Indian Journal of Pathology and Oncology 2024;11(3):299–302

Content available at: https://www.ipinnovative.com/open-access-journals

Indian Journal of Pathology and Oncology

Journal homepage: www.ijpo.co.in

Case Report

A mysterious malignant mixed germ cell tumor with successful term pregnancy- an enigma

Jeyalakshmi Devi Namasivayam[1]*, Vanitha V[2], Abiramavalli K[3], Veeraraghavan Gurusamy[4], Brihadisvarar S[4], Lakshmi Piriya P[5]

[1]*Dept. of Pathology, Government Medical College and Hospital, Tiruvannamalai, Tamil Nadu, India*
[2]*Dept. of Obstetrics and Gynaecology, Government Kilpauk Medical College, Chennai, Tamil Nadu, India*
[3]*Dept. of Obstetrics and Gynaecology, Government Stanley Medical College, Chennai, Tamil Nadu, India*
[4]*Dept. of Pathology, Government Kilpauk Medical College, Chennai, Tamil Nadu, India*
[5]*Dept. of Pathology, Government Medical College, The Nilgiris, Ooty, Tamil Nadu, India*

ARTICLE INFO

Article history:
Received 19-04-2024
Accepted 13-06-2024
Available online 12-09-2024

Keywords:
Ovarian malignancy
Mixed germ cell tumor
Term pregnancy

ABSTRACT

Ovarian germ cell tumors (GCT) comprise 15-20% of ovarian neoplasms of which 3-5% are malignant. The incidence of ovarian germ cell tumor in pregnancy is low and malignant GCT account for 18-26%. Among the malignant GCTs, Dysgerminoma is the most common tumor followed by Yolk sac tumor. An interesting case of Malignant mixed germ cell tumor in 23-year old pregnant lady who had a full term normal delivery is reported. The patient remained asymptomatic till term pregnancy. Routine ultrasonography misdiagnosed as swelling as a fibroid in early 8^{th} week of gestation, which progressed to a size 13x10cm at 32^{nd} week gestation. At 38 weeks, patient underwent LSCS along with resection of the tumor which mimicked as fibroid. On histopathological examination along with Immunohistochemistry, it was reported as malignant mixed GCT with Dysgerminoma (85%) and Yolk sac tumor (15%) components. Misdiagnosis is not uncommon in pregnancy; hence multidisciplinary approach can help in arriving at an earlier and correct diagnosis which further helps in early and appropriate treatment thereby increasing the survival rates. This case is reported for its rare presentation mimicking as a fibroid radiologically and histopathological examination reported as Malignant Mixed GCT and was associated with a successful term viable pregnancy.

1. Introduction

Ovarian germ cell tumors (GCT) comprise 15% of all ovarian neoplasms,[1] of which 3-5% are malignant.[2] Ovarian germ cell tumors arise from primitive germ cells. With the advent of routine ultrasound in pregnancy, the relatively asymptomatic adnexal masses are frequently identified. Hence in pregnancy during routine antenatal examination, many incidental masses are detected by imaging. The association of mixed germ cell tumors in pregnancy is extremely rare, most common being Dysgerminoma, accounting for 0.2-1/100000 pregnancies.[3] Dysgerminoma is the most common malignant GCT (38.2%) followed by Yolk sac tumor (30.4%) and Teratoma (15.7%).[3] Here we report a case of malignant mixed germ cell tumor which mimicked as fibroid radiologically and associated with a successful term pregnancy.

2. Case Report

A 23-year-old G2P1L1A0, Post Caesarean admitted for safe confinement at 38 weeks of gestation, with a suspected large subserosal fibroid. Ultrasonography at 8th week revealed a subserosal fibroid measuring 50x45mm which

* *Corresponding author*.
E-mail address: jeyneels@gmail.com (J. D. Namasivayam).

https://doi.org/10.18231/j.ijpo.2024.064

progressed to 13x10cm by 32nd week of gestation. Her antenatal period was uneventful except that she developed gestational hypertension at about 32weeks and was started on antihypertensives. Her investigations, Hb- 9.8g/dl, Blood urea-26mg/dl, Serum creatinine -0.6mg/dl, RBS-75mg/dl. Preoperatively she was transfused with a unit of packed red cells. Patient delivered an alive term female baby of 3kg with an APGAR score of 9 by repeat LSCS with sterilisation and subsequent resection of the fibroid in right adnexal region was done. Intraoperatively, it mimicked as subserosal pedunculated mass with degenerative changes in the right adnexal region, but right ovary could not be visualised separately.

