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Case Report: A Rare Case of Primary Malignant Melanoma of The Ovary

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ABSTRACT

Primary malignant melanomas of the ovary are extremely rare. We present a case of primary malignant melanoma arising from a dermoid cyst.

The most challenging aspect of the tumor is late diagnosis, most often after distant metastasis as most patients do not present with significant symptoms. Pelvic ultrasound with Doppler can raise the suspicion of malignancy but it is not diagnostic. Pelvic MRI with contrast can also give valuable information to indicate early surgical intervention. Malignant melanoma of the ovary is more commonly a secondary tumor to a distant primary.

Key words: Primary malignant melanoma of ovary; Dermoid cyst; Cystic teratoma

INTRODUCTION

Cystic teratoma is a type of germ cell tumor that contains well-differentiated tissues developed from three germ cell layers (ectoderm, mesoderm, and endoderm).[1] The first case of mesoderm cystic teratoma was reported by Johannes Scultetus in 1659 who described as a 'dermoid cyst of the ovary'.[1,2] Malignancy is a rare occurrence constituting about 1% of cystic teratomas.[1,3,4] Malignant melanoma is an extreme rare kind of transformation of cystic teratoma.[5,6] Primary melanomas of the ovary are thought to arise on malignant transformation of a mature teratoma, which occurred in only 0.2% - 2%.[5] Treatment for it is surgery.

CASE REPORT

29-years-old female patient, presented with mild lower abdominal pain. Patient had no previous significant medical problems or surgical history.

Pelvic ultrasound showed left ovarian dermoid cyst with normal right ovary and no evidence of deep pelvic endometriosis or bowel or bladder masses. Pelvic abdominal MRI showed no abnormalities, apart from the dermoid cyst.

Blood investigations showed raised CA-125 levels (63 KU/L). Full blood count was normal.

Decision was made for laparoscopic left ovarian cystectomy as the patient was keen to start trying for pregnancy.

During laparoscopy, the left ovary looked suspicious with marked vascularity, however; it was freely mobile with normal looking right ovary and both fallopian tubes. No evidence of pelvic endometriosis or any bowel masses was seen. Upper abdomen showed normal looking diaphragm with no apparent liver lesions.

Because of the suspicious appearance of the left ovary, decision was revised to proceed to salpingo-ophorectomy. The patient had an uneventful recovery.

Histology reported malignant melanoma. It was confirmed with detailed immunohistochemistry analysis. Histology showed mature cystic teratoma components with the malignant melanoma component infiltrating the fallopian tube. There was no evidence of any immature component in the sections (Figure 1-6). There was no evidence of endometriosis or endometrioma. The tumor cells showed diffuse strong expression of HMB-45 with SOX-10 and moderate patchy expression of Melan-A. The tumor cells were negative for CK, CK7, CK20, CD30, WT-1, Napsin-A, p40, Inhibin, Sall-4, and Pax-8.

Figures: Histopathological slides

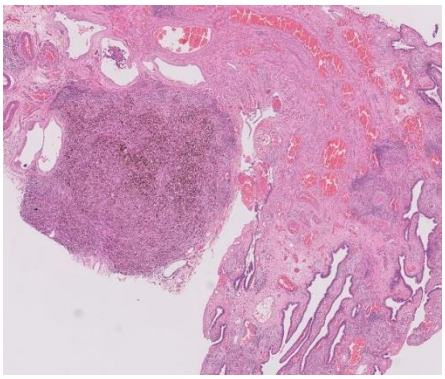

Figure 1: 10x, H&E - Fallopian tube showing pigmented tumor.

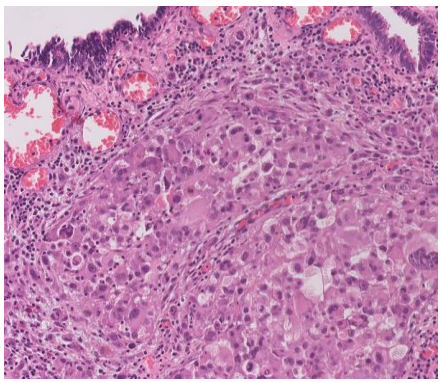

Figure 2: 40x, H&E - Fallopian tube with tumor cells.

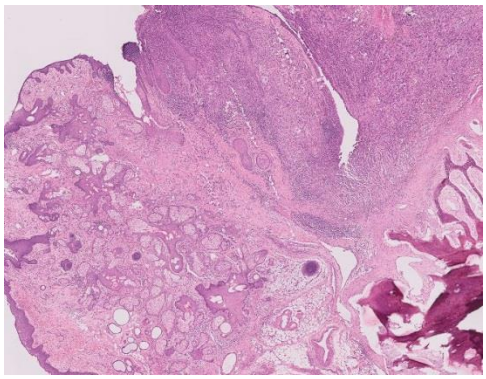

Figure 3: 10x, H&E - Teratoma component with stromal infiltration by melanoma cells.

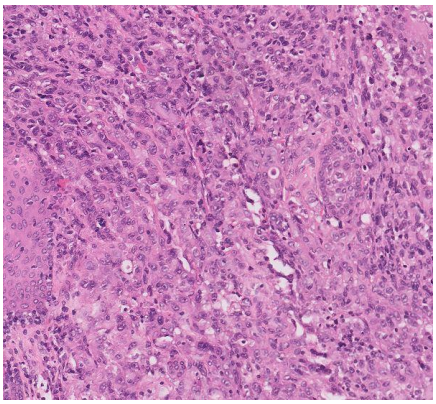

Figure 4: 40x, H&E- Epidermal component of teratoma with stromal infiltration of malignant cells.

