GOIANA JOURNAL OF MEDICINE

DOI 10.63162/V67N70E26721
ISSN 0034-9585
e26721
SCIENTIFIC ARTICLE - CASE REPORT

GIANT MATURE OVARIAN TERATOMA IN A FIRST-TRIMESTER PREGNANT WOMAN: A CASE REPORT

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ABSTRACT

Introduction: Mature cystic teratoma is the most frequent ovarian neoplasm in reproductive-aged women, posing maternal and fetal risks when diagnosed during pregnancy. **Objectives:** To report the diagnosis and surgical management of a giant ovarian teratoma in a first-trimester pregnant patient. **Methods:** A descriptive case report study of a 17-year-old primigravida with a 30 cm adnexal mass concomitant with a 12-week intrauterine pregnancy. **Results:** Exploratory laparotomy with partial drainage of the contents was performed to enable tumor excision, and histopathology confirmed a mature cystic teratoma associated with a mucinous cystadenoma. Prenatal follow-up revealed a borderline lateral ventricle and progression to intrauterine growth restriction (IUGR) in the third trimester, leading to labor induction at 38 weeks. **Conclusions:** This case reinforces the necessity of timely surgical intervention for voluminous adnexal masses during pregnancy and the importance of rigorous obstetric surveillance to monitor perinatal outcomes potentially associated with early surgical stress.

Keywords: Mucinous cystadenoma, Ovarian neoplasms, Fetal growth retardation, Pregnancy complications, Neoplastic, Teratoma, Prenatal ultrasonography.

INTRODUCTION

Adnexal masses during pregnancy have an estimated incidence of 0.2% to 2% [1]. Among them, mature cystic teratoma, also known as a dermoid cyst, is the most frequent ovarian neoplasm in women of reproductive age, representing 20% to 40% of ovarian tumors diagnosed during pregnancy.[1,2]

Mature cystic teratoma originates from primordial germ cells and contains tissues derived from the three germ layers, ectoderm, mesoderm, and endoderm, resulting in the formation of complex structures such as teeth, hair, sebum, bone, and cartilage.[3,4] They can reach diameters ranging from millimeters to masses that occupy most of the abdominal cavity; however, the average size observed is 5 to 15 cm [5].

According to the guidelines of the Federação Brasileira das Associações de Ginecologia e

Obstetrícia[6], transvaginal ultrasonography is the most effective single examination for the initial evaluation and characterization of adnexal masses, with pregnancy testing being necessary in the complete investigation of adnexal masses in women of reproductive age.

Although most teratomas are benign, their persistence during pregnancy entails risks, such as torsion of the adnexal mass, which may lead to necrosis and tissue loss, cyst rupture, leading to chemical peritonitis, intra-abdominal hemorrhage, and obstruction of the birth canal due to mass effect, known as tumor previa,[7] Larger masses result from accelerated growth or late diagnosis and may increase the risk of complications.[5,7]

The clinical management of these masses should consider the surgical and anesthetic risk to the pregnant woman/fetus dyad and the risk of acute complications if left untreated. The standard approach recommends that elective surgical intervention be performed in the second trimester of pregnancy, when the risk of miscarriage is lower and organogenesis is complete.[8,9] However, large-volume masses may imply greater urgency for their removal to allow the pregnancy to progress normally.

In this regard, the present study reports the surgical management of a giant ovarian mature cystic teratoma in a 12-week pregnant woman and the subsequent pregnancy outcome.

CASE REPORT

A 17-year-old female patient sought medical care in September 2024 to begin the investigation of a pelvic mass. During transvaginal ultrasonography (TVUS) performed on 09/16/2024, a large right ovarian cystic image occupying the pelvic cavity, measuring 22 x 10.65 x 16 cm, was identified, accompanied by a heterogeneous solid image measuring 7.8 x 4.04 x 7.53 cm, suggestive of teratoma.

Laboratory tests requested on 10/29/2024 revealed hemoglobin of 14.8 g/dL, hematocrit of 44%, leukocytes of 7,560/mm^3, and platelets of 124,000/mm^3. Tumor markers were within normal limits, with CA 125 of 8.7 U/mL and CEA of 1.0 ng/mL, and the coagulation profile showed no abnormalities. A non-contrast computed tomography (CT) scan of the abdomen (10/30/2024) confirmed the multiloculated lesion, extending into the mesogastric region, measuring 20.6 x 17.7 x 9.7 cm, with an estimated weight of 1,839 g.