Gross examination -a bosselated mass measuring 17.5x17x8cm was received for histopathological examination. Cut surface revealed a grey tan, firm, lobulated mass with foci of tiny cysts and necrosis. Extensive sampling done and subjected to histopathological examination.

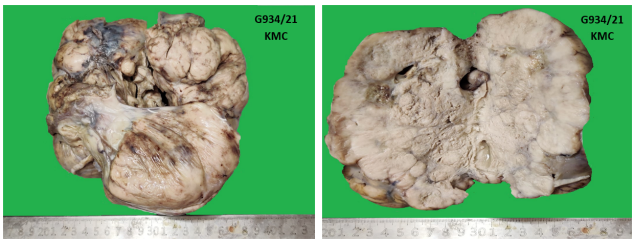

Figure 1: External surface - Bosselated mass measuring 17.5x17x8cm; Cut surface – grey tan, firm lobulated mass with tiny cysts and areas of necrosis

Multiple sections showed a malignant neoplasm with tumor cells arranged in nests, trabeculae, cords and as diffuse sheets. The cells are polygonal having vesicular nuclei with conspicuous nucleoli and moderate eosinophilic cytoplasm. The nests are separated by thin fibro vascular septae infiltrated with lymphocytes. Foci of papillary pattern with Schiller Duval bodies seen. Capsular and Lympho vascular invasion were evident along with areas of necrosis.

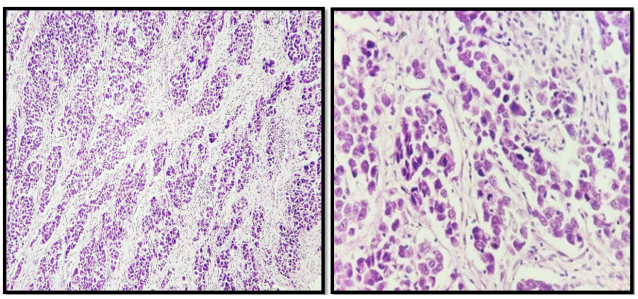

Figure 2: Tumor cells in nests, cords, trabeculae in 10x magnification; 40x magnification showing polygonal cells with vesicular nuclei, conspicuous nucleoli

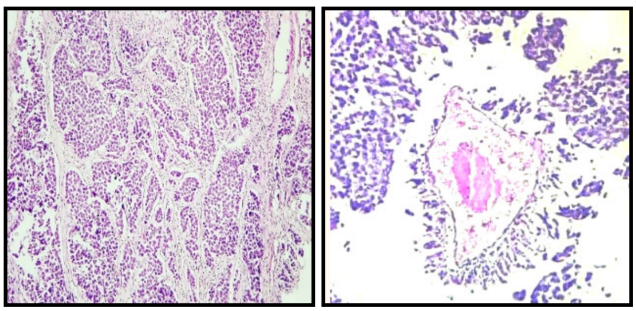

Figure 3: Yolk sac tumor areas – showing focal papillary pattern and Schiller Duval bodies

As uterine or ovarian parenchyma were not included in the mass received, differential diagnosis such as Mixed GCT, Malignant Lymphoma, poorly differentiated Serous Carcinoma, Neuroendocrine tumour were considered. A provisional diagnosis of Mixed Germ cell tumor was given corroborating the gross, histopathological examination, imaging and intra operative findings. Subsequently, the diagnosis was confirmed with IHC panel as mixed Germ cell Tumor with Dysgerminoma (85%) and Yolk Sac Tumor (15%), Stage pT1c2 (AJCC).

