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CASE REPORT

Malignant Lipid Cell Tumor of The Ovary

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ABSTRACT

Lipid (steroid) cell tumors of the ovary are one of the rarest forms of ovarian neoplasm, account for less than 0.1% of all ovarian neoplasms. A 66-year-old Thai woman with pelvic mass was diagnosed as malignant lipid (steroid) cell tumor of the right ovary. The right ovarian mass weighed 850 gm and measured 15x15x10 cm. The tumor composed of two cell types arranged in clusters and groups as organoid pattern intermingled with delicated fibrovascular stroma. One cell type was polygonal, contained eosinophilic and slightly granular cytoplasm. The other cell type was larger, with abundant, vacuolated, often spongy cytoplasm. Foci of necrosis and hemorrhage were observed. The histopathological evidence of metastasis to omentum, wall of sigmoid colon and mesentery of caecum was compatible with malignant lipid cell tumor of the ovary. The patient received 6 courses of chemotherapy and loss to follow-up 7 months after the main operation.

Key words : malignant, lipid cell tumor, ovary

Lipid cell tumor of the ovary belongs to a group of ovarian neoplasms whose cells are resemble typical steroid hormone secreting cells. The neoplastic cells have clear cytoplasm and about 75% of tumors composed of cells containing neutral lipids as shown by biochemical and histomorphological analyses. Lipid (steroid) cell tumors of the ovary are one of the rarest forms of ovarian neoplasm, account for less than 0.1% of all ovarian neoplasms.[1]

Case report

A 66-year-old Thai woman, 25 years postmenopausal, gravida 7, para 7, was admitted at Lampang hospital, a regional hospital, with symptom of epigastric pain and nausea. By physical examination, a mass was palpated at the lower midline of abdomen and initially was diagnosed as ovarian tumor. Abdominal exploration was done and disclosed a large soft hemorrhagic nodular mass occupied nearly the whole pelvis. The tumor could not be removed due to excessive bleeding. Omental biopsy was done and pathologic examination was reported as malignant clear cell tumor, primary may be from ovary or retroperitoneum.

Three weeks after operation she was referred to Maharaj Nakorn Chiang Mai hospital for further mangement of malignant clear cell tumor of unknown origin. Physical examination revealed a pelvic mass with nodular surface and fixed to surrounding tissue measuring about 20 weeks size of pregnant uterus. Liver, spleen and lymph nodes were not enlarged. No rectal shelf was found. Chest film showed normal appearance. Total abdominal hysterectomy with bilateral salpingo-oophorectomy, omentectomy, appendectomy, and biosy wall of small intestine and sigmoid colon were done.

Gross pathological findings

The specimen consisted of a uterus and left ovary together weighing 50 gm. The uterus measured 8x4.5x2 cm. The left ovary mesured 2x1x0.5 cm. They were grossly unremarkable. The right ovary weighed 850 gm and measured 15x15x10 cm. The external surface was yellowish-white to reddisd-brown and lobulated with ruptured lesion. Sections through the specimen revealed solid and cystic mass showing yellowish-orange, reddish-brown and dark brown, soft lobulated cut surfaces with extensive necrosis and hemorrhage, measuring 0.5 to 2.5 cm in maximum dimension (Figure 1). A piece of omentum with yellowish-brown nodules weighed 150 gm. Biopsy specimens from mesentery of caecum, wall of sigmoid colon and wall of small intestine consisted of yellowish-gray and reddish-brown nodules measuring up to 5 cm in greatest dimension.

