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Case Report

# Huge ovarian mature cystic teratoma with gliomatosis peritonei and massive ascites in a postmenopausal woman

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## Abstract

Teratoma of the ovary is the most frequently encountered germ cell tumor. It usually occurs in young women. Gliomatosis peritonei (GP) is mature neural glial tissue implanted onto the peritoneal surface. We present a case of a mature teratoma accompanied by GP and massive ascites in postmenopausal women. A 54-year-old, G0P0, woman presented in the gynecology outpatient department with abdominal distension for 6 months. Computed tomography scan of the abdomen and pelvis displayed an ovarian mass about 20 cm × 18 cm with peritoneal seeding, ascites, and enlarged paraaortic lymph nodes. A total hysterectomy and bilateral adnexectomy were performed. The pathology showed the left ovary contained a dermoid cyst. The biopsy of the peritoneal nodule displayed glial tissue confirming the diagnosis of GP. The patient remained in good condition 6 months postoperatively. We suggest GP be considered in patients presenting with teratomas and massive ascites. The radiological diagnosis is challenging due to the rarity of GP. Continued follow-up of patients with teratomas and GP is mandatory due to the potential of malignant transformation.

**Keywords:** *Ascites, Gliomatosis peritonei, Teratoma*

## Introduction

Teratoma of the ovary is the most frequently encountered germ cell tumor. It usually occurs in young women [1]. The tumors can be divided into mature and immature teratomas which represent benign and malignant tumors, respectively [2].

Gliomatosis peritonei (GP) is mature neural glial tissue implanted onto the peritoneal surface. GP is often seen in immature teratomas and rarely in mature teratomas [3].

We present a case of a mature teratoma accompanied by GP and massive ascites in a postmenopausal woman.

## Case report

A 54-year-old, G0P0, woman presented in the gynecology outpatient department with abdominal distension for 6 months. Ultrasonography revealed massive ascites [Figure 1a] and a 16 cm × 12 cm multiseptated ovarian tumor with a solid component [Figure 1b]. Her serum tumor markers showed an elevated level of carcinoembryonic antigen (3.15 ng/mL) and normal levels of CA 19-9, CA 125, and α-fetoprotein. Computed tomography (CT) of the abdomen and pelvis displayed an ovarian mass about 20 cm × 18 cm with peritoneal seeding, ascites, and enlarged paraaortic lymph nodes [Figure 1c].

A total hysterectomy and bilateral adnexectomy were performed. During the operation, 9600 mL of ascites and an ovarian tumor 20 cm × 16 cm in diameter with 4800 mL serous fluid, fat, and hair inside were found [Figure 2].

Microscopically, the left ovary revealed a dermoid cyst, composed of sebaceous material, fibroadipose tissue, myxoid stroma, cholesterol clefts, and foreign body granuloma, which ruptured and involved the serosa of the right fallopian tube, intestine, urinary bladder, and appendix. Foreign body granuloma formation was also found on the peritoneal surface. In addition, some fragments displayed glial tissue embedded with a positive glial fibrillary acidic protein immunostaining, confirming the diagnosis of GP [Figure 3].

The patient had an uneventful recovery and was discharged from the hospital. She remained in good condition 6 months postoperatively.

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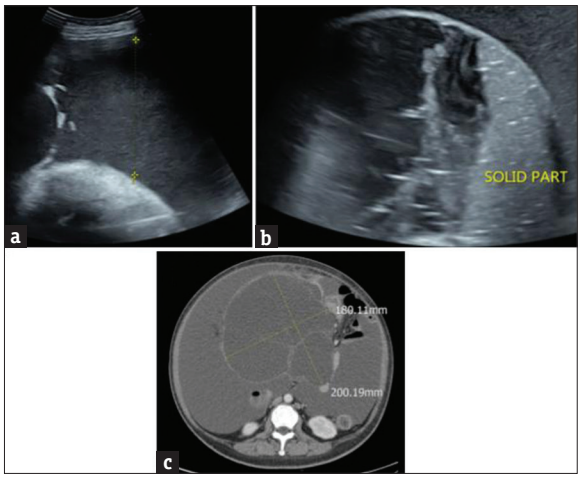


**Figure 1:** Ultrasonography reveals massive ascites (a) and a 16 cm × 12 cm multiseptated ovarian tumor with a solid component (b). (c) Computed tomography of the abdomen and pelvis displays an ovarian mass about 20 cm × 18 cm

