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Original Research Article

Sertoli–Leydig Cell Tumor of the Ovary Detected Incidentally During Cesarean Section in a Young Pregnant Woman: A Case Report

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Abstract: Background: Sertoli–Leydig cell tumors (SLCTs) are rare ovarian neoplasms originating from sex cord–stromal tissue and constitute less than 0.5% of all primary ovarian tumors. These tumors predominantly affect young women and may present with features of androgen excess; however, occurrence during pregnancy is uncommon. In the absence of endocrine manifestations, diagnosis during gestation is often incidental, creating diagnostic and management challenges.
Case Presentation: A 29-year-old primigravida at 38 weeks of gestation with chronic hypertension and features of imminent eclampsia underwent emergency lower segment cesarean section and delivered a healthy 3 kg male neonate. Intraoperative assessment revealed a right-sided solid ovarian mass measuring approximately 10 × 6 cm. A right salpingo-oophorectomy was performed concurrently, while the left adnexa appeared normal. Histopathological examination demonstrated a well-encapsulated, moderately differentiated Sertoli–Leydig cell tumor composed of polygonal tumor cells arranged in ill-formed acini and diffuse sheets, with centrally placed nuclei and eosinophilic cytoplasm. Reinke crystals and heterologous elements were absent. Immunohistochemistry was not performed. The postoperative period was uneventful, and no adjuvant therapy was indicated. Sertoli–Leydig cell tumors presenting during pregnancy are extremely rare and may remain clinically silent until incidental intraoperative detection. Thorough inspection of the adnexa during cesarean delivery is essential for early identification. Fertility-sparing surgical management offers favorable outcomes in early-stage, moderately differentiated tumors. Careful long-term follow-up is recommended due to the potential risk of recurrence.

Keywords: Sertoli–Leydig cell tumor, ovarian neoplasm, pregnancy, cesarean section, sex cord-stromal tumor, unilateral salpingo-oophorectomy

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INTRODUCTION

Sertoli–Leydig cell tumors (SLCTs) are rare ovarian neoplasms arising from the sex cord–stromal component of the ovary and account for less than 0.5% of all primary ovarian tumors. These tumors were previously referred to as androblastomas or arrhenoblastomas and are characterized by varying proportions of Sertoli cells, Leydig cells, and, in some cases, heterologous elements (1). SLCTs predominantly affect young women, most commonly in the second and third decades of life, and are usually unilateral at presentation. Owing to their rarity and diverse clinical behavior, SLCTs continue to pose diagnostic and therapeutic challenges (2).

Clinically, SLCTs are notable for their potential endocrine activity. Approximately half of affected patients present with manifestations of androgen excess such as hirsutism, acne, deepening of the voice, clitoromegaly, amenorrhea, or oligomenorrhea. However, not all tumors are hormonally active, and a significant proportion may lack overt endocrine symptoms (3). In such cases, the tumor may remain asymptomatic and be detected incidentally during imaging, surgery, or histopathological examination. The absence of virilizing features can delay diagnosis and complicate preoperative clinical suspicion (4).

The occurrence of Sertoli–Leydig cell tumors during pregnancy is particularly uncommon. Physiological hormonal changes in pregnancy may mask or mimic endocrine manifestations of ovarian tumors, further complicating clinical recognition (5). Additionally, radiological evaluation of adnexal masses during pregnancy is often limited due to concerns regarding fetal safety, resulting in reliance on intraoperative findings or postpartum evaluation. As a result, many ovarian tumors identified during pregnancy are discovered incidentally during cesarean section or other abdominal surgeries (6).

Histopathologically, SLCTs demonstrate a wide spectrum of differentiation, ranging from well-differentiated to poorly differentiated forms. Tumor grade is a critical determinant of biological behavior and prognosis (7). Well-differentiated tumors are usually benign, whereas poorly differentiated tumors carry a significantly higher risk of malignancy. Moderately differentiated tumors show intermediate behavior, with a small but notable risk of recurrence or metastasis (8). The presence of heterologous elements or retiform patterns is associated with a worse prognosis. Accurate histopathological assessment therefore plays a central role in guiding management and follow-up (9).

