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Acute Respiratory Distress Syndrome In Poor Prognostic Germ Cell Tumor With Multiple Lung Metastases: A Case Report

M.A. Naseer[1], S.S. Mohammed[1], S.K. Das Majumdar[1], R. Patnaik[1], H.M.N. Al Tublani[2], J.S. Justin[1], J.A. Meddikar[1]

[1]Department of Oncology and Hematology, Salmaniya Medical Complex, Bahrain
[2]ICU, Salmaniya Medical Complex, Bahrain

Abstract

We report a case which is unique as this patient was diagnosed pathologically as adenocarcinoma of the endometrium but clinically progressed as germ cell tumor. This was evident by progressive and rapid raised tumor markers (BHCG & LDH) with the development of multiple bilateral lung metastases. She was treated by administrating low doses of systemic combination chemotherapy as per the literature. Unfortunately, she developed acute respiratory distress syndrome as the complication of treatment and died due to it.

Keywords

Poor prognostic germ cell tumor, bilateral lung metastases, acute respiratory distress syndrome

Introduction

Acute respiratory distress syndrome (A.R.D.S) is a known fatal complication after induction chemotherapy in patients of germ cell tumors with bilateral lung metastases and raised tumor markers. These patients have to be monitored closely during the course of chemotherapy. If any chest complications are anticipated then these patients need the intensive cardiac care management to minimize the mortality.

Case Report

Our patient is a 62 year old Bahraini, non-smoker female with G5P4A1. She presented with 6 months history of post-menopausal bleeding associated with mild lower abdominal pain. Her past medical history was significant for systemic hypertension on treatment and diabetes mellitus on diet control. Pelvic ultrasound revealed thickened endometrium. Biopsy from the endometrial curettage showed features of moderately differentiated papillary endometroid adenocarcinoma with extensive necrosis. Cervical smear was negative for malignancy. The CBC, renal functions and liver functions were in the normal limits. The striking point was significantly raised LDH (583 ref 135 - 214) and BHCG (21,284 ref 0) whereas all other tumor markers were in the normal range. The CT scan of the chest, abdomen, pelvis and brain (August 05, 2010) showed normal lung parenchyma (Figure 1). There was no evidence of distant metastasis. The uterine cavity was distended with a mass extending down into the vagina with suspected bowel infiltration. The cervix was not visualized whereas both ovaries appeared to be normal. There was no retroperitoneal adenopathy. Multiple calcifications were seen in the left breast which proved to be of benign

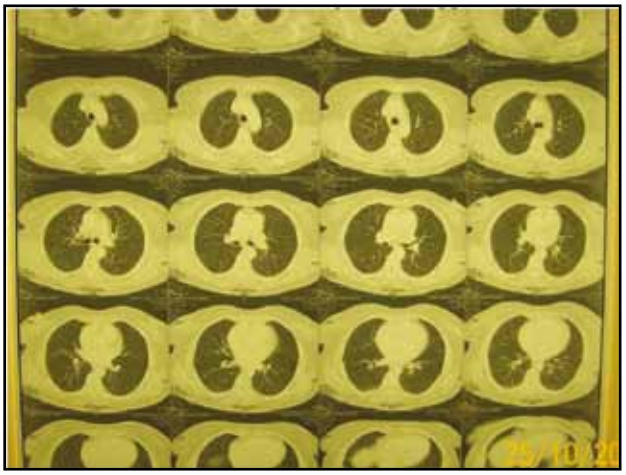

Fig. 1: CT Scan of chest showing normal lung parenchyma

Correspondence: Dr. Mohammed Abdul Naseer, Chief Resident, Department of Oncology and Hematology, Salmaniya Medical Complex, Post Box 21853, Manama, Bahrain, Email: mabdulnaseer@yahoo.com; drnaseermohd@gmail.com Mobile: +97336423589

