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Ovarian Mixed Germ Cell Tumour with Choriocarcinomatous Component Mimicking Ectopic Pregnancy

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Abstract: ***Background*: Ovarian germ cell tumors constitute a small proportion of ovarian malignancies but predominantly affect adolescents and young women. Mixed germ cell tumors containing choriocarcinomatous elements are particularly rare and may present with elevated beta-human chorionic gonadotropin (β-hCG) levels, thereby mimicking pregnancy-related conditions such as ectopic pregnancy. *Case description*: We report the case of a 16-year-old adolescent girl who presented with acute abdominal pain, vomiting, syncope, and a background of chronic generalized weakness. Clinical evaluation revealed anemia, dehydration, and signs of acute abdomen. A positive urine pregnancy test with ultrasonographic findings suggestive of a ruptured right adnexal ectopic pregnancy led to an initial provisional diagnosis of a ruptured tubo-ovarian mass. Emergency diagnostic laparoscopy revealed a ruptured right tubo-ovarian mass with massive hemoperitoneum (1300 mL). Right salpingo-oophorectomy was performed. Histopathological examination and immunohistochemistry confirmed a mixed germ cell tumor of the right ovary comprising dysgerminoma with choriocarcinoma. *Conclusion*: This case highlights the diagnostic dilemma posed by germ cell tumors mimicking ectopic pregnancy in adolescents and underscores the importance of histopathological evaluation in acute gynecological emergencies.***

Keywords: Mixed germ cell tumor, ovary, dysgerminoma, choriocarcinoma, adolescent, acute abdomen, hemoperitoneum

1. Introduction

Ovarian germ cell tumors account for approximately 2–3% of all ovarian malignancies and predominantly affect children and adolescents. Mixed germ cell tumors represent a small subset and often contain more than one histological component, conferring aggressive biological behavior. Choriocarcinomatous differentiation within ovarian tumors is rare and is associated with markedly elevated beta-human chorionic gonadotropin (β-hCG) levels, often leading to diagnostic confusion with pregnancy-related conditions such as ectopic pregnancy. Acute presentations due to tumor rupture and hemoperitoneum are uncommon but life-threatening, necessitating urgent surgical management.

2. Case Description

A 16-year-old adolescent girl presented to the emergency department with diffuse abdominal pain for one day associated with vomiting. She also reported giddiness followed by a fall with transient loss of consciousness. There was a history of progressive generalized weakness for approximately one month.

Menarche had occurred four years earlier, with irregular menstrual cycles thereafter. The last menstrual bleeding episode was on 19 November 2025 and lasted three days. There was no history suggestive of excessive menstrual bleeding or dysmenorrhea. The patient had no significant medical or surgical history, and family history was noncontributory.

3. Clinical Examination

On general examination, the patient appeared moderately built with pallor, cold extremities, and clinical dehydration. Vital signs were stable.

Abdominal examination revealed diffuse tenderness without guarding or rigidity. No palpable mass was identified.

Systemic examination was otherwise unremarkable.

4. Investigations

Laboratory investigations showed:
Hemoglobin: 8.3 g/dL
Packed cell volume: 25.5%
Normal leukocyte and platelet counts
Normal renal and liver function tests
Urine pregnancy test was positive. Screening for HIV, hepatitis B, hepatitis C, and syphilis was negative.

Pelvic ultrasonography demonstrated:
- Normal uterus with endometrial thickness of 8.6 mm
- Heterogeneous hyperechoic right adnexal lesion measuring approximately 3.8 × 3.6 × 3.5 cm
- Moderate free fluid with internal echoes
- Right ovary not separately visualized

These findings were suggestive of ruptured ectopic pregnancy with hemoperitoneum.

PET scan reported-
- Metabolically active right cardiophrenic lymphnode.
- Metabolically active soft tissue deposits in mesentery, omentum, peritoneum and bilateral lung nodules - consistent with metastases.
- Metabolically quiescent ascites.

