Dysgerminoma with Pregnancy: A Rare Ovarian Tumor Case Report

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Abstract: A case, 24 year old Balinese woman pregnant woman G3P1011 was from Sanglah General Hospital, Bali, Indonesia. She was gravida 29 week with Dysgerminoma. Measurements were made on CA 125, AFP, USG abdomen. Frozen section, left Salpingo-oophorectomy and omentectomy were done preserving the pregnancy. The result of histopathology examination of paraffin block on tuba and ovarium sinistra, omentum and cytology of ascites fluid after surgical removal was ovarian dysgerminoma stage Ic. The immunochemistry staining CD 117 confirmed the diagnosis of ovarian dysgerminoma.

Keywords: Dysgerminoma of ovary, Pregnancy

1. Introduction

Pregnancy with dysgerminoma type ovarian cancer is a very rare condition, as evidenced by the lack of scientific publications that discuss the case. Dysgerminoma is the most common ovarian cancer found in pregnancy, where 2-3% of the mass in the ovaries detected during pregnancy is cancer ovary. Another literatures mention the incidence of ovarian cancer in pregnancy was 4 until 8 of 100,000 pregnancies. The incidence increases by the increasing quality of antenatal examination.¹ ² ³ Germ cell tumors are around 70% of ovarian tumor cases, occurring during the first decades of life, manifest with malignant characteristics in 1/3 of cases and are rarely found after this period. Dysgerminomas are non epithelial ovarian tumors derived from ovarian germ cells. Dysgerminomas are very rare but are the most common germ cell tumors of any type, often found in the early stages and in young age, and are responsible for about 10% of ovarian cancer cases.⁴ ⁵ ⁶

Most dysgerminomas are unilateral and occur predominantly on the right side, but around 12 percent of cases may be bilateral. Dysgerminoma is the most common malignant germ cell tumor, accounting for 30-40% of all ovarian cancers derived from germ cells. They represent only 1-3% of all ovarian cancers, but represent as many as 5-10% of ovarian cancers in patients under the age of 20. About 65% of Dysgerminomas are diagnosed in stage I and 85-90% of these tumors are limited to one ovaries, while 10-15% are bilateral. Other germ cell tumors are rarely bilateral. In patients whose contralateral ovaries are conserved, dysgerminoma may occur around 5-10% over the next 2 years.

The diagnosis of pregnancy with dysgerminoma confirmed by histopathology, ultrasound examination and the serum tumor marker is the one of the diagnostic criteria for predicting dysgerminoma type of ovarian cancer. Ultrasonography has a 90% sensitivity, 90% specificity, 69% predictive value (PPV) and 97% negative predictive value (NPV) in determining the ovarian mass suspected of a malignant suspicious ovarian cyst.⁷ ⁸ ⁹ Ultrasound imaging combination with CA125 increases the sensitivity until 93, 7 to 95.6% and the specificity 91.1 to 100%. ¹⁰

2. Case Report

A 24 year old G3P1011 was from Sanglah General Hospital, Bali, Indonesia. She was gravida 29 week. Based on clinical data, laboratory tests, ultrasound examination, frozen section and histopathology examination this case was diagnosed as dysgerminoma in pregnancy. Dysgerminoma is a rare condition, with poorly understood behavior during pregnancy. The incidence of ovarian cancer during pregnancy is 4:100,000. The incidence increases along with the quality of antenatal examination. Pregnancy coincided with dysgerminoma cause impact to pregnancy itself, on the fetus, and dysgerminoma progression.

Ultrasound examination showed a solid mass at left adnexa with diameter 11.17cm. Tumor marker tests on Alpha-Fetoprotein(AFP) 135, 48 (N < 8, 0 IU/mL), Cancer Antigen 125 (CA 125) 113, 44 (N < 35 U/mL), Human Epididymis Protein 4 (HE4) 68, 9, Risk of Malignancy Index (RMI) 340, 32, the Risk of Ovarian Malignancy Algorithm (ROMA) 99, 37%.
The patient had normal delivery. Surgical staging performed on post-partum day 42. Patient undergone frozen section, total abdominal hysterectomy-salpingo-oophorectomy dextra (TAH-SOD) and performed histopathology examination. Evaluation of nodules in omentum was negative, performed omentectomy and evaluation of lymph nodes and no enlargement occurs. Histopathology examination and immunohistochemistry staining were positive, that was consistent with dysgerminoma. The cytology examination from ascites fluid was positive malignant cells.

