CASE REPORT

Acute Myeloid Leukemia Following Chemotherapy for Gestational Trophoblastic Neoplasia

Das Jayanta Kumar · Lalmuanawmi Catherine ·
Devi Yumkhaibam Sobita · Singh Laishram Jaichand

Received: 30 October 2013 / Accepted: 27 January 2014 / Published online: 13 June 2014
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Introduction

Gestational trophoblastic neoplasms comprise a group of interrelated conditions that arise from an abnormal fertilization, and consist of five distinct clinicopathologic entities: complete/partial mole, invasive mole, choriocarcinoma, and placental site trophoblastic tumors. In the United States, hydatidiform moles are observed in approximately 1 in 600 therapeutic abortions and 1 in 1,000–1,200 pregnancies [1]. Rustin and associates conducted a study in the UK analyzing the incidence of secondary malignancies after successful treatment of malignant GTN, and an overall 50 % excess of risk was observed in myeloid leukemia, colon cancer, and breast cancer. Leukemia only developed in those who received etoposide-containing combinations [2].

Case Report

A 27-year-old woman presented in 2008 with 7 months amenorrhea, discharge PV, and right iliac tenderness. PV

examination revealed 8-weeks-sized uterus, cervicitis, and open cervical os with discharge. She was Para 1. Molar pregnancy was diagnosed with a serum β -HCG-2813 mIU/ml, for which evacuation was done. Serum β -HCG was 15,997 mIU/ml 1 week after evacuation. Color Doppler study showed incomplete molar evacuation with bilateral cystic ovary. Transvaginal sonography showed hydatidiform mole with bilateral ovarian cyst. Chest X-ray (CXR) and thyroid function tests were normal. She was put on Act-D d1-5, q2 weekly. Her β -HCG decreased to <0.1 mIU/ml after the 8th cycle. She was kept under regular follow-up with β -HCG and CXR. In 2011, β -HCG was 2,812 mIU/ml, and ultrasonography of the abdomen showed right tubo-ovarian mass sized 32×26 mm. Peripheral blood smear was normal. She was put on EMA/CO biweekly (11 cycles). Serum β -HCG was <0.1 mIU/ml after 8 cycles of EMA/CO, and the patient was advised monthly follow-up. After 18 months, patient reported headache, bleeding gums, pallor, hepatosplenomegaly, petechial spots on chest, and acute sternal tenderness. Serum β -HCG level was <0.1 mIU/ml. Blood picture revealed blasts of 48 %, with platelet count— $10,000/\text{mm}^3$. The bone marrow picture showed AML. The patient died on day 2 before any definitive therapy could be started probably from intracranial hemorrhage (Figs. 1, 2, 3).

Electronic supplementary material The online version of this article (doi:10.1007/s13224-014-0520-9) contains supplementary material, which is available to authorized users.

Das J. K. (✉), Resident · Lalmuanawmi C., Resident ·
Devi Y. S., Senior Resident · Singh L. J., Professor
Department of Radiotherapy, Regional Cancer Center (RCC),
Regional Institute of Medical Sciences, Imphal 795004, India
e-mail: drjdas83@gmail.com

Discussion

Gestational trophoblastic neoplasia forms a group of rare but almost uniformly curable malignancies. The higher

Fig. 1 Abnormal premature white cells in the blast stage which is immature; centre nucleus is very large. The outer cytoplasm has vacuoles (holes)

Fig. 2 Tumour cells showing marked cytological atypia and numerous mitotic figures

rates are reported from Africa and Asia. Majority of the patients respond to evacuation of the uterus with/without chemotherapy. The risk of secondary AML is related to increasing dose and more frequent administration of podophyllotoxins. However, while an overview of 12 NCI studies where topoisomerase II inhibitors were used in various cancers has confirmed an increased leukaemogenic risk, it failed to show any link between total dose given and/or duration of treatment [3].

Fig. 3 Molar villus cavitated with circumferential trophoblastic hyperplasia and atypia

Conclusion

Usually combination chemotherapy is highly effective and well-tolerated for high-risk GTT. The present case showed acute myeloid leukemia at 18 months of follow-up after chemotherapy. Therefore, the follow-up should also include a study of peripheral blood smear along with β -HCG levels.

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