Case Report

Yolk Sac Tumor with Teratoma; A Rare Malignant Mixed Germ Cell Tumor-Case Report

Ashish Lakhey[1], Samikchhya Regmi[1], Yam Dwa[2], Nikita Thanet[1], Prakriti Subedi[1]

[1]Department of Pathology, KIST Medical College Teaching Hospital, Imadole, Lalitpur, Nepal
[2]Department of Obstretics and gynecology, KIST Medical College Teaching Hospital, Imadole, Lalitpur, Nepal

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Corresponding

Samikchhya Regmi
Lecturer, Department of Pathology, KIST Medical College Teaching Hospital, Imadole, Lalitpur, Nepal
Email: dasamikchhya@gmail.com

Abstract

Malignant mixed germ cell tumors, though rare overall; are the most common type of malignant ovarian neoplasms in young and adolescent girls. These tumors are aggressive type and has propensity to metastasize to various site. We report a case of 15 year old girl who presented to KISTMCTH; Nepal in Shrawan 2079 with the complaint of lower abdominal pain and mass per abdomen of a malignant mixed germ cell tumor of ovary comprising both immature teratoma and yolk sac tumor. This report illustrates the severity of this particular tumor which warrants the need of early diagnosis and treatment.

Keywords: *Malignant mixed germ cell tumor, Yolk sac tumor, Teratoma, Ovary*

Introduction

Germ cell tumors of the ovary are presumed to derive from the pathogenic transformation of ovarian germ cells at different stages of development. Germ cell tumors account for 20% to 25% of all ovarian neoplasms in females.[1] Majority are mature teratoma which are benign. 3% to 5% of all germ cell tumors in females are malignant, of which the majority are dysgerminomas, immature teratomas, and yolk sac tumors in a pure form or as part of a mixed germ cell tumor, all occurring in young patients.[1] Malignant mixed germ cell tumor is a type of tumor that consists of two or more malignant germ cell components. These tumors are quite rare cancers, seen in 8% cases of germ cell tumors but are very aggressive in nature. The most common combination reported is dysgerminoma and Endodermal Sinus Tumor (EST) and the rarest combination has embryonal carcinoma and immature teratoma as its components.[2] The quality and quantity of various components may alter the therapeutic approach and prognosis, so it is essential that the tumor is sampled carefully and thoroughly analysed. Malignant mixed germ cell tumor of the ovary is a highly aggressive neoplasm that can present as disseminated disease at initial diagnosis. These tumors expand locally and metastasize through vascular and lymphatic invasion.[3]

Here we report a rare case of malignant mixed germ cell tumor with a combination of immature teratoma and yolk sac tumor in a 15-yr-old girl. We are yet to come across an individual case report with this combination in recent years.

Case Report

A 15 year old girl presented to department of gynaecology at KISTMCTH in Shrawan 2079 with pain in abdomen and mass per abdomen since 20 days. Patient had attained menarche 3 years back and had normal menstrual history. Physical examination showed a large abdominal mass. Hemoglobin was 8.9 g%. Complete Blood Count (CBC), Liver Function Tests (LFT), Kidney Function Tests (KFT) was within normal limits. Serum α-fetoprotein (AFP) level was 8525 IU/ml. Serum human chorionic gonadotropin (βHCG) was 28.41 mIU/Ml. CA 125 and CEA were normal. 17- α-OHP and DHEA-S also were within normal limit. USG revealed 13.2x9.8 cm in pelvis. (Solid>cystic component). Origin of mass was not clearly appreciable. CT abdomen revealed lobulated large cystic mass likely ovarian mucinous

tumour. However, malignancy could not be ruled out. Right sided salpingo-oophorectomy was done along with infracolic omentectomy.

