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Adolescent Girl with a Left Adnexal Solid–Cystic Mass-Granulosa Cell Tumor: A Case Report

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Abstract

Adnexal masses in adolescents are uncommon and often present diagnostic challenges due to overlapping clinical and radiologic features. We report a case of a 15-year-old girl presenting with chronic abdominal pain and a left adnexal mass measuring 8 × 10 cm on imaging. Serum tumor markers were within normal limits. Exploratory laparotomy revealed a solid–cystic ovarian mass with minimal ascites. Left salpingo-oophorectomy with staging procedures was performed. Intraoperative frozen section suggested a granulosa cell tumor, which was confirmed on final histopathology as a juvenile granulosa cell tumor confined to the ovary (FIGO Stage IA). This case highlights the importance of considering granulosa cell tumor in adolescents with adnexal masses and emphasizes the role of intraoperative pathology in guiding fertility-preserving management.

Keywords: Adolescent ovarian tumor, juvenile granulosa cell tumor, adnexal mass, fertility-sparing surgery, salpingo-oophorectomy

Introduction

Granulosa cell tumors (GCTs) are rare ovarian neoplasms belonging to the sex cord–stromal tumor group, accounting for approximately 2–5% of all ovarian malignancies [1,2]. They are classified into adult and juvenile subtypes, with the juvenile form typically occurring in children and adolescents [2].

Juvenile granulosa cell tumors often present at an early stage and are associated with a favorable prognosis. The 5-year survival rate for stage I disease approaches 90–97%, but outcomes are significantly poorer in advanced stages [2,9]. These tumors may produce estrogen, leading to endocrine manifestations; however, some patients present only with nonspecific symptoms such as abdominal pain or mass.

Early diagnosis and fertility-preserving surgical management are crucial, particularly in adolescents, along with long-term follow-up due to the risk of recurrence [3,4].

Case Presentation

A 15-year-old girl presented with intermittent lower abdominal pain for one year, which had progressively worsened over the preceding two months. There was no history of vomiting, menstrual irregularities, weight loss, or other constitutional symptoms. Her past medical and family histories were unremarkable.

On physical examination, a firm, non-tender mass was palpable in the left lower abdomen extending up to the umbilicus. The uterus and right adnexa were normal on examination.

Ultrasonography revealed a heterogeneous left adnexal mass measuring 8 × 10 cm with both solid and cy-

stic components. Contrast-enhanced computed tomography (CECT) of the abdomen and pelvis confirmed a well-defined solid–cystic ovarian mass with mixed attenuation. There was no evidence of peritoneal deposits, lymphadenopathy, or significant ascites [5].

Serum tumor markers including alpha-fetoprotein (AFP), beta-human chorionic gonadotropin (β-hCG), lactate dehydrogenase (LDH), and CA-125 were within normal limits. In granulosa cell tumors, conventional tumor markers are often normal; instead, inhibin B and anti-Müllerian hormone (AMH) may serve as more specific markers, although they were not assessed in this case [2,4].

The patient underwent exploratory laparotomy. Intraoperatively, approximately 50 mL of straw-colored ascitic fluid was noted. A left ovarian mass measuring 8 × 10 cm with both solid and cystic areas was identified. The uterus, right ovary, and fallopian tube appeared normal.

A left salpingo-oophorectomy was performed along with peritoneal fluid sampling, pelvic lymph node sampling, omental biopsy, and endometrial sampling, following oncologic surgical principles [3,8].

Intraoperative frozen section examination suggested a juvenile granulosa cell tumor. Frozen section is valuable in guiding the extent of surgery and enabling fertility-preserving treatment in young patients [7].

Final histopathological examination confirmed the diagnosis of juvenile granulosa cell tumor confined to the ovary (FIGO Stage IA). Microscopic features included characteristic follicle-like structures and nuclear features consistent with granulosa cell tumor.

The postoperative course was uneventful. The patient was discharged in stable condition and advised regular follow-up with clinical examination, imaging, and hormonal monitoring due to the risk of recurrence [9].

Discussion

Ovarian tumors in adolescents are relatively rare, and while germ cell tumors are the most common, sex cord–stromal tumors such as granulosa cell tumors represent an important subset due to their distinct clinical and biological behavior [1,2].

Juvenile granulosa cell tumors typically present in the first two decades of life and are usually diagnosed at an early stage. Clinical presentation may include abdominal pain, abdominal mass, or endocrine manifestations such as precocious puberty due to estrogen secretion. However, absence of hormonal symptoms does not exclude the diagnosis, as demonstrated in this case [2].

Radiologically, GCTs often appear as unilateral, large, multiloculated solid–cystic masses. Imaging findings may overlap with other ovarian tumors, making definitive preoperative diagnosis challenging [5,6]. Tumor markers commonly used for germ cell tumors are usually normal in GCT. More specific biomarkers include inhibin B and AMH, which can aid in diagnosis and follow-up [2,4].

Histopathologically, granulosa cell tumors are characterized by features such as Call-Exner bodies and “coffee-bean” nuclei with nuclear grooves, although these are more typical of the adult subtype [2]. Intraoperative frozen section plays a crucial role in diagnosis and surgical decision-making, allowing for conservative surgery in young patients while maintaining oncologic safety [7].

The standard treatment for early-stage juvenile granulosa cell tumor is unilateral salpingo-oophorectomy with staging. Fertility preservation is a key consideration in adolescents. The prognosis is excellent for stage I disease, but long-term follow-up is essential due to the risk of recurrence, particularly within the first few years [3,9].

Conclusion

Granulosa cell tumor should be considered in the differential diagnosis of adnexal masses in adolescents, even in the absence of hormonal symptoms or elevated tumor markers. Imaging and intraoperative frozen section are essential for accurate diagnosis and appropriate management. Fertility-sparing surgery offers excellent outcomes in early-stage disease, but prolonged follow-up is necessary due to the potential for recurrence.



Figure:1-:(a&b)- juvenile granulosa cell tumour

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