On 12/12/2024, the patient underwent a new ultrasound examination that diagnosed an intrauterine pregnancy of 11 weeks and 2 days, with the presence of a posterior marginal placenta previa and persistence of the solid-cystic adnexal image (Figure 1). The patient was admitted on 12/18/2024 for surgical planning, clinically asymptomatic, with fetal heart rate (FHR) of 148 BPM and a gestational age of 12 weeks and 1 day.

Figure 1: Ultrasound images of the solid-cystic adnexal structure (A and 1B) and the gravid uterus (2B).
Source: the authors.

The surgical approach was performed on 12/20/2024 by exploratory laparotomy under spinal anesthesia. Examination of the cavity revealed a right ovarian mass measuring approximately 30 cm, with a cystic-solid appearance, reaching the costal margin. Peritoneal fluid was collected for cytology, and due to the exceptional dimensions of the lesion, two small incisions in the mass were necessary for drainage and evacuation of the liquid content, allowing reduction of the tumor volume to enable its removal through the laparotomy opening, via the Pfannenstiel incision (Figure 2). The aspirated content revealed greenish fluid and the presence of hair and teeth. Right salpingo-oophorectomy was performed, and the material was sent for anatomopathological examination, which confirmed the diagnosis of mature cystic teratoma, showing tissues of ectoderm, mesoderm, and endoderm, associated with mucinous cystadenoma.

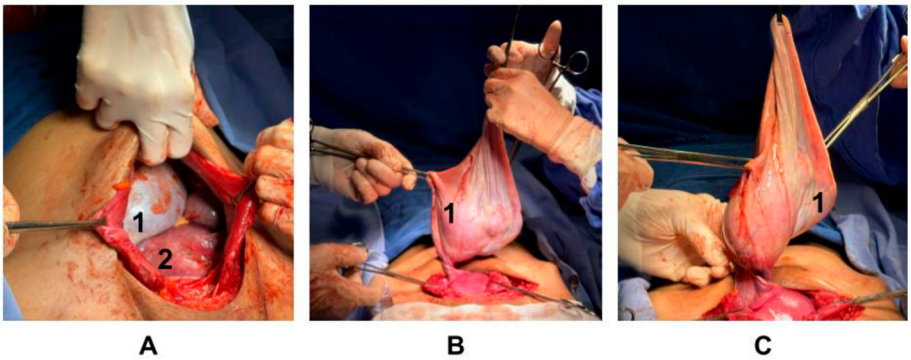

Figure 2: Surgical approach by exploratory laparotomy for resection of the mature cystic teratoma. In 1, the mature cystic teratoma is shown, and in 2, the gravid uterus.
Source: the authors.

The patient had a good postoperative course and continued prenatal follow-up at the service. On 03/12/2025, the morphological ultrasound (24 weeks and 1 day) identified a male fetus with weight at the 9th percentile and a borderline right lateral ventricle (10 mm). In the third trimester, on 05/07/2025 (32 weeks and 1 day), the fetus was observed to be small for gestational age (7th percentile), although with normal Doppler findings. On 06/18/2025, at 38 weeks and 1 day, ultrasonography diagnosed Intrauterine Growth Restriction (IUGR), with fetal weight below the 3rd percentile (2,432 g). In view of the diagnosis of IUGR and the report of epigastric pain and contractions, the patient was admitted for induction of labor on 06/18/2025 at 38 weeks and 1 day.

DISCUSSION

Mature cystic teratoma is the most frequent ovarian tumor in women of reproductive age, representing approximately 50% of tumors diagnosed in women up to 40 years of age.[2,5,7,10] In the reported case, the 17-year-old patient reinforces this epidemiology.

Imaging diagnosis of this tumor in the patient occurred before the date of the last normal menstrual period (LMP); however, after confirmation by magnetic resonance imaging and during the preparatory examination for the surgical approach, pregnancy was diagnosed. Thus, the tumor became a gestational

complication, while the pregnancy posed a dilemma regarding its surgical resection and created the need for its follow-up concomitantly with the pregnancy-puerperal cycle.

