

SUCCESSFUL LIVE BIRTH IN A CASE OF GERM CELL TUMOR OF THE OVARY, TREATED BY FERTILITY SPARING SURGERY AND ADJUVANT CHEMOTHERAPY: CASE REPORT

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25 year-old female G2P1L1, with 11 weeks of pregnancy, was diagnosed with ovarian mass on antenatal ultrasound which revealed 12x 12 x9 cm (rt) sided abdominopelvic lobulated solid cystic mass with internal vascularity (Figure 1,2). Differential of teratoma or dermoid was made radiologically. The tumor markers were within normal limit (CA 125: 43, AFP: 24, CEA: 0.3) except a grossly elevated b-HCG (90,876) attributed to 11 weeks of pregnancy. The patient was keen for pregnancy and fertility preservation. In view of this patient underwent unilateral salpingo-oophorectomy, with collection of peritoneal lavage and omental biopsy. On postoperative histopathology, a solid cystic tumor was identified which was 16x 11.5x 1.8 cm in size, externally bosselated and encapsulated. On microscopy diagnosis of immature teratoma, Grade 2, was made, the capsule was intact, right fallopian tube and omentum was free of tumor. Peritoneal cytology was negative for malignant cells.

Finally, the young patient was 17 weeks pregnant when the final diagnosis of immature teratoma Stage IAG2 was made. Patient and family was counselled about the options to continue pregnancy and defer chemotherapy versus the risks and benefits of adjuvant chemotherapy and the need for medical termination of pregnancy for adjuvant chemotherapy. Patient and family opted for medical termination of pregnancy (MTP) and completion of chemotherapy. They were also counselled about embryo and/ or oocyte cryopreservation before starting chemotherapy.^[1] Though the couple was keen for fertility preservation but they could not afford the options in view of financial constraints. Patient received 3 cycles of BEP chemotherapy regimen (Inj bleomycin 30U D1,8,15; Inj Etoposide 100mg/m² D1-5, Inj cisplatin 30mg/m² D1-5) after MTP. She was advised 1 year of contraception and to avoid conceiving. On follow up, 1 year after completion of chemotherapy patient was disease free clinically, radiologically and all tumor markers were

within normal range. She subsequently conceived naturally and delivered a healthy term baby without any pregnancy related complications.

Fertility sparing surgery (FSS) for young patients with ovarian cancer is recommended for stage IA epithelial histology (G1 and G2) and stage IA/IC non-epithelial germ cell, sex cord or borderline tumors.^[2,3] FSS includes unilateral salpingo-oophorectomy along with collection of peritoneal lavage, omentectomy and biopsy of any peritoneal alteration.^[2,3] The risk of relapse with immature teratoma IA grade 2 is about 20% and it increases to 20-40% for grade 3 tumors.³ Guidelines do not recommend chemotherapy for G1 tumors and give an option of observation or adjuvant chemotherapy for grade 2 tumors.^[2,3] Chemotherapy induced infertility depends on the drugs used, dose used and most importantly the age and obstetrical history of the patient.^[4] The infertility rates with BEP regimen for women < 30 years are 5- 10% while the same increases for women above 30 years.^[5] For patients who have undergone FSS for a malignant ovarian tumor, complementation of surgery is recommended after the end of pregnancy for invasive epithelial disease, and not for non-epithelial and borderline tumors.^[2,6] Hence our patient was not advised any further surgery. Table 1 shows successful pregnancy outcomes for patients of malignant teratoma treated with fertility sparing surgery and chemotherapy.

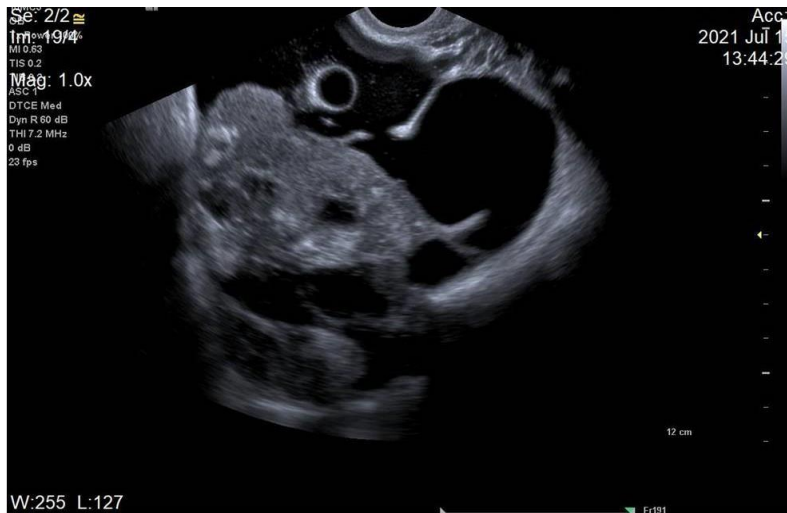


Figure 1: Ovarian Mass with foetus in situ.



Figure 2: Ovarian Mass with Foetus in situ.

Table 1: Successful pregnancy outcomes in Malignant Teratoma patients treated by fertility sparing surgery and chemotherapy.

Study (2000-2024)	Age (years)	Histology	Surgery	Chemotherapy	Pregnancy Outcomes	Infertility Intervention
Tzortzatos et al(2009)	20	Malignant Teratoma	FSS	3 cycles BEP	Live birth	IVF with autologous embryo transfer
Matsushita et al(2011)	24	Immature Teratoma	FSS and intraperitoneal chemotherapy	4 cycles of PEP (pepleomycin, etoposide, and cisplatin)	Live birth	Intrauterine insemination following ovulation induction with clomid and human menopausal gonadotrophin
Adegoke et al(2016)	17	Malignant Teratoma	FSS	9 cycles of cisplatinum and adriamycin	Preterm Live birth	Ovulation induction drugs (metformin and clomiphene)
Wang et al (2022)	6-39	Immature Teratoma	FSS	Platinum based chemotherapy (cycle numbers and combination NA)	5 of the 38 patients who underwent FSS achieved a successful pregnancy	Details not mentioned
Matsushita et al(2010)	30	Immature Teratoma	FSS	4 cycles of BEP	2 live births and 1 miscarriage in first trimester	Spontaneous pregnancy
Kitajima et al(2006)	19	Immature Teratoma	FSS	6 cycles of n PVP (cisplatin, vinblastine peplomycin)	Dichorionic twins delivered	IVF embryo transfer
Chen et al (2007)	13	Immature Teratoma	FSS	6 cycles of BVP (cisplatin, bleomycin, vinblastine, cisplatin) followed by resurgery and 6 cycles EP	Live birth	3 cycles of clomiphene for ovarian induction for 2 year subfertility followed by spontaneous conception
Zamani et al (2021)	19-33	Immature Teratoma	FSS	Specific details for immature teratoma patients not available	9/26 patients had successful delivery	No patient in the series required infertility treatment
Rungoutok (2022)	34	Immature Teratoma	FSS	No chemotherapy received	Term live birth	1/20 patients of immature teratoma conceived spontaneously
Tamauchi et al(2018)	11-33	Immature teratoma	FSS	Specific details for chemotherapy of immature teratoma patients not available	Specific details for immature teratoma patients not available	20/42 patients of immature teratoma conceived, specific details of infertility treatment not available
Khi et al (2002)	19-23	Immature Teratoma	FSS	2 patients received BEP (3/4 cycles) and 1 patient received 3 cycles of cyclophosphamide and platinum	Live births	3/24 immature teratoma patients conceived

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