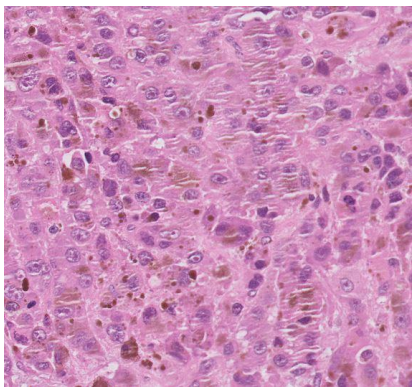

Figure 5: 40x, H&E – Tumor cells with prominent eosinophilic nucleoli and cytoplasmic brown pigment.

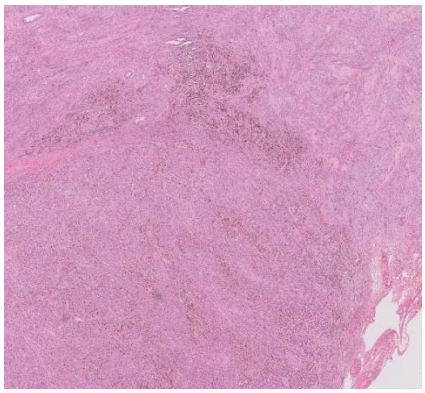

Figure 6: 5x, H&E – Solid areas of tumor with pigmentation.

IHC for HMB-45 was done with Fast red as counter stain to avoid DAB interference with the already present melanin in the tumor. (Figure 7,8)

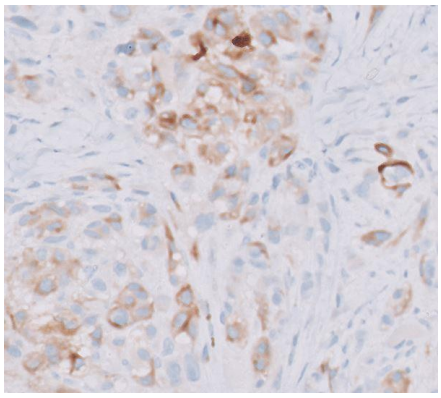

Figure 7: IHC – Melan-A, DAB Counter stain.

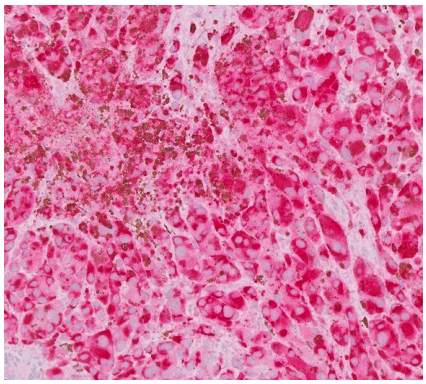

Figure 8: IHC – HMB-45 stain, Fast Red Counter stain.

PET-CT scan reported intense metabolic activity within widespread metastatic disease in the retroperitoneal nodes, throughout the liver, axial, and proximal appendicular skeleton.

The case represents a rare primary malignant melanoma of the ovary arising from dermoid cyst.

DISCUSSION

Paola, Algeri, et al reported that, primary ovarian melanoma arising on a mature ovarian cystic teratoma is extremely rare. It found only 49 cases reported in the literature.[6] Primary melanomas of the ovary are thought to arise on malignant transformation of a mature teratoma, which occurred in only 0.2% - 2%.[5] The histologic features of ovarian malignant melanomas are similar to those of melanomas originating from the skin.[7,8] The commonly observed cytomorphologic features of the tumor cells include discohesion, prominent nucleoli, cytoplasmic vacuolization, and multinucleation.[7,8] Primary malignant melanomas of the ovaries should be distinguished from metastatic ovarian melanoma since the majority of ovarian malignant melanomas developed via metastasis from tumors in other regions.[7,9] Diagnosis of primary malignant melanoma of ovaries, prior to the surgery based on symptoms is not possible. Our patient's presenting complaint was a mild abdominal pain. She had no prior history any other major medical or surgical illness.

Primary ovarian malignant melanomas show a worse prognosis than those for ovarian carcinoma of similar stages.[8]

It is important for the pathologist to identify and recognize melanomas in a setting of teratoma. At times, extensive sampling needs to be performed to identify the teratoma component. On microscopic examination a careful search for pigment laden cells needs to be done. Histochemical stains like melanin bleach and Perl's stain for Iron come in handy to identify and confirm the pigment of interest.

In our case, the histology showed mature cystic teratoma components with the malignant melanoma component infiltrating the fallopian tube. There was no evidence of any immature component in the sections. There was no evidence of endometriosis or endometrioma. The tumor cells showed diffuse strong expression of HMB-45 with SOX-10 and moderate patchy expression of Melan-A. IHC for HMB-45 was done with Fast red as counter stain to avoid DAB interference with the already present melanin in the tumor.

CONCLUSION

The case represents a rare primary malignant melanoma of the ovary arising from dermoid cyst. It is important for the pathologist to identify and recognize melanomas in a setting of teratoma. At times, extensive sampling to identify the teratoma component and careful microscopic examination for pigment laden cells needs to be done.

Symptomatic and large ovarian dermoid cyst should invite early surgical intervention for histological confirmation. Close monitoring and follow up for cases of dermoid cysts who decline surgery, is very important with early intervention whenever there are signs of increase in size or Doppler changes on ultrasound.

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