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CASE REPORT

MALIGNANT MIXED GERM CELL TUMOR OF OVARY

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ABSTRACT

Malignant ovarian germ cell tumors (MOGCTs) are rare but predominantly affect young women and adolescent girls. They typically present with pelvic masses or abdominal pain. Histologically, they are divided into dysgerminomas and non-dysgerminomatous tumors. This report presents a case of malignant mixed germ cell tumor diagnosed initially through ultrasound, CT, and MRI evaluations, later confirmed via biopsy.

CASE REPORT

A 6-year-old pre-menarchal female presented with vague abdominal pain and pelvic swelling since 3 weeks. On clinical examination, her vital signs were stable. A firm, palpable mass was noted in the pelvis. Ultrasound abdomen done at our hospital revealed a large intraperitoneal abdomino-pelvic mass lesion containing predominantly hyperechoic solid component with multiple internal anechoic cystic areas. The lesions measures approximately 8x5 cm, extending superiorly upto the level of umbilicus, inferiorly upto the pelvis displacing the uterus anteriorly against the bladder. On Color Doppler examination, the solid component showed areas of internal vascularity. Further evaluation was done with CT and CE-MRI. CT abdomen showed a heterogeneously dense, lobulated mixed solid and cystic pelvic mass. No calcifications or visible fat seen in the lesion. MRI Images showed a mixed solid cystic mass. The mass is predominantly hyperintense relative to muscle on T2WI and isointense on T1WI. On Post-contrast T1WI images, solid component showed moderate enhancement with non-enhancing cystic spaces. The mass is visualized separately from the bowel, uterus and mesentery. No free fluid noted in the abdomen.

Both the ovaries could not be identified.

Based on the above imaging features, a probable diagnosis of an aggressive mixed solid cystic pelvic neoplasm likely ovarian in origin was considered. Patient underwent surgical excision of the tumour and was sent for Biopsy. Histopathology confirmed diagnosis of Malignant Mixed germ cell tumor of ovary with components of immature teratoma and Embryonal carcinoma. Further evaluation with Immunohistochemistry studies was advised.

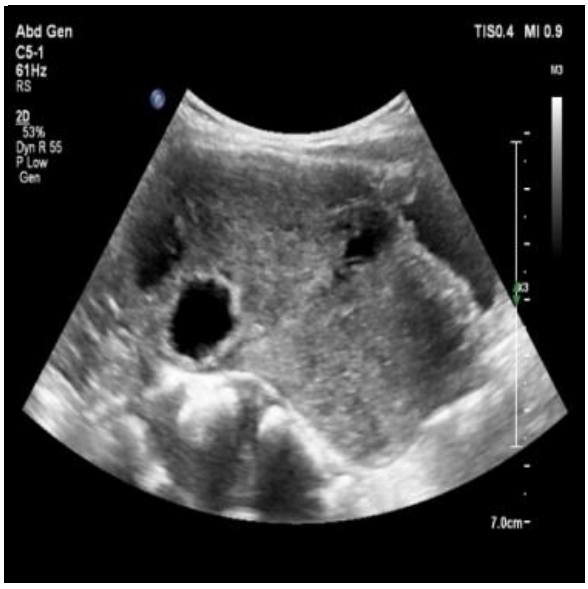

Fig.1 Transabdominal Grey Scale Image shows Heterogeneously hyperechoic lesion with multiple internal anechoic cystic areas.