Table 1: Immunohistochemistry panel

IHC	R esult
SALL4, OCT3/4	Nuclear positivity - 80%
CD117	Membranous positivity-40%
CD45	Positive in lymphocytes in fv septae
PANCK	Focal positive

Table 2: Immunohistochemistry panel

IHC	Result
CD 20	Negative
Vimentin	Negative
Chromogranin	Negative
Desmin	Negative

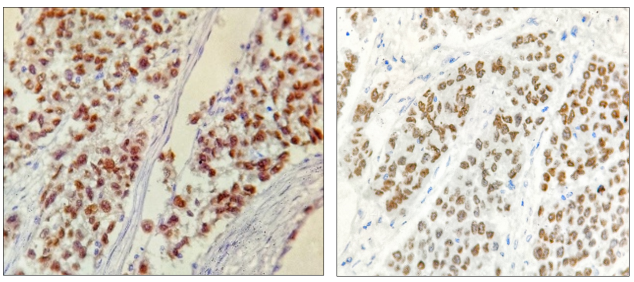

Figure 4: OCT3/4, SALL4 – Positive in 80% of tumor cells – 40x magnification

CECT on post-operative day-17, revealed a residual germ cell tumor of size 3.7x2.6cm in right adnexa with

calcification and right ovary could not be visualised. Patient was started on BEP regime after presenting to Tumor Board. Patient completed 7 cycles of chemotherapy and is currently disease free and on follow up.

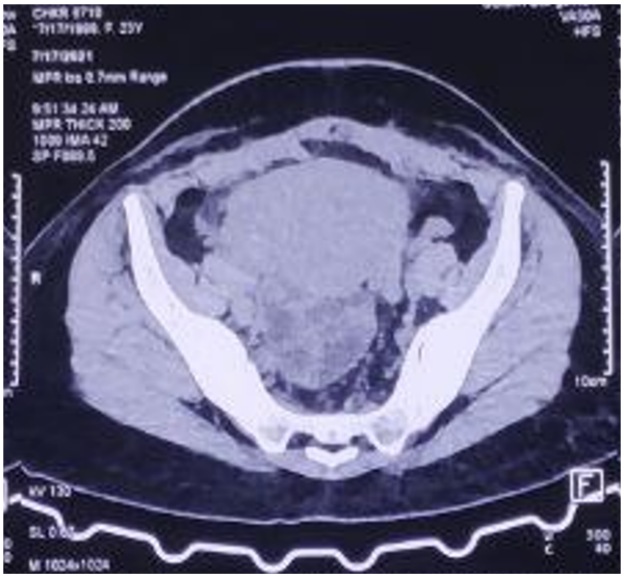

Figure 5: CECT Abdomen – residual tumor in right adnexa with calcification

3. Discussion

Ovarian neoplasms account for 2,40,000 new cases with 1,40,000 deaths per year worldwide.[4] Ovarian germ cell tumors constitute about 15-20% and mixed germ cell tumors are rare ovarian neoplasms, commonly seen in women of reproductive age group. Its incidence in pregnancy is extremely rare. Ovarian malignant GCT's include Dysgerminoma, Immature Teratoma, Yolk Sac Tumor and Mixed GCT. Routine Ultrasonography helps in identifying asymptomatic incidental tumors. These asymptomatic ovarian tumors are usually identified when they are of large size or as incidental finding on imaging done for other indications or at a later stage due to complications.[5] Owing to its varied nature, misdiagnosis is not uncommon in imaging especially during pregnancy. As in this case, mixed GCT mimicked to be a fibroid in ultrasonography.