**Pathological Findings**

**Macroscopic examination:** An ovarian mass of 19 cm x 16 cm x 13 cm in size, bosselated outer surface and intact capsule. Cut section showed a solid and cyst, white and tan colored mass along with foci of hemorrhage and necrosis (Figure 1 ).The tumor was infiltrative to the ovarian capsule.

**Microscopic examination:** Tissue sections of the mass showed well defined nests of polygonal to round cells, uniformly size with clear cytoplasm, medium size vesicular nuclei and prominent nucleoli, some mitosis, separated by thin fibrous septa that contain lymphocyte inflammatory cells. The fallopian tube was normal. The malignant cells were present in the peritoneal fluid.

Immunohistochemistry staining showed CD 117 positive in membrane cell for Dysgerminoma.

**Figure 1:** Ultrasonography revealed a pregnancy and Ovariunsolid tumor

**Figure 2:** Grossly cut section showed solid mixed with cystic mass of left ovarian, tan colored growth with foci of hemorrhage and necrosis

**Figure 3:** Cytologic examination of ascites fluid showed malignant cells, papanicuolou (400x) (A). Inprint: Scattered of malignant cells. Diff kwik(400x)(B). Histopathologic examination showed polygonal to round cells, uniformly sized with clear cytoplasm, medium size vesicular nuclei and prominent nucleoli, some mitosis, separated by fibrous strands containing lymphocyte inflammatory cells HE (400x) (C). Immunohistochemistry staining CD 117 was positive in membrane cells (400x) (D).

Histopathologically, dysgerminomas usually consist of sheets or 'nests' of polygonal cells with eosinophilic cytoplasm to clear and different cell membranes. The tumor cells have a uniformly large uniform core with vesicular chromatin, located in the middle and prominent nucleoli. Membrane typical nucleus ("squared off") . Total number of mitoses. Tumors are usually separated by thin connective tissue containing infiltration of lymphocyte inflammatory cells (mostly T cells) and epithelial histiocytes that can form sarcoid-like granulomas. Lymphocytes and histiocytes epitheloid (rare ) spread among tumor cells. About 3% of dysgerminomas contain giant syncytiotrophoblast cells that are directly derived from dysgerminoma cells without any cytotrophoblast involvement. Some tumors exhibit a broad necrotic focus that may indicate dystrophic calcification. In this case the histopathologic examination results revealed the morphology appropriate for dysgerminoma.

Further planning to this patient was continuing the mode of delivery as obstetrical indication. Plan also to do a sectio caecarian if needed and relaparatomy surgical staging (simultaneously) at 38 weeks of gestation. Chemotherapy will performe and still waiting the pregnancy reaches 38 weeks of gestation. Oncogynaeology division performed the chemotherapy by giving 4 series as the protocol.

The Patient inpartu by normal (pervaginam) delivery, healthy male baby was born with body weight 2100 gram. Surgical staging performed on post partum day 42. After delivery, performed surgical staging for relaparatomy:
Large uterine identification and normal consistency. Performed partial abdominal hysterectomy-
salpingooophorectomy dextra (TAH-SOD) and performed histopathology examination. Evaluation of nodules in omentum (+), performed omentectomy, evaluation of lymph nodes and no enlargement occurs.

3. Discussion

To establish the diagnosis of pregnancy with ovarian cancer IC type of dysgerminoma is quite difficult, because the diagnosis of dysgerminoma is made by histopathologic examination in which this involves an invasive procedure, through laparotomy surgical staging. Although some journals suggest that surgical removal procedures adnexa during pregnancy is safe for mothers and infant outcomes, but other journals mention the rate of spontaneous abortion in first trimester and premature delivery in the third trimester increases. The diagnosis of ovarian cancer IC type dysgerminoma in this patient is enforced after histopathologic examination after conservative laparotomy surgery and omentectomy as well as cytology of ascites fluid at 29 weeks 6 days.