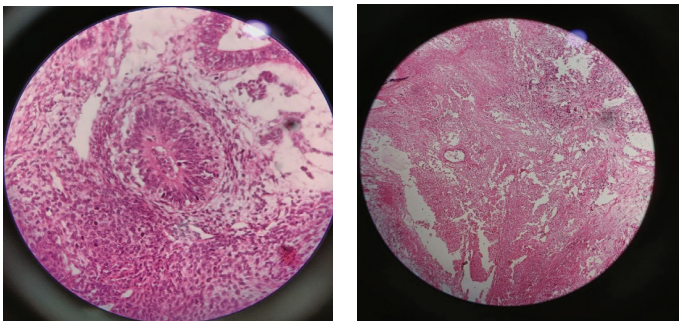
Gross examination revealed a large mass of 20x18x11 cm and weighing 3.5 kg, hard in consistency having nodular to bosselated external surface. (Figure 1) Cut surface showed variegated appearance with solid greyish white, soft cystic areas with haemorrhage and necrosis.(Fig. 1 b)

(a) (b)

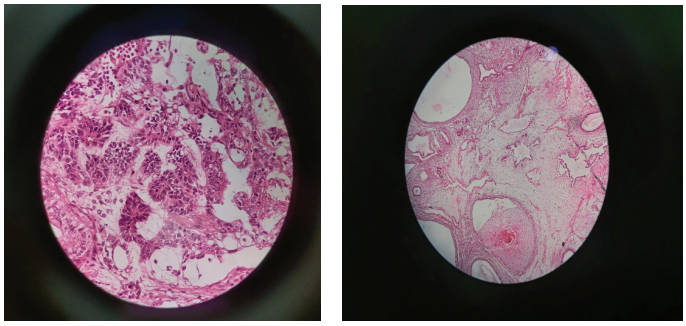
Figure 1. (a) Bosselated external surface of ovarian tumor. (b) Cut surface shows solid grey white, variegated and cystic appearance at places

Microscopic examination revealed tumour cells forming schiller duval bodies along with reticular and microcystic patterns. Immature mesenchymal elements, epithelial elements represented by mucus secreting glands and islands of squamous cells are seen. Sections also showed cyst with presence of keratinized stratified squamous epithelium, immature cartilages and rosettes with neural elements. Large areas of necrosis and haemorrhage were present (Fig. 2a, 2b, 2c and 2d). Diagnosis of 'Mixed germ cell tumour' was made with components of yolk sac tumour and teratoma. Omental biopsy was positive for tumor. Fallopian tube showed normal histology.

TNM and FIGO staging could not be done as the involvement of lymphnode is unknown and the information regarding peritoneal wash is unavailable.



(a) (b)



(a) (b)

Figure 2. 2a Tumor cells forming schiller duval bodies (H&E;400). (2b): Areas of hemorrhage and necrosis. (H&E;x100). (2c): Immature neuroepithelial components forming rosettes (H&E;x100). (2d): Tumor cells forming cysts and glands along with presence of immature cartilages.(H&E; x400).

Discussion

Ovarian tumour represent about 30% of all cancers of female genital system. Ovarian tumor may occur at any age, including infancy and childhood. Incidence rate, however increase with age, with the greatest number of new cases being diagnosed beyond 4th and 5th decade[4] Germ cell tumors constitute 15-20% of all ovarian neoplasms. Malignant ovarian germ cell tumors (MOGCT) comprise less than 5% of all ovarian neoplasms. In children and adolescents, more than 60% of ovarian neoplasms are of germ cell origin, of which approximately 1/3rd are malignant. [3]

Most mixed germ cell tumour consist of combination of dysgerminoma with endodermal sinus tumour accounting for one-third of the cases. Other combination include choriocarcinoma and immature teratoma in decreasing order of frequency. Imaging modalities can be used to establish the diagnosis but different types of tumour may show overlapping features and the definitive diagnosis is made by histopathology.[5]

This case is important to report for several reasons. First, it was a rare case of mixed GCTs with components of Yolk sac tumour and Immature teratoma in a young girl. Second, origin of mass was not clearly appreciable on USG. Also, CT abdomen revealed large cystic mass likely ovarian mucinous tumour in which the malignancy could not be ruled out. The only limitation on this study was the refusal to ancillary testing (IHC) due to fianancial constraint of the patient.

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