Dysgerminoma is solid, nodular, usually unilateral. Grossly they are bosselated with fleshy, grey tan cut surface[6] Yolk sac tumor also presents unilaterally and shows a solid, grey-yellow to grey tan, variegated cut surface with areas of hemorrhage and necrosis.[7]

Pregnancy associated with ovarian malignancies pose significant diagnostic and therapeutic challenges, and also ends up with delayed diagnosis due to varied symptomatology or even asymptomatic in some patients as in this case. According to Linasmita et.al, patients having disease limited to the pelvis can undergo unilateral salpingo-oophorectomy followed by platinum-based chemotherapy regimens. This also helps in improving the prognosis of the patients.[8] Adnexal mass exceeding 6cm size with complexity, with ascites if detected in early gestation, around 16 weeks, early surgical intervention is essential to identify the tumor type to start early treatment thereby reducing the risk of miscarriage and for benign masses with no or less suspicion of malignancy, surgery can be delayed. Therefore, treatment options should be discussed and tailored according to the patients' age, fertility preservation requirements, size of the mass, extent etc for better outcome of the patient.[9] This patient had resection of mass during LSCS followed by identification of residual tumor in postoperative period. After chemotherapy patient is currently under complete remission and on follow up.

4. Conclusion

This case is presented for its rarity, a malignant mixed GCT associated with a successful term pregnancy, which mimicked as a huge fibroid both clinically, imaging & also preoperatively. An early and prompt diagnosis with a detailed comprehensive workup will definitely help in the judicious management, thereby improving the maternal and fetal outcome and increasing disease free survival rates.

5. Source of Funding

None.

6. Conflict of Interest

None.

References

1. Sankaranarayanan R, Ferlay J. Worldwide Burden of Gynaecological Cancer: The Size of the Problem. *Best Pract Res Clin Obstet Gynaecol*. 2006;20(2):207–25.
2. Kaur S, Bodal VK, Bal MS, Bhagat R, Gupta N. Malignant mixed germ cell ovarian tumor in pregnant female. *Int J Med and Dent Sci*. 2013;2013(2):233–8.
3. Chen Y, Luo Y, Han C, Tian W, Yang W, Wang Y, et al. Ovarian Dysgerminoma in Pregnancy: A Case Report and Literature Review. *Cancer Biol Ther*. 2018;19(8):649–58.
4. Dłuski DF, Mierzyński R, Poniedziałek-Czajkowska E, Leszczyńska-Gorzelak B. Ovarian Cancer and Pregnancy-A Current Problem in Perinatal Medicine: A Comprehensive Review. *Cancers (Basel)*. 2020;12(12):3795.
5. Youssef R, Ahmed GS, Alhyassat S, Badr S, Sabry A, Kohla S. Ovarian Dysgerminoma in Pregnant Women with Viable Fetus: A Rare Case Report. *Case Rep Oncol*. 2021;14(1):141–6.
6. WHO Classification of Tumours Editorial Board. Female Genital Tumours. vol. Vol 4. 5th ed. Lyon: IARC; 2020.
7. Kurman RJ, Ellenson LH, Ronnett BM. Blaustein's Pathology of the Female Genital Tract. Germany: Springer Science & Business Media; 2011.
8. Linasmita V, Srisupundit S, Wilailak S, Tangtrakul S, Israngura N, Bullangpoti S. Recent Management of Malignant Ovarian Germ Cell

Tumors: A Study of 34 Cases. *J Obstet Gynaecol Res*. 1999;25(5):315–20.
9. Marret H, Lhommé C, Lecuru F, Canis M, Lévèque J, Golfier F, et al. Guidelines for the Management of Ovarian Cancer during Pregnancy. *Eur J Obstet Gynecol Reprod Biol*. 2010;149(1):18–21.

Author biography

Jeyalakshmi Devi Namasivayam, Professor and HOD

Vanitha V, Professor and HOD

Abiramavalli K, Professor

Veeraraghavan Gurusamy, Assistant Professor

Brihadisvarar S, Assistant Professor

Lakshmi Piriya P, Tutor

Cite this article: Namasivayam JD, Vanitha V, Abiramavalli K, Gurusamy V, Brihadisvarar S, Piriya P L. A mysterious malignant mixed germ cell tumor with successful term pregnancy- an enigma. *Indian J Pathol Oncol* 2024;11(3):299-302.