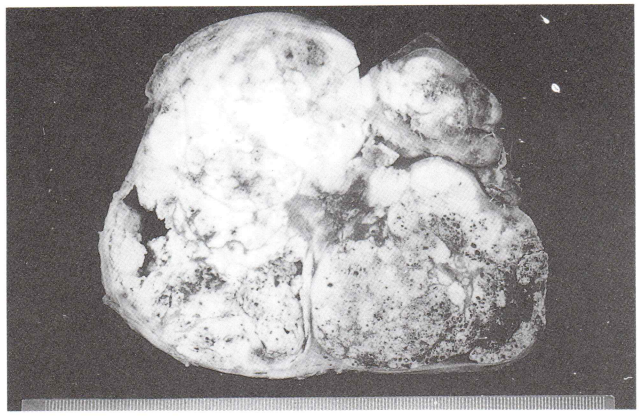

Figure 1. Gross specimen of the right ovary showing variegated cut surface.

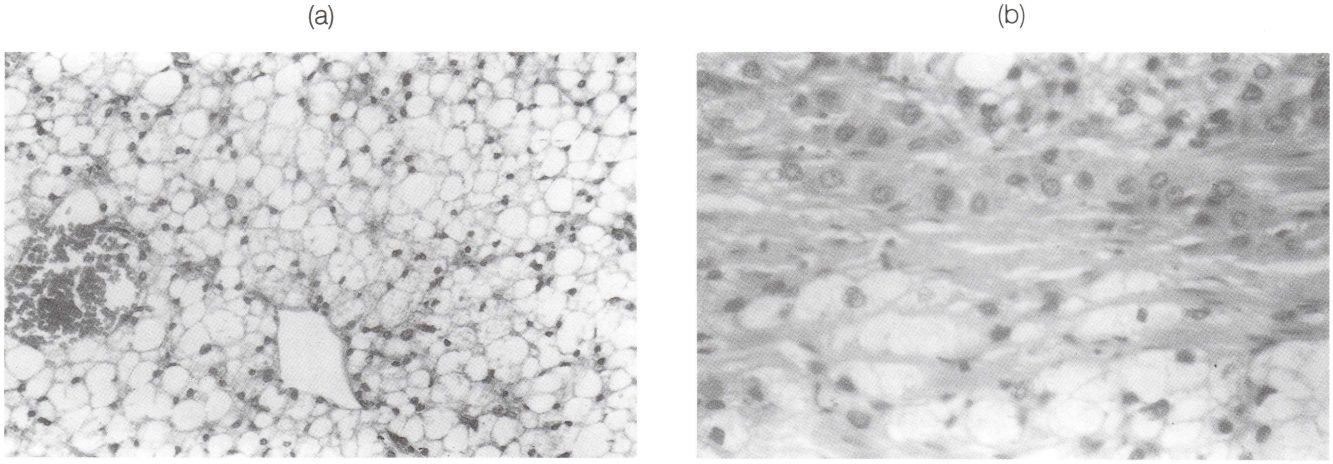

Figure 2. Microscopic appearance of lipid cell tumor of the ovary. The tumor consisted of two cell types, eosinophilic cells with slightly granular cytoplasm and clear cells with abundant vacuolated spongy cytoplasm. (a) 10x10 and (b) 10x40

Table 1. Comparison of features of probably benign and malignant tumors by Hayes and Scully series

Characteristic features	Benign	Malignant	Case report
Age (average and range)	38 yr (3-65 yr)	54 yr (22-80 yr)	66 yr
Endocrine symptoms	58%	61%	No
Duration of symptoms	3.6 yr (2 mo-30 yr)	2.3 yr (4 mo-8 yr)	Not known
Tumor's diameter 7 cm.	21%	100%	15 cm.
Macroscopic necrosis	0%	50%	Yes
Macroscopic hemorrhage	13%	56%	Yes
Microscopic necrosis	8%	67%	Yes
Vascular invasion	4%	11%	No
Nuclear atypia (grade 0 or 1)	79%	50%	Yes
Nuclear atypia (grade 2 or 3)	21%	50%	No
Mitotic figure 2/10 HPF	4%	61%	Yes

Microscopic findings

This right ovarian tumor composed of two cell types arranged in clusters and groups as organoid pattern intermingled with delicated fibrovascular stroma. The first cell type was polygonal, varied from medium to large size, and contained eosinophilic and slightly granular cytoplasm. These cells usually had distinct cell border and single, small, uniform, central nuclei with single nucleoli. The other cell type was larger, with abundant, vacuolated, often spongy cytoplasm. These cells had distinct cell membranes and small, often vesicular nuclei. There was grade 0-1 nuclear atypia. The mitotic rate of the neoplasm was 4 mitotic figures per 10 high power fields. Fat stain showed abundant intracellular lipid. Foci of necrosis and hemorrhage were observed.