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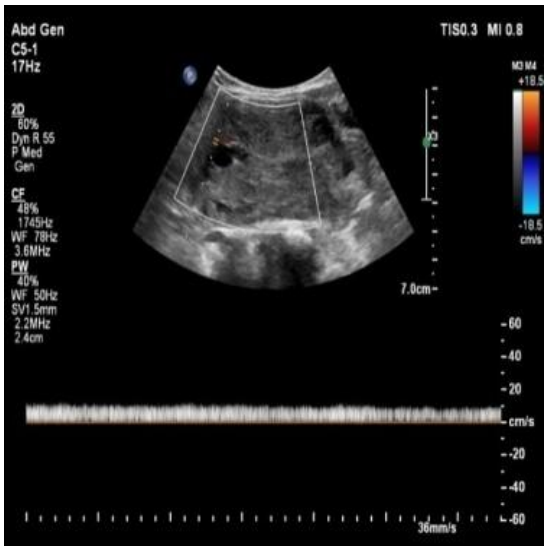

Fig.2 Transabdominal Color Doppler study shows vascularity within the lesion

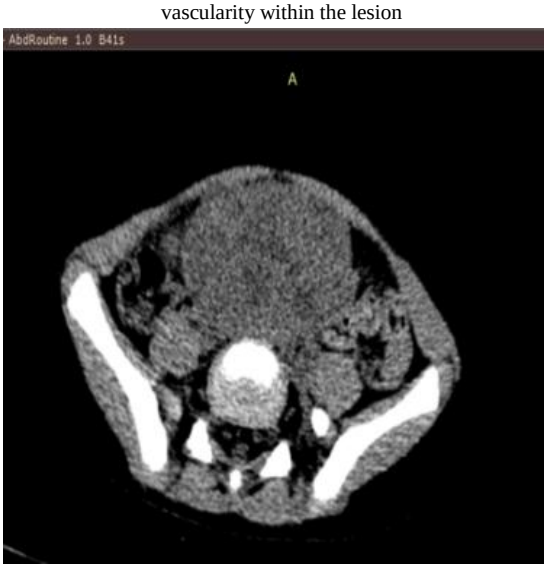

Fig.3

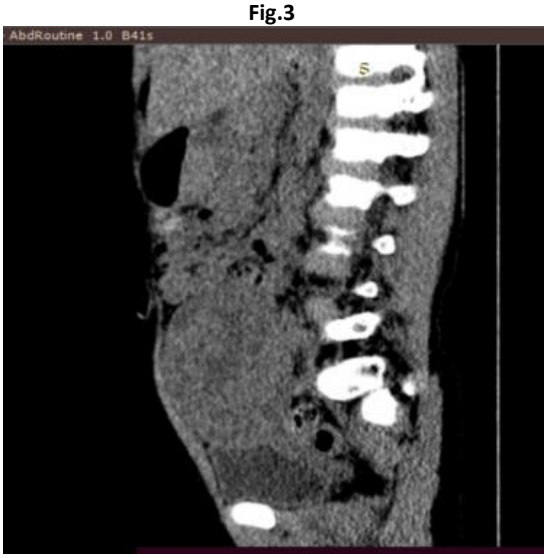

Fig.4

Fig.3 and Fig.4 Axial and Sagittal images of Plain CT show heterogeneously dense pelvic lesion with internal hypodense areas. No calcific foci or visible fat densities noted.