In the present case, although the tumor dimensions greatly exceeded the usual ultrasound criteria for low risk (<10 cm), the patient's young age (17 years), the absence of previous persistent symptoms, and normal CA 125 levels supported the preoperative hypothesis of a benign etiology. However, in accordance with the recommendations of the RBGO[6], it should be emphasized that the use of isolated biomarker panels is not sufficient for the definitive characterization of the lesion, requiring close ultrasound correlation. Thus, the diagnostic imaging investigation protocol and surgical planning adopted in the present case are in accordance with the recommendations of the RBGO.

The literature recommends that ovarian masses larger than 6 cm be removed so that the pregnancy can proceed without the complications frequently associated with this tumor, such as torsion of the adnexal mass, tumor rupture with consequent chemical peritonitis, and obstruction of the birth canal by tumor previa.[11,12,13] Large masses extending beyond the pelvis require combined transabdominal and transvaginal ultrasound evaluation.[6]

In the presence of a 30-cm solid-cystic lesion reaching the costal margin, classic exploratory laparotomy proved to be the safest approach to ensure adequate hemostatic control and uterine integrity, allowing a definitive surgical approach, rather than the laparoscopic approach, a technique that is more recommended for tumors smaller than 10 cm.[3,13]

The ideal period recommended for intervention is the second trimester of pregnancy, preferably between the 16th and 20th weeks, aiming to minimize the risks of miscarriage.[9,11,12] However, the approach at the end of the first trimester in the reported case did not represent a prohibitive surgical complication, since organogenesis, the critical period of fetal development, had already been completed. However, it removed the mass that occupied the space necessary for the fetus to grow during the subsequent stages of pregnancy.

The preserved fetal morphology in the morphological examinations subsequent to the intervention corroborates the evidence that modern anesthetic agents, muscle relaxants, and opioids have no proven teratogenic effects on the development of human fetuses when administered at recommended doses, regardless of gestational age.[9,12] However, non-obstetric surgical interventions during pregnancy are associated with a statistically significant increase in the risks of obstetric complications and adverse perinatal outcomes.[6,9]

The diagnosis of Intrauterine Growth Restriction (IUGR) and the classification of the fetus as Small for Gestational Age (EFW < P3), identified in the patient's third trimester, may reflect the acute ischemic stress and systemic inflammatory response generated by early surgery, since such interventions are statistically associated with a greater likelihood of growth restriction and low birth weight.[3,9,14]

Furthermore, the finding of a borderline right lateral ventricle at 24 weeks, although it may be an isolated variant, reinforces the need for strict surveillance, since surgeries in the first and third trimesters have the highest rates of obstetric complications, including the need for pregnancy termination due to premature contractility, as observed in the outcome of this case.[9,12]

CONCLUSION

The surgical approach to the giant ovarian mature cystic teratoma, diagnosed during the preconception period in the reported case, became essential and urgent due to the size and inherent risks of this mass. The pregnancy diagnosed during clinical follow-up became a complicating factor and posed a challenge to the removal of the tumor mass, since in cases of tumors during pregnancy,

care for the maternal-fetal dyad must be considered.

Therefore, this case demonstrates the importance of early diagnosis of mature cystic teratoma in order to prevent such extensive tumor growth. However, in the case of this tumor concomitant with pregnancy, the need for timely and appropriate surgical removal is evident, in addition to rigorous multidisciplinary prenatal follow-up to mitigate adverse obstetric outcomes.

Ethical Aspects

The study was approved by the institution's Research Ethics Committee under CAAE number: 96379426.1.3001.5078. Written informed consent was obtained from the patient and her legal guardians for the publication of this case report and the accompanying images.

The Artificial Intelligence (AI) tools Gemini Notebook were used for textual correction and translations and Scispace for searching for scientific articles related to the topic.

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Library Review: Izabella Goulart
Spell Check: Dario Alvares
Translation: Soledad Montalbetti
Received: 13/08/26. Accepted: 13/08/26. Published in: 27/08/2026.