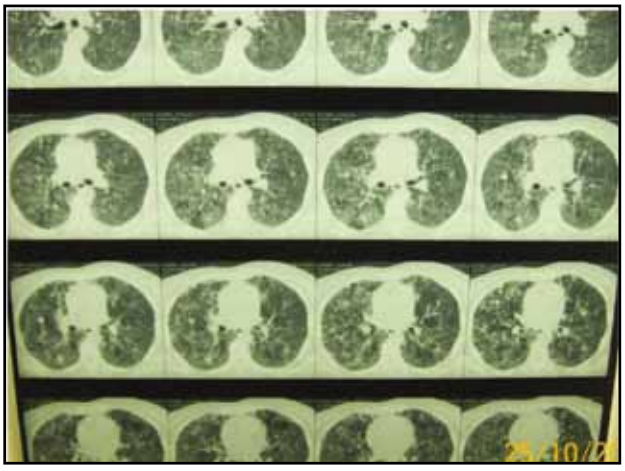

Fig. 2: CT Scan of chest showing bilateral reticulonodular lesions

nature after mammogram. She developed cough and shortness of breath on exertion after the endometrial biopsy. The cough was associated with whitish sputum. There was no history of fever, nausea and vomiting. Surprisingly there was no history of vaginal bleeding at this time. Clinical examination showed adequate air entry bilaterally with a hard mass in the lower abdomen. CXR done showed extensive bilateral reticulonodular shadows. She was admitted on August 19, 2010 for further management. The repeat CT scan of the chest (August 23, 2010) (Figure 2) showed diffuse reticulonodular lesions in both the lungs ranging in size between 6 – 11 mm with mosaic pattern mainly in the lower lobes and bud in tree appearance at the periphery of both the lungs. Sub-cm lymph nodes were noted in the aorto pulmonary window and sub-carinal region. She was treated with conservative measures. Tests for pneumocytis carini and HINI infection were negative. Bronchoscopy was not done due to poor general condition. Her BHCG level had gone up to 197,627 and LDH increased to1278. Hence she was treated like metastatic germ cell tumor involving both the lungs with raised tumor markers. She received systemic combination chemotherapy according to BCCA protocol with 50% dose reduction due to poor performance status consisting of Etoposide 100mg/m^2 and Cisplatinum 20mg/m^2 between 8 to 12 September 2010. She developed severe hypoxia (SPO278%) and had to be kept on mechanical ventilator on September 18, 2010 and shifted to ICU for further management. She remained haemodynamically unstable requiring positive inotrops. Her repeated blood culture and urine cultures were normal. The deep tracheal aspirate was negative for malignant cells. She remained on ventilator with FIO_2 ranging between 70 - 80%. She was desatuarating in spite of FIO_2 100%. She developed sudden severe bradycardia and cardiac arrest on October 01, 2010 and could not be revived after full cardio pulmonary resuscitation. Her most probable cause of death would be acute respiratory distress syndrome secondary to tumor infiltration/sepsis.

Discussion

Germ cell tumors are among the fastest growing solid tumors[1]. These tumors are highly curable with cure rate as high as 80% even in the advanced stages with highly effective Cisplatin based combination chemotherapy[2]. Reports of two small series have identified poor performance status as a significant pre-treatment factor for severe toxicity after Cisplatin based chemotherapy[3]. Patients with extensive thoracic tumor burden (either lung metastases or mediastinal bulk) and mostly elevated human chorionic gonadotrophin are at risk of development of an acute respiratory distress syndrome (ARDS) after the induction of chemotherapy[4, 5, 6]. The possible mechanism of ARDS is massive cell death due to chemotherapy with consequent release of cytokines, potentially aggravated by tumoral and or alveolar hemorrhage[7]. The outcome was very poor in patients with ARDS after chemotherapy that required mechanical ventilation[8]. Two studies have been published one from London and one from Paris regarding approach to initiation of chemotherapy in patients with poor prognostic non – seminomatous germ cell tumors where treatment related complications are anticipated[8]. Gillensen et al[9] reported a case series of 20 patients where induction chemotherapy with baby-BOP (bleomycin, vincristine and cisplatinum) (bBOP) was administered before standard chemotherapy. The French group, on the other hand omitted bleomycin in the first two weeks of therapy, used lowered doses of chemotherapy with judicious application of G-CSF when clinically indicated to minimize the pulmonary complication after the chemotherapy

in non-seminomatous germ cell tumors[10]. The patients treated in a specialized intensive care unit resulted in statistically significant reduction of ARDS (cohort1:87% versus cohort 2:30%) and the mortality due to ARDS (20% versus 66%)[10].

Conclusion:

Metastatic germ cell tumor involving bilateral lung metastasis with raised tumor marker should be treated as early as possible with the dose reduction in the first cycle. These patients might develop acute respiratory distress syndrome (A.R.D.S) as a complication of treatment which could be fatal as seen in our case report. Hence these patients need intensive care as early as possible if suspected of A.R.D.S to minimize the mortality.

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Contact :
The Gulf Federation for Cancer Control
P. O. Box 26733 Safat 13128 Kuwait
Tel. (00965) 22530186 / 22530184 Fax: (00965) 22510137
website : http://www.gffcc.org
email : gffccku@yahoo.com

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