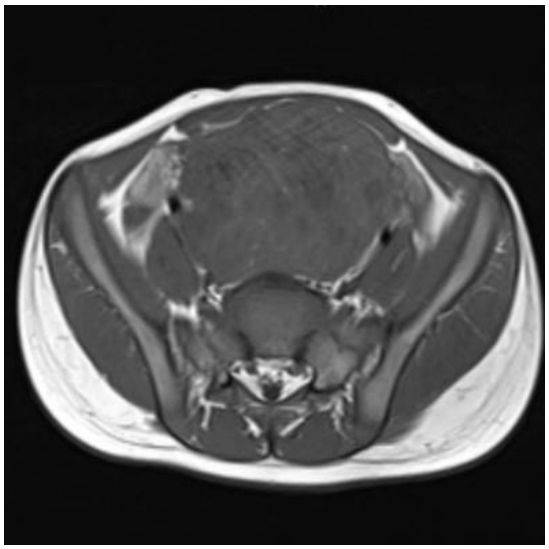

Fig. 5

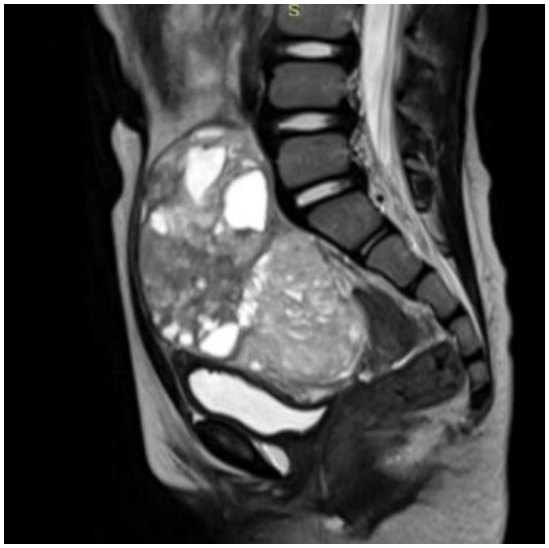

Fig.6

Fig. 5 On Axial T1WI MR image heterogeneously isointense pelvic lesion with multiple hypointense areas noted.

Fig.6 On Sagittal T2WI image heterogeneously hyperintense lesion with hypointense wall noted.

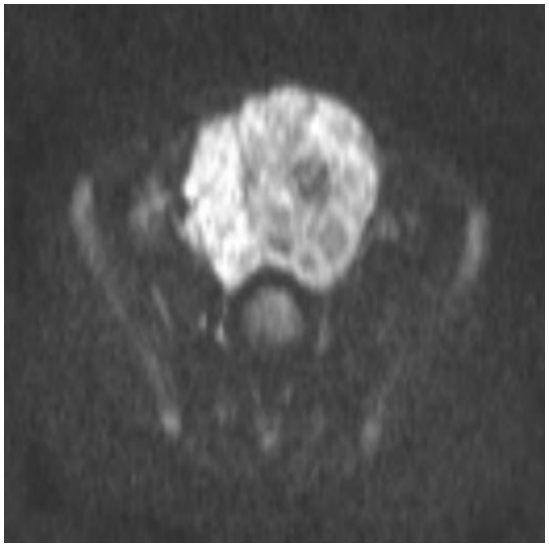

Fig.7

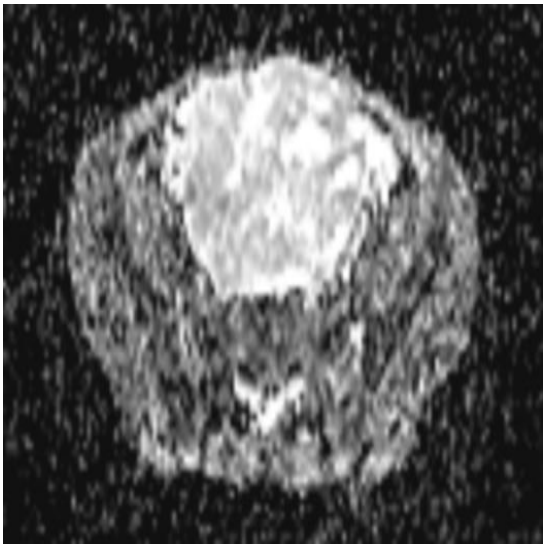

Fig.8

Fig.7 and **Fig.8** On Axial DWI, heterogenous diffusion restriction with reversal on corresponding ADC image noted within the lesion.

