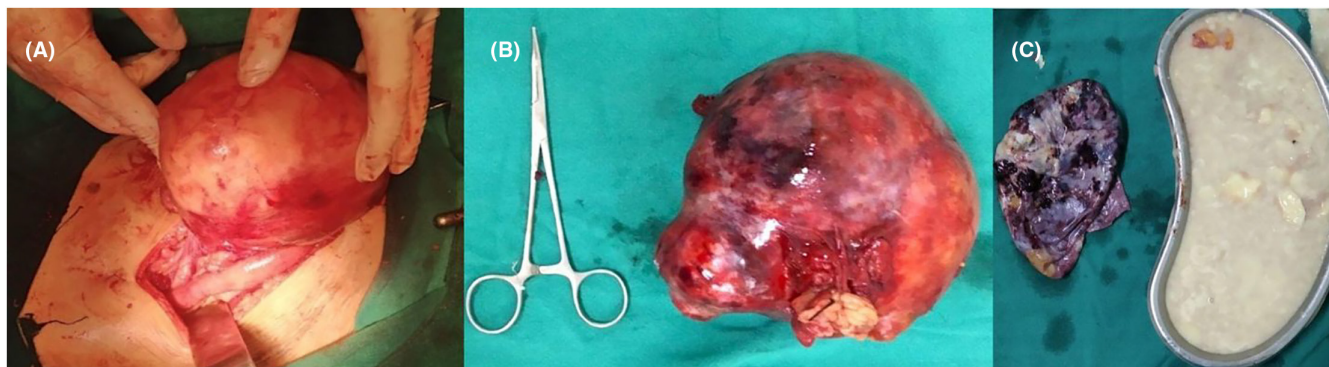
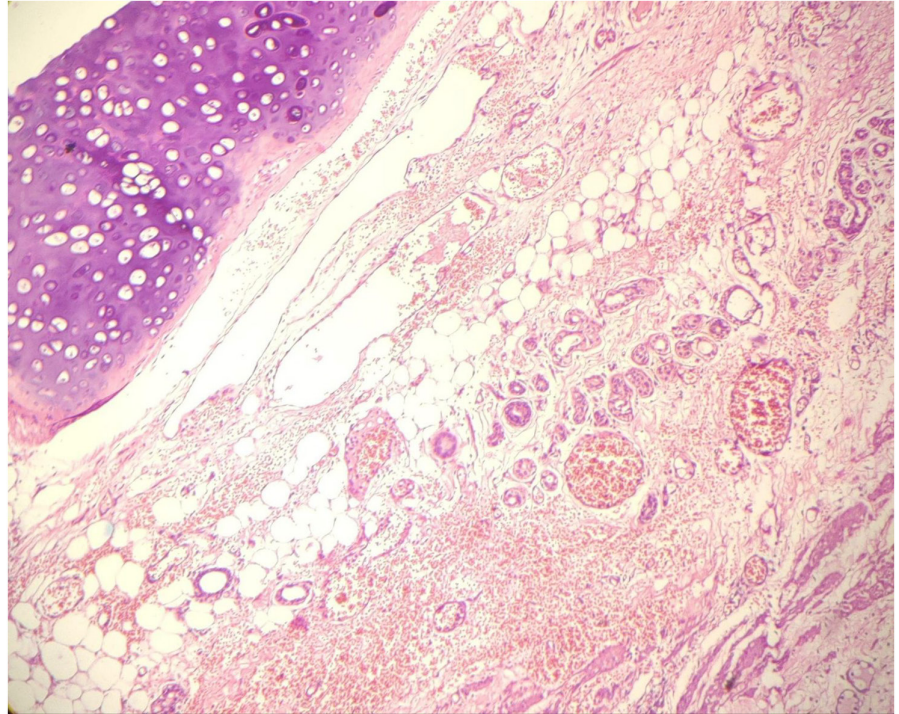


FIGURE 1 Intraoperative figure, (A) 10 × 10 cm cystic mass densely adhered to bladder on its anterior and omentum and bowel on its posterior surface, (B) left fallopian tube and ovary could not be visualized and no ligamentous attachment and vascular pedicle noted, and (C) cut section released cheesy sebaceous material with hair and cartilage without any surface deposit, and papillary projections.

