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# Dysgerminoma: A Rare Case of Malignant Ovarian Tumor

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**Abstract**

**Background:** Dysgerminoma is a germ cell tumor of the ovary, most commonly occurring in young females. Regarding behavior, it's a malignant tumor. But early diagnosis usually leads to a good prognosis. **Case summary:** A 23-year-old female presented with lower abdominal pain, anorexia, weight loss, and on clinical examination palpable mass in the left lower abdomen. Ultrasound showed a large, irregular, lobulated solid mass (measuring 22×21cm) on the left ovary and mild ascites. A surgical approach was decided as the first-line treatment. Microscopic aspects were consistent with dysgerminoma. There was no metastasis. **Conclusion:** Dysgerminoma usually has a favorable prognosis if diagnosed early. Histopathological confirmation and staging are necessary for further management.

**Keywords:** Dysgerminoma, Ovarian tumour.

## Introduction

Ovarian dysgerminoma is a malignant tumor that originates from primordial germ cells of the ovary. They are defined by the World Health Organization (WHO) as tumors composed of primitive germ cells that do not have a specific pattern of differentiation.[1,2] It is the female counterpart of testicular seminoma and has no precursor lesion. It constitutes about 0.9-2% of all ovarian malignancies and is about half of malignant ovarian germ cell neoplasm (33–37%).[3]

## Case report

A twenty-three-year-old female was admitted to Gazi Medical College Hospital, Khulna in June 2022 with the complaint of lower abdominal pain, anorexia and gradual weight loss. She was born to healthy non-consanguineous parents with no significant family history. She was married, having one child aged 4 years. Her menstrual history was regular.

On clinical examination, there was a hard, irregular, slightly tender, mobile mass in the left lower abdomen and ultrasound showed a large, irregular, lobulated solid mass (measuring 22×21cm) on the left ovary with mild ascites.

Her complete blood count revealed mild anemia with Hb level 10.0 g/dl. And ESR was 80 mm in 1st hour. Serum CA-125 was slightly elevated (85 Unit/ml). All other investigation findings were absolutely normal.

With these findings, the surgeons suspected this case was a malignant ovarian tumor. After proper counseling with the patient party and obtaining their consent, surgeons planned to do a total abdominal hysterectomy with bilateral salpingo-oophorectomy. During this procedure, a left-sided ovarian tumor was found measuring 22×20 cm. The tumor surface was irregular and lobulated. There were mild ascites and the fluid was collected for cytological examination, and no malignant cell was found. There was no other sign of metastasis. The specimen was then sent for histopathological evaluation.

The pathology specimen demonstrated a large, well-encapsulated mass measuring 17.0×13.0×7.0 cm with left ovary (3.0 cm) and fallopian tube (2.5 cm). The cut section of the mass is solid, lobulated, fleshy, and tan-white (Fig 02). Grossly, the cut section was devoid of hemorrhage and necrosis. The right-sided ovary was about 2.5 cm and the fallopian tube was 3.5 cm. Histopathological examination revealed a malignant germ cell tumor (left-sided) compatible with dysgerminoma (Fig 03) demonstrating variably sized

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nests of uniform polygonal cells with abundant granular eosinophilic or clear cytoplasm and distinct cell membranes that resemble primordial germ cells. The cells had a central large round or flattened nucleus that contained one or a few prominent nucleoli. The tumor proliferation had a trabecular pattern. The tumor architecture presented fibrous septa, with mature lymphocytes. There was no hemorrhage or necrosis.
Then the patient was referred to an oncologist for further treatment and she took chemotherapy.

## Discussion

Ovarian dysgerminoma is the counterpart of testicular seminoma, occurring most commonly in the second and third decades. In our case, the patient's age was 23. We have found the same age of occurrence in some other studies.[3] Germ cell tumors are usually unilateral, while bilateral neoplasms are rarely reported in about 10–20%.[4] In our case the tumor was also unilateral. Usually, the cases of bilateral tumors require additional investigations because local expansion with contra-lateral ovary invasion may be present.[5] Dysgerminoma has variable clinical manifestations. It may be asymptomatic, abdominal distension, abdominopelvic mass, or fever.[6] Our patient experienced lower abdominal pain, anorexia and gradual weight loss. Occasionally, dysgerminoma may be diagnosed during pregnancy (20%), with some tumors being fortuitously discovered during cesarean section.[7]

Regarding imaging features, dysgerminomas are characteristically purely solid with few exceptions. At USG, they show heterogeneous echogenicity, smooth lobulated contours and well-defined borders and they are richly vascularized at color Doppler USG.[8,9] The USG images in our case revealed a large irregular lobulated solid mass solid (measuring 22×21cm) on the left ovary with mild peritoneal ascites.

