Undifferentiated sarcoma arising in an ovarian immature teratoma in a 22 year old patient: A case report

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Introduction

Immature Teratoma is a rare type of germ cell tumors, that occurs in young women and represents 1% of all ovarian teratomas. Mixed germ cell tumors with other types of ovarian malignancies like sex cord tumors have been reported. On the other hand mixed germ cell tumor with sarcomatous component have been rarely reported and only few cases have been described in the literature.

Case Study

A 22 year old female presented to our clinic with increased abdominal girth associated with abdominal pain, nausea, constipation, 7 kg weight gain, exertional dyspnea, and orthopnea. 5 months prior to presentation, the patient had sought medical attention in another hospital due to the same clinical picture. She was found to have a 22cm right adnexal mass on CT scan for which she underwent a laparotomy and excision. Pathologic examination revealed an immature teratoma, however no further steps were taken. The symptoms recurred 8 weeks after the surgery, and repeat imaging showed bilateral large adnexal masses (Figure 1), which were also resected and the pathology was reported as immature teratoma versus fibrosarcoma. Review of the available pathology slides at our institution revealed an immature teratoma from both previous surgeries.

In view of our pathology review findings, and the extent of the disease on PET/CT, the patient received the BEP protocol with partial response after 4 cycles and underwent an interval cytoreductive surgery.

Intraoperatively, she was found to have significant abdominal and pelvic disease, and complete cytoreduction was achieved. Pathology revealed pure high grade (undifferentiated) sarcoma in all slides. There were no elements of immature teratoma. Immunohistochemical staining revealed histologic features of rhabdomyosarcoma. Additional pathology slides from the previous surgeries were rereviewed by the pathology department at our institution and revealed pure immature teratoma in samples from first surgery, mixed immature teratoma with sarcoma constituting around 20% of the tumor in samples from second surgery.

Chemotherapy with Vincristine, Adriamycin, and Ifosfamide was started 4 weeks postoperatively. However, the patient had a massive recurrence one week later, with bilateral 20 cm pelvic masses and multiple abdominal lesions (Figure 2), and passed away shortly thereafter.

Discussion

We describe the case of a 22-year-old woman with mixed ovarian immature teratoma with undifferentiated sarcoma. The development of sarcoma in immature teratoma could be attributed to the totipotential nature of the germ cell tumor, which led to their partial differentiation into somatic tissue or to malignant transformation of mesenchymal elements within the teratoma. However, given the high grade and undifferentiated nature of sarcoma in this patient, it is more likely that sarcoma and immature teratoma were present concomitantly. The decreasing percentage of the immature teratoma part throughout the course of disease is attributed to the effect of chemotherapy on the chemosensitive germ cell tumor.

Conclusions

Very few cases of mixed germ cell tumors with sarcoma has been reported. Both tumors were most probably present concomitantly in our case, in contrast to other cases reported, where the totipotential immature teratoma cells have undergone differentiation to well differentiated sarcoma tissues.

Figure 1. Computerized tomography (CT) scan of the abdomen in the first recurrence, demonstrating a 20 in 20 cm mass occupying the whole pelvis.

Figure 2. Computerized tomography (CT) scan of the abdomen in the second recurrence 5 weeks postoperatively, demonstrating a 25 in 30 cm lobulated mass occupying the whole pelvis.