The lack of reports on pregnancy cases with ovarian cancer results in at least some data on the effect of pregnancy on ovarian cancer. Based on existing case reports, although pregnancy does not affect the prognosis of an ovarian tumor, torsion of ovarian tumors may occur. Types of adnexal mass during pregnancy of 10-15% occur most often at week 8 to week 16 when the uterus enlarges rapidly. The incidence of ovarian torsion in the third trimester of pregnancy is 5.9%. Ovarian torsion may cause acute abdominal and fetal loss especially during first trimester pregnancy.

Ovarian dysgerminomas need to be diagnosed accurately because its treatment and prognosis differs considerably from other ovarian neoplasms. Dysgerminomas has a better prognosis and greater sensitivity to available treatment modalities among all ovarian neoplasms. Cure rate approaches almost 95% employing conventional treatment options. Dysgerminoma is one of the two most common malignant germ cell tumors of the ovary. Still, it accounts for only 1-2% of all malignant ovarian tumors. Dysgerminoma occurs mainly in children and young women. The average age is 22 years, and 90 percent of patients are less than 30 years of age. About 20 percent of malignant ovarian tumors detected during pregnancy are dysgerminomas. The usual presentation is with nonspecific findings such as abdominal distention, an abdominal mass, or abdominal pain. Some patients have menstrual abnormalities or gastrointestinal or urinary symptoms.

Rare patients have hypercalcemia. Serum lactic dehydrogenase (LDH) is frequently elevated but increased levels of serum alpha-fetoprotein or human chorionic gonadotropin are generally not detected. If increased, they suggest that other germ cell elements are present in the tumor. Of note, however, about 3% of patients with a pure dysgerminoma have increased amounts of beta-hCG in the blood, secreted by syncytiotrophoblastic cells within the tumor. Dysgerminoma is the most common malignant gonadal tumor in patients with gonadal dysgenesis. Dysgerminoma is confined to the ovaries (stage I) at diagnosis in 60–80 percent of patients. It is usually unilateral, which is characteristic of all malignant germ cell tumors.

Dysgerminoma is unique among these tumors in that it is the only one with a significant incidence of bilaterality; both ovaries contain tumor (stage IB) in 5–15 percent of cases. The tumor in the contralateral ovary is grossly visible in half of the bilateral cases and it is a strictly microscopic finding in the other half. Some oncologists recommend biopsy of an apparently normal contralateral ovary if treatment is to be by unilateral salpingooophorectomy only. Dysgerminoma metastasizes via the lymphatics to the paraaortic lymph nodes, with subsequent spread to the mediastinal lymph nodes, and by transperitoneal spread to the pelvic and abdominal peritoneum.

Unilateral encapsulated dysgerminoma (FIGO stage IA) can be treated by salpingooophorectomy with a 5-year survival rate of greater than 90 percent. Postoperative therapy has been advocated for patients with localized disease, but there is an increasing trend to follow such patients closely and administer chemotherapy only to those who develop a recurrence. Recurrences can usually be successfully managed. When dysgerminoma develops in a dysgenetic gonad, the appropriate treatment is bilateral gonadectomy. The standard treatment for advanced disease (stage >IA) is total abdominal hysterectomy, bilateral salpingooophorectomy, limited debulking, and postoperative chemotherapy or radiotherapy. If they are not involved by tumor, the uterus and the contralateral ovary may be conserved in young patients when preservation of fertility is important. Chemotherapy with platinum-based regimens is highly effective against dysgerminoma and is less likely than radiation to cause ovarian failure and infertility. Overall survival of optimally treated patients now exceeds 90 percent. Recurrences usually become evident within two years of primary treatment.
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5. Conclusion

Pregnancy with ovarian cancer is a rare case. The prognosis depend on the early stage of diagnosis. Based on clinical data, laboratory test, USG, frozen section, histopathology examination and immunochemistry staining, this case was diagnosed as dysgerminoma in pregnancy. Detected at an early stage, the 5 years survival rate can reach 90-95%. Chemotherapy given with very carefully. The success of therapy is determined by early diagnosis at the early stage, prompt histopathologic, the routine antenatal care (ANC) and the using of ultrasound examination.

References