The uterus, both fallopian tubes and left ovary showed no pathological change.

Groups of tumor cells similar to the right ovarian tumor were seen in the omental nodules and biopsy specimens at mesentery of caecum and wall of sigmoid colon. The biopsy specimen from wall of small intestine showed only vascular congestion and chronic inflammatory cell infiltration.

Pathological diagnosis

Malignant lipid (steroid) cell tumor of the right ovary, tumor extended through ovarian capsule, with metastasis to omentum, wall of sigmoid colon and mesentery of caecum.

Discussion

Lipid (lipoid) cell tumor of the ovary is among the rarest ovarian neoplasms. The terms "lipid cell tumor" and "lipoid cell tumor" have been used to designate a group of morphologically similar ovarian neoplasms of diverse cellular origin. These tumors are composed exclusively of cells resembling typical steroid hormone-secreting cells-i.e., lutein cells, Leydig cells, and adrenal cortical cells.[2] Some authors proposed the term "steroid cell tumor" for these neoplasms. However, some cases had no evidence of hormonal disturbance. It is interested that this group of tumors differs from the hilar cell tumor of the ovary. One cell type may resemble adrenocortical cells rather than Leydig cells. Some of the hilus-like cells contain crystalloids of Reinke. The lipid cell tumors are larger and the age occurrence is younger than that for hilar cell tumors.

Histogenesis of the lipid cell tumor of the ovary is unknown. There is evidence suggesting that the tumor arises in the ovarian stromal cells rather than from adrenal cortical rests.[3] Some tumors contained little or no lipid. In the series of Hayes and Scully, fat stains were positive in 75% of the 16 cases in which they were performed. Approximately 75 % of these tumors are known to be functional with a capability of producing one or more steroids associated with virilization. Most lipid cell tumors have been shown to be benign, however, some malignant lipid cell tumors of the ovary have been reported. In the series of Hayes and Scully, 43% of the tumors were malignant. These tumors spread by direct extension and invasion.

From the series of Hayes and Scully[2] who found 63 tumors in the steroid cell category, collected over a period of 37 years comparison with the present case is shown as table 1.

The histopathological evidence of metastasis to omentum, wall of sigmoid colon and mesentery of caecum in the present case was compatible with malignant lipid cell tumor of the ovary.

Ultrastructural studies of lipid cell tumors have demonstrated that the cytoplasm of the tumor cells contained abundant smooth endoplasmic reticula, well developed mitochondria with tubular cristae, lipid droplets, lysosomal dense bodies, and concentric membranous whorls, characteristic of steroidogenic cells. In addition, "peripheral canalicular system" were found at the outer margins of the nests of the tumor cells. The intercellular and "peripheral" canalicular systems and cytoplasmic microfilaments found in this tumor suggest that this ovarian lipid cell tumor was derived from the ovarian stroma.[4]

The patient regularly came back for follow up for chemotherapy (PVB; Cisplatin, Vincristine and Bleomycin). After 4 couses of PVB chemotherapy, clinical wheezing and moderately reduced forced vital capacity (FVC) were noted. Diffused reticulonodular infiltration was seen in both lungs by chest x-ray. The clinical findings were suggested for pulmonary fibrosis. Two more courses of chemotherapy with only Cisplatin and Vincristine were given. Folow up chest x-ray still showed diffused reticulonodular infiltration in both lungs at the last admission (7 months after the main operation). After that the patient was lost to follow up.

Summary

A case of nonfunctional, malignant lipid cell tumor of ovary in a 66-year-old woman was reported.

References

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