FIGURE 2 Histopathology of the excised mass shows cartilages, hair shafts, dilated lymphatics, and adipocytes with stroma containing pilosebaceous units without any immature neural elements.



severe abdominal pain, whereas subacute or chronic cases could be asymptomatic for years. Due to the blood supply of the cyst being cut off following subacute torsion and the concomitant aseptic inflammation, the cyst might get attached to an adjacent structure and receive blood supply through a new collateral circulation. In rare instances as in our case, the cyst might get completely avulsed from the pedicle and form a parasitic cyst.⁸

There are multiple possible explanations for the existence of a parasitic mature cystic teratoma that include supernumerary ovaries, germ cells displaced during migration, or autoamputation and reimplantation of an ovarian dermoid cyst.² In our case, the absence of a left ovary and fallopian tube suggests that autoamputation of the ovarian dermoid cyst might be the cause following subacute or chronic torsion of the pedicle of the dermoid cyst with subsequent neovascularization and reimplantation. In addition, as in our case, significant omental adhesions around the ovary may indicate inflammation secondary to previous torsion.

Omental teratomas presented more frequently with acute abdominal pain, while for Pouch of Douglas or uterosacral ligament teratomas, they were usually incidental/asymptomatic, and upper abdominal teratoma were more likely to present with chronic abdominal pain.⁹ The diagnosis of a cystic teratoma can be made through thorough physical examination and radiological investigations. Transvaginal ultrasonography is considered to be superior to an abdominopelvic scan and has a similar sensitivity to MRI.¹⁰ However, because of the large abdominopelvic mass like in our case, contrast-enhanced CT or MRI abdomen and pelvis would be a primary go-to modality due to

decreased sensitivity of ultrasound. A cystic teratoma can appear as a heterogeneous mass with an echogenic focus that causes acoustic shadowing due to hair, sebum, calcifications, or other tissues. Other ultrasonographic features include fat fluid levels, hair fluid levels, rokitansky nodules, floating ball sign, dot-dash sign, the tip of the iceberg sign, or comet tail appearance. CT and MRI could delineate the vascular status of the mass and relations with the adjacent bowel loops and pelvic ureter as well as the bilateral ovaries. Therefore, it can play an important role in preoperative assessment and diagnosis of a cystic teratoma because of excellent sensitivity as well as specificity.¹¹ Sometimes, accurate diagnosis is only possible during the laparoscopic assessment of the abdomen. We used abdominopelvic and transvaginal ultrasonography for initial assessment and proceeded to surgery due to the acute abdomen. In a systematic review on an extragonadal teratoma in women and adolescents, the commonest tumor markers reported were CA-125, CA-199, CEA, and AFP with raised results seen in 19.2%, 20.0%, 25.0%, and 23.1%, respectively.⁹ It is important to note that while the presence of ovarian stroma within the extragonadal dermoid cyst can be considered an important feature, ovarian tissue was not reported to be seen in 41.9% of cases and its absence, however, does not preclude this mechanism of formation of parasitic dermoid cyst.⁹

Following an accurate diagnosis, treatment is mainly surgical with the aim of removing the tumor to relieve any mass effects and to histologically exclude immature or malignant components.⁹ Conventional laparoscopic surgery or laparoendoscopic single-site surgery (LESS) are shown

to be safe and feasible even in large teratomas.¹² However, laparotomic procedures are often preferred for such large tumors in settings with limited resources like ours.

4 | CONCLUSION

While mature cystic teratomas are the commonest ovarian tumors, extragonadal parasitic dermoid cysts represent rare forms of such teratomas. Diagnosis of such extragonadal parasitic cystic teratoma is often done intraoperatively during surgical exploration of abdominal mass.

AUTHOR CONTRIBUTIONS

Suraj Shrestha: Data curation; resources; writing – original draft; writing – review and editing. **Sugat Adhikari:** Writing – original draft; writing – review and editing. **Chandra Narayan Yadav:** Conceptualization; data curation; writing – review and editing. **Elisha Poddar:** Writing – original draft; writing – review and editing. **Shekhar Bhatta:** Writing – review and editing. **Surendra Sapkota:** Writing – review and editing. **Ramesh Khadayat:** Writing – review and editing. **Garima Neupane:** Writing – original draft; writing – review and editing. **Simin Kunwar:** Writing – review and editing. **Pradeep Raj Regmi:** Writing – review and editing.

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CONFLICT OF INTEREST STATEMENT

None to declare.

DATA AVAILABILITY STATEMENT

All the necessary data and materials are provided within the manuscript.

ETHICS STATEMENT

Not Applicable.

CONSENT STATEMENT

Written informed consent was obtained from the patient herself and her daughter for the publication of this case report. A copy of the written consent is available for review by the Editor-in-Chief of this journal on request.

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