Management
Given the acute abdomen and imaging findings, emergency diagnostic laparoscopy was performed (29 November 2025). Intraoperative findings:

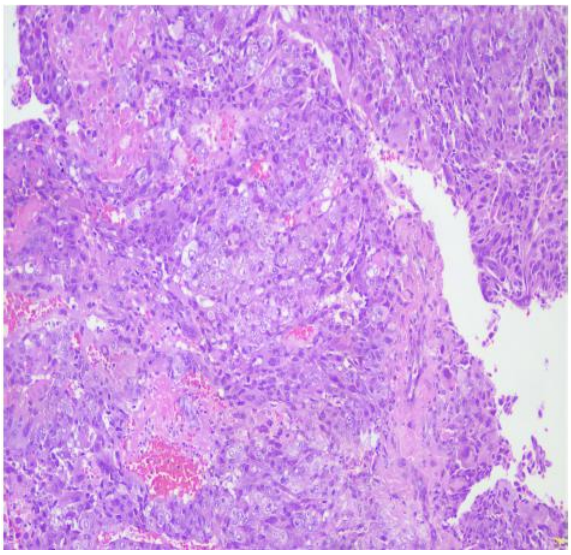
- Approximately 1300 mL hemoperitoneum
- Ruptured right tubo-ovarian mass
- Normal uterus, left fallopian tube, and ovary

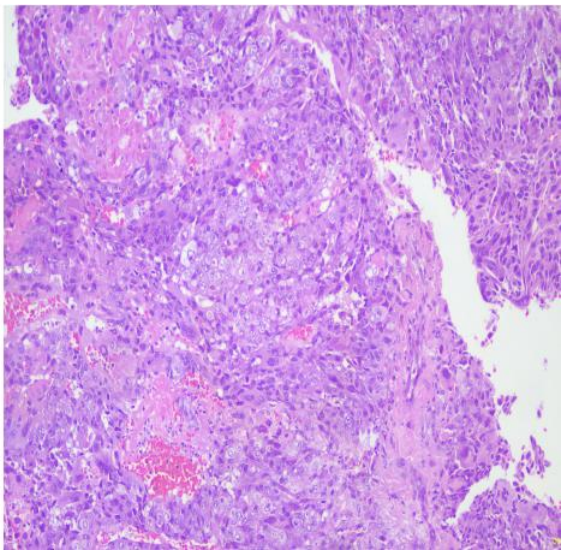
Right salpingo-oophorectomy was performed, and one unit packed red blood cells was transfused intraoperatively.

The postoperative period was uneventful.

Histopathology and Immunohistochemistry

Histopathological examination of the excised specimen revealed features of a poorly differentiated malignant tumor of the right ovary. In view of elevated β-hCG levels, differential diagnoses included mixed germ cell tumor, non-gestational choriocarcinoma, and surface epithelial tumor with choriocarcinomatous differentiation.