Dysgerminoma is not a hormone-secreting tumor and is not usually accompanied by endocrine disorders. Epidemiological data showed that Ovarian Dysgerminoma can be associated with some factors, such as(i) dysontogenic gonads; (ii) paraneoplastic hypercalcemia, or (iii) endocrine disorders. Recent evidence suggests that Ovarian Dysgerminoma is the most common malignant tumor of the gonads in patients with dysgenetic gonads. According to the WHO Classification of Tumors 2020, Ovarian Dysgerminoma usually occurs as a part of gonadal dysgenesis.[1]

The morphological landscape and structural heterogeneity of these tumors are the consequence of germ cells' ability to differentiate in divergent ways at different stages of development.[10] Histologically, dysgerminoma is divided into a pure form, having a good prognosis, and a mixed type with a variable admixture of germinal elements (15%) (teratoma, embryonic carcinoma, or yolk sac tumor).[11] In this case, our patient had a pure dysgerminoma.

The clinical features and prognosis depend on the tumor stage. An overall five-year survival rate is satisfactory exceeding 75% even 90% in stage I. However it is decreasing to approximately 63% in patients with extended disease beyond the ovaries.[12] The majority of Ovarian dysgerminomas are diagnosed at an early stage and respond well to fertility-sparing surgery. Localized dysgerminomas usually have long-term outcomes without recurrence or metastasis. Therefore, dysgerminoma represents a group of potentially curable diseases with excellent prognosis.

Other factors that can be associated with prognosis include: tumor stage, histological type, tumor markers and the presence of residual tumor. In cases where the tumor is well-defined, surgical removal is not generally followed by local recurrences or metastases. Still, tumor recurrences occur in approximately 10–20% of patients in the vast majority of cases in stage I and the first two years of initial presentation.[13,14] The recurrence rate increases significantly after the age of 45.[15] At present, there is no evidence of recurrent disease in our patient.

In the advanced stage, dysgerminoma infiltrates the neighboring tissues by direct extension. It also spreads into the regional or distant lymph nodes and at the level of the pelvic and abdominal peritoneum. Dissemination by hematogenous invasion is responsible for distant, uncommon metastasis.[16,17] Our case did not have any metastasis.

## Conclusion

Dysgerminoma is a malignant germ cell tumor of ovary. But it has a better prognosis than other types. Confirmation of diagnosis by proper histopathological examination and finding out the invasive foci in adjacent organs can help the surgeon for further management.

## Acknowledgment

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**Figures:**

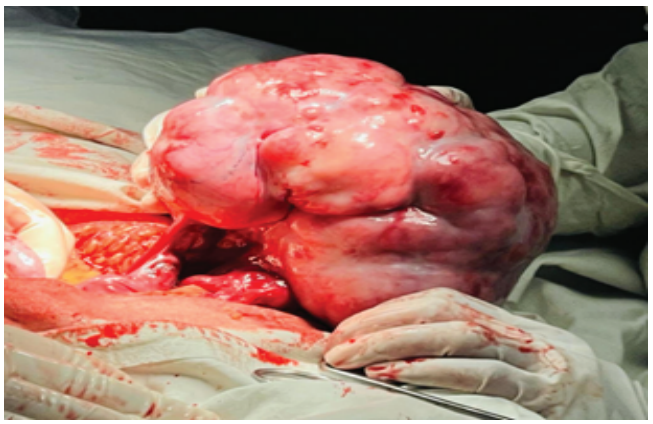

**Figure 01: Ovarian tumor during operation.**

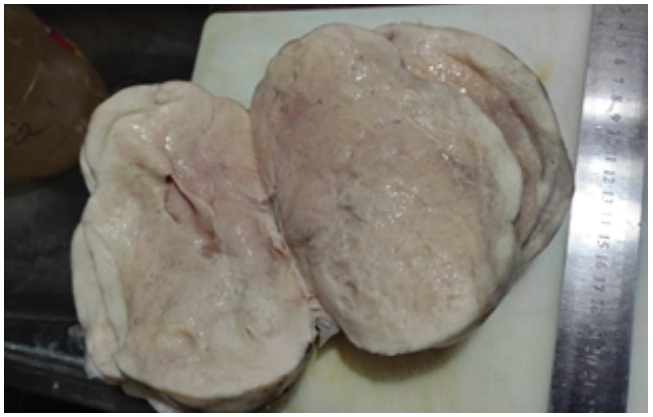

**Figure 02: The cut section of ovarian tumor is devoid of hemorrhage and necrosis.**

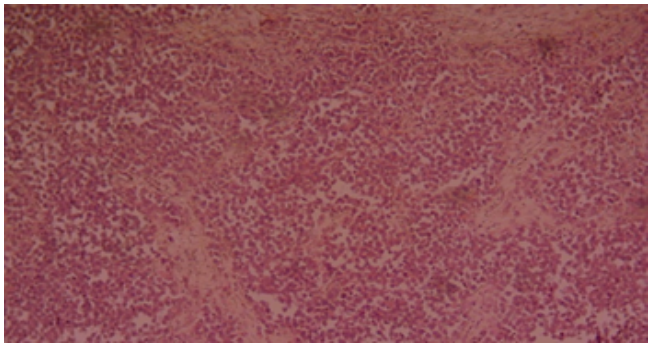

**Figure 03: Photomicrograph of ovarian dysgerminoma (Hematoxyline & Eosin stain x100).**

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