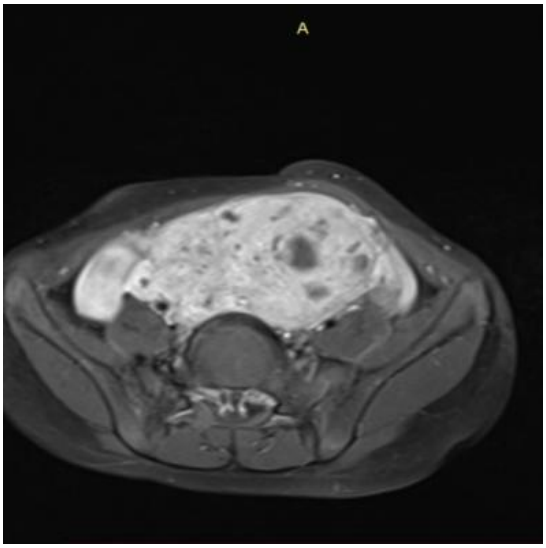

Fig.9

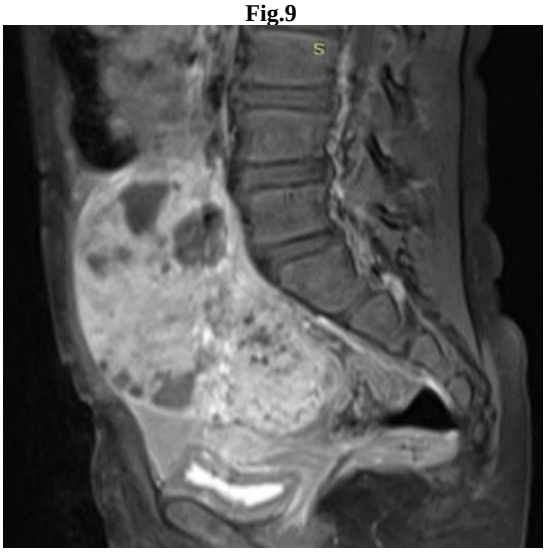

Fig.10

Fig.9 and Fig.10 Axial and Sagittal T1wi Fat Sat Post-Contrast Images Show Moderate Heterogeneous Enhancement within the Lesion with Numerous Internal Non-Enhancing Cystic Areas.

DISCUSSION

Ovarian germ cell neoplasms are thought to be derived from primitive germ cells of the embryonic gonad. They constitute the second largest group accounting for 15 to 20 percent of all ovarian neoplasms. Malignant germ cell tumors comprise less than 5 percent of all ovarian neoplasms. The average age of presentation of germ cell tumour is 13.8 years [1]. Most common clinical presentation includes abdominal mass with or without abdominal pain or fever. The gross appearance varies according to the individual constituents of the tumour. According to the World Health Organisation (WHO), ovarian Germ cell tumors[GCTs] are classified into many histological subtypes including dysgerminoma, yolk sac tumors, embryonal carcinoma, polyembryoma, choriocarcinoma, teratomas and mixed types. Dysgerminoma is the most common germ cell tumor, accounting for 50% of all germ cell tumors followed by yolk sac tumor accounting for 20% of all cases [2]

The term mixed GCTs is applied to neoplasm containing a combination of malignant germ cell elements. Dysgerminomas with yolk sac tumor is the commonest combination of all the mixed germ cell tumors [3, 4]. The present case showed an extremely rare combination of Immature Teratoma and Embryonal carcinoma. 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 and Immunohistochemistry studies. [4] Debulking surgery is the mainstay in treatment. Fertility preserving surgery followed by combination chemotherapy is the preferred treatment modality followed worldwide [5]. Chemotherapeutic regimens have evolved to combination therapy with overall disease free survival rates of greater than 95 percent. Tumor markers such as Alpha-fetoprotein, β-hCG, OCT-3 in embryonal carcinoma and GFAP, S-100 also contribute to the diagnosis, prognosis and follow-up of the tumors respectively.

CONCLUSION

Malignant mixed germ cell tumours of ovary are highly aggressive neoplasms and early intervention is required for any adolescent girl presenting with rapidly enlarging pelvic mass. These are almost always unilateral and are chemosensitive, fertility-sparing surgery is the standard of care.

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