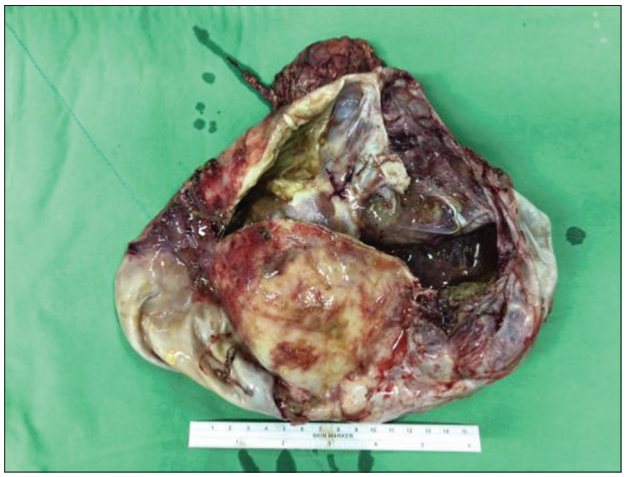

**Figure 2:** Grossly, the ovarian tumor is 20 cm × 16 cm in diameter with 4800 mL of serous fluid, fat, and hair inside

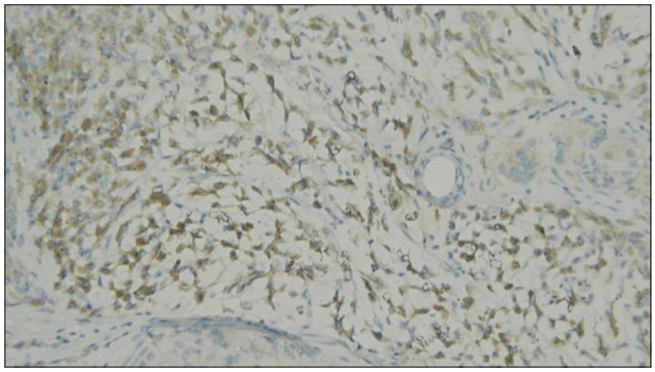

**Figure 3:** The glial tissue embedded in the seeding specimen is immunoreactive for glial fibrillary acidic protein (GFAP, shown in brown, ×200)

## Discussion

GP is a rare condition accompanied by ovarian teratoma. Teratomas often occur in young females. Patients with GP may experience pseudo-Meigs' syndrome which presents with teratomas, ascites, and pleural effusion [4]. Nevertheless, a small lesion with GP may be overlooked preoperatively, even after radiologic, sonographic, and clinical studies. The patient in our case presented with a teratoma with pseudo-Meigs' syndrome in a postmenopausal status.

GP is mature neural glial tissue implanted onto the peritoneal surface. It is often seen in immature teratomas and rarely in mature teratomas [3]. GP implants seem stable after a long time but may progress to malignancy on rare occasions [5]. The underlying mechanism of GP malignant transformation is not clear. The origin of the GP peritoneal implant may be rupture of a teratoma. Several reports showed the genetic background of GP is different from that of a teratoma [6,7]. Most cases of GP have a benign course without further chemotherapy [8]. Our case also had an uneventful course for 6 months after surgery. However, the patient should be followed up long term due to the potential of malignant transformation [9].

Most GP accompany immature teratomas. Several case reports show immature GP and immature teratomas can have an adverse prognosis [5,10]. Previous reports showed good outcomes in patients with mature teratomas and GP [3,9]. Our case was also a rare combination of GP and a mature teratoma. The prognosis in our patient is good.

Imaging studies, including CT scan, magnetic resonance imaging, and sonography, can provide the diagnosis of teratomas and GP. Teratomas are easily diagnosed on CT scans showing lipid materials [11]. Most teratomas are unilateral [11]. However, few studies have shown the image characteristics of GP. Previous reports showed CT scans of GP could include multiple peritoneal nodules, omental cake, and ascites. Peritoneal nodules range from 0.3 to 1.2 cm in diameter [12]. The CT image study in our case also showed peritoneal seeding, ascites, and a unilateral teratoma, consistent with previous reports.

Treatment of a teratoma with GP depends on the characteristics of the teratoma. Unilateral salpingo-oophorectomy with extensive GP nodule biopsy is suggested for mature or immature teratomas in young women who want to preserve fertility [3]. Ovarian cystectomy can also be performed for young females with mature cystic teratomas [9]. Adjuvant chemotherapy with bleomycin, etoposide, and cisplatin is prescribed for immature teratomas [9]. Our patient was a postmenopausal woman, and she asked for the removal of both the uterus and adnexa. Therefore, a total hysterectomy, bilateral adnexectomy, and extensive peritoneal biopsy were performed.

## Conclusion

We present a postmenopausal woman with a mature cystic teratoma, GP, and massive ascites. We suggest that GP be considered in patients with teratomas and massive ascites. Radiological diagnosis is challenging due to the rarity of GP. Continued follow-up of patients with teratomas and GP is mandatory.

### Declaration of patient consent

The authors certify that the patient has obtained an appropriate patient consent form. In the form, the patient has given her consent for images and other clinical information to be

reported in the journal. The patient understands that her name and initials will not be published and due efforts will be made to conceal her identity, but anonymity cannot be guaranteed.

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Nil.

### Conflicts of interest

There are no conflicts of interest.

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