Surgical excision remains the cornerstone of treatment for Sertoli–Leydig cell tumors. In young patients with early-stage disease, fertility-sparing surgery such as unilateral salpingo-oophorectomy is considered adequate and is associated with favorable outcomes (10). More extensive surgery and adjuvant chemotherapy are reserved for advanced-stage or poorly differentiated tumors. Given the potential for recurrence, particularly within the first two years after diagnosis, long-term surveillance is essential even in cases with apparently favorable histology (11).

The present case highlights the rare occurrence of a Sertoli–Leydig cell tumor diagnosed incidentally during cesarean section in a young pregnant woman without clinical signs of androgen excess. This report underscores the importance of careful intraoperative evaluation of the adnexa during obstetric surgery and contributes to the limited literature on SLCTs presenting during pregnancy, emphasizing early detection, appropriate surgical management, and the need for vigilant follow-up.

CASE PRESENTATION

Patient Information:
A 29-year-old primigravida at 38 weeks of gestation presented to the obstetrics emergency department with a history of chronic hypertension and clinical features suggestive of imminent eclampsia. There was no history of headache, visual disturbances, abdominal pain, or seizures prior to admission. The antenatal period had been otherwise uneventful, with no complaints suggestive of hyperandrogenism such as hirsutism, acne, voice changes, menstrual irregularities prior to conception, or virilization.

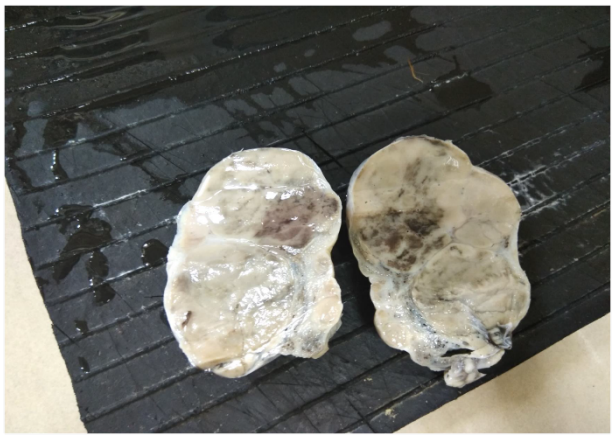
Clinical Examination and Preoperative Evaluation:
On examination, the patient was conscious and oriented, with elevated blood pressure recordings consistent with chronic hypertension. Obstetric

examination revealed a term uterus with a single live fetus in cephalic presentation. Routine laboratory investigations showed blood group B positive, hemoglobin of 12.4 g/dL, and platelet count of 1.82 × 10^5/cu mm. Random blood sugar was 104 mg/dL, serum TSH was 2.56 mIU/L, and liver and renal function tests were within normal limits. Urine albumin was absent. Screening for HIV and hepatitis B surface antigen was non-reactive. Based on the maternal condition and obstetric assessment, an emergency lower segment cesarean section was planned.

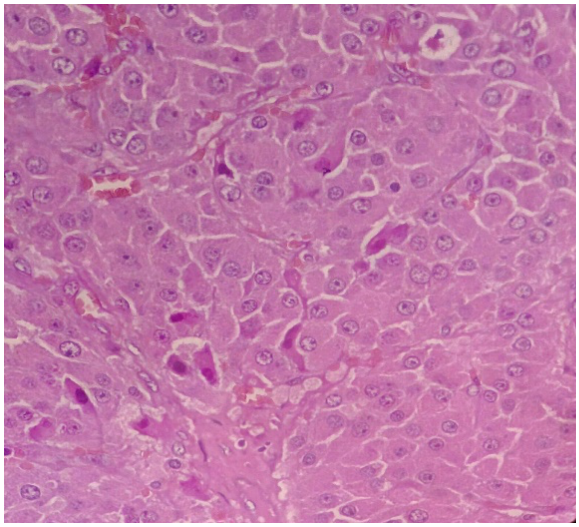
Intraoperative Findings and Surgical Management:
Emergency lower segment cesarean section was performed, resulting in the delivery of a healthy male neonate weighing 3 kg with an uneventful immediate neonatal outcome. During routine intraoperative inspection of the pelvis, a right-sided solid ovarian mass measuring approximately 10 × 6 cm was incidentally identified. The mass appeared well-circumscribed and confined to the right ovary. The left ovary and fallopian tube appeared grossly normal. In view of the solid nature of the mass, a right salpingo-oophorectomy was performed concurrently. The surgical specimen was sent for histopathological examination.