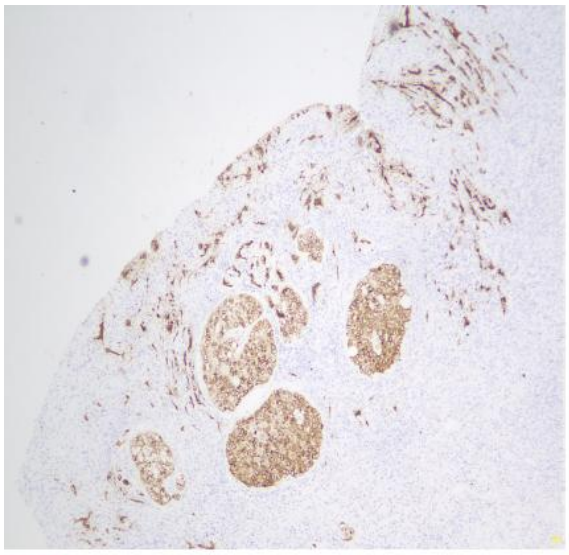




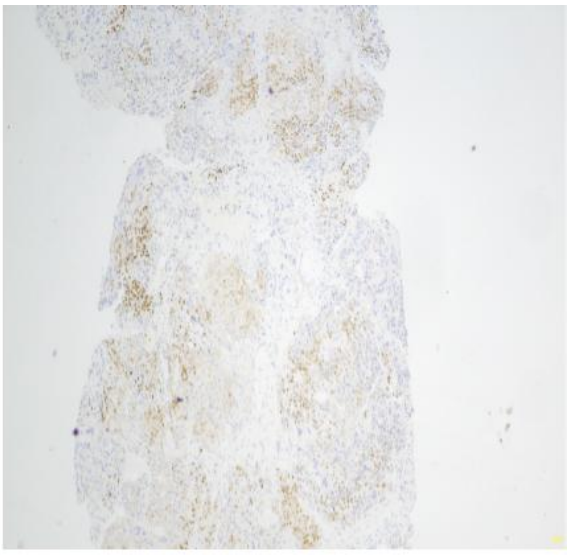
Immunohistochemical analysis confirmed the diagnosis of a mixed germ cell tumor of the right ovary composed of dysgerminoma with choriocarcinoma.

Immunohistochemistry

IHC Markers	Result
PANCK	Positive
CD30	Negative
B HCG	Positive
SALL4	Positive
PLAP	Positive



PLAP



SALL4

Adjuvant Therapy

A medical oncology opinion was obtained following receipt of histopathological reports

Patient was given 4 cycles of JeB (Carboplatin since the child has mild hearing loss in the right ear) every 21 days, before each cycle beta hcg was documented

JEB

Day 1: Inj Etoposide (120mg/m2)

Day 2: Inj Etoposide (120mg/m2) and Inj Carboplatin (600mg/m2)

Day 3: Inj Etoposide (120mg/m2) and Inj Bleomycin 15 units/m2

5. Discussion

Mixed ovarian germ cell tumors are uncommon neoplasms but represent an important subset of ovarian malignancies in adolescents.[2] The coexistence of dysgerminoma with choriocarcinoma is rare and may result in markedly elevated β-hCG levels.[3] This biochemical feature can mimic pregnancy-related conditions, particularly ectopic pregnancy, posing diagnostic challenges.

In the present case, the positive pregnancy test combined with acute abdominal pain and ultrasonographic evidence of adnexal mass with hemoperitoneum strongly suggested ruptured ectopic pregnancy. Similar diagnostic pitfalls have been reported in the literature where germ cell tumors masqueraded as gestational conditions.[5]

Tumor rupture leading to hemoperitoneum is an uncommon presentation but requires emergency surgical intervention. Fertility-sparing surgery is generally recommended in young patients when feasible because most germ cell tumors respond well to chemotherapy.[6]

Histopathology remains the gold standard for diagnosis. Immunohistochemistry is crucial in differentiating mixed germ cell tumors from epithelial ovarian malignancies or metastatic gestational trophoblastic disease. Expression of PLAP, OCT3/4, CD117, and β-hCG assists in confirming germ cell origin and identifying choriocarcinomatous differentiation.[7]

Prognosis of malignant ovarian germ cell tumors has significantly improved with platinum-based chemotherapy, with survival rates exceeding 85–90% when diagnosed early.[8] Long-term fertility preservation is often achievable.

This case emphasizes the importance of considering ovarian malignancy in adolescents presenting with acute abdomen and elevated β-hCG, particularly when clinical history does not strongly support pregnancy.

6. Conclusion

Mixed ovarian germ cell tumors with choriocarcinomatous differentiation are rare but important differential diagnoses in adolescents presenting with suspected ectopic pregnancy. Accurate diagnosis relies on histopathology and immunohistochemistry. Early surgical intervention followed by appropriate chemotherapy can result in favorable outcomes

Declarations

Funding: None

Conflict of Interest: None declared

Ethical Approval: Not required for single case report as per institutional policy

Patient Consent: Written informed consent was obtained from the patient

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