Histopathological Findings:
Gross examination revealed a well-encapsulated ovarian mass. Microscopic examination demonstrated a moderately differentiated Sertoli–Leydig cell tumor composed of large round to polygonal tumor cells arranged in ill-formed acini and diffuse sheets. The cells exhibited centrally placed nuclei with eosinophilic cytoplasm. Scattered blood vessels were noted within the tumor parenchyma. Reinke crystals and heterologous elements were not identified. Immunohistochemistry was not performed.

Gross



Microscopy



H&E 40x shows well capsulated benign neoplasm of ovary
Tumor cells are arranged in ill formed acini and diffuse sheets Tumor is composed of large round to polygonal cells with centrally placed nuclei and eosinophilic cytoplasm

Postoperative Course and Follow-Up:
The postoperative period was uneventful, and the patient had satisfactory recovery. No adjuvant therapy was advised due to the tumor's confined nature and moderate differentiation. The patient was counseled regarding the diagnosis and the need for regular follow-up to monitor for any evidence of recurrence.

DISCUSSION

Sertoli-Leydig cell tumors (SLCTs) are rare sex cord-stromal tumors of the ovary, accounting for less than 0.5% of all ovarian neoplasms. They predominantly affect young women, typically in the second to third decade of life, and often present with symptoms related to androgen excess such as hirsutism, amenorrhea, or virilization (12). However, some cases, as in our report, may lack overt endocrine manifestations, making diagnosis more challenging.

From a histopathological standpoint, SLCTs can vary in differentiation, with poorly differentiated tumors typically showing a more aggressive clinical course (13). The presence of heterologous elements or retiform patterns further contributes to the histologic complexity and may correlate with a higher malignant potential (14). Our case involved a moderately differentiated tumor without heterologous elements, consistent with a relatively favorable prognosis.

Imaging findings are non-specific and often overlap

with other ovarian neoplasms. Definitive diagnosis is established through histopathological evaluation, often supported by im-munohistochemical staining. Tumor cells typically express markers such as inhibin, calretinin, and SF-1, which help differentiate SLCTs from other ovarian tumors (15).

Surgical excision remains the mainstay of treatment. In young patients with early-stage disease, fertility-sparing surgery such as unilateral salpingo-oophorectomy is often adequate (16). In our case, the patient underwent unilateral right oophorectomy with complete tumor excision, and no adjuvant therapy was deemed necessary due to the tumor's confined nature and moderate differentiation.

The prognosis for SLCTs is generally favorable in early-stage and well-differentiated tumors. Poorly differentiated tumors, advanced stage at diagnosis, and the presence of heterologous elements are associated with increased risk of recurrence and metastasis (17). Long-term follow-up is essential, given the potential for late recurrence, particularly in higher-grade tumors.

This case underscores the importance of considering SLCTs in the differential diagnosis of ovarian masses, especially in young women with signs of virilization or menstrual irregularities. Early recognition and surgical management are crucial for favorable outcomes.

Treatment:
Surgical removal of the tumor is the treatment of choice. For younger age group-unilateral oophorectomy for older age group-TAH with BSO. Adjuvant therapy for poorly differentiated tumors Chemotherapy-VAC or BEP Tumor removal results in resolution of most hormonal effects except deepening of voice and clitoromegaly (18).

Prognosis

Differentiation	Risk of malignancy
Well	Rare
Moderate	11%
Poor	60%

CONCLUSION

Sertoli-Leydig cell tumors are rare ovarian neoplasms that require a high index of suspicion, particularly in young women presenting with virilizing symptoms or androgen excess. Early diagnosis and appropriate surgical management are critical for favorable outcomes, especially given the potential for malignancy in moderately to poorly differentiated tumors. Histopathological evaluation remains the cornerstone for diagnosis, guiding both staging and further treatment. This case highlights the importance of considering SLCTs in the differential diagnosis of hyperandrogenism and emphasizes the role of multidisciplinary care in achieving optimal patient outcomes. Regular follow-up is essential due to the risk of recurrence or malignant transformation in select cases.

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