Malignant Thymoma in Pregnancy

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Abstract

Thymomas in pregnancy are very rare. Invasive thymomas represent only about 0.2-1.5% of all malignancies. We present here a case of invasive thymoma in pregnancy which ended up being fatal. Since dyspnoea in pregnancy is likely to be attributed to physiological changes during pregnancy, an underlying pathology can be easily missed.

Keywords: Thymoma, Mediastinal Mass, Immuno-histochemistry, Dyspnoea in Pregnancy

Introduction

Thymoma is the most common tumour of anterior superior mediastinum, arising from thymic epithelial cells. The overall incidence of thymoma is 0.15 cases per 100,000 based on data from the National Cancer Institute Surveillance, Epidemiology and End Results (SEER) Program. Invasive thymomas and thymic carcinomas are relatively rare tumors, which together represent about 0.2% to 1.5% of all malignancies.

Thymomas are encapsulated, locally spreading tumours. They are classified into 2 types depending on the shapes of the neoplastic epithelial cells. When the cells have an oval or spindle shape they are classified as Type A and when they have dendritic or epitheloid appearance they are classified as Type B. They are further staged according to Masaoka staging system based on the degree of spread.

Thymomas are encapsulated, locally spreading tumours. Type A tumours do not recur if fully excised and prognosis is excellent with a 100% 10 year survival. Distant metastasis or malignant transformation to thymic carcinoma have occurred. Whereas treatment for Stage-1 tumours consist of surgical resection alone, stages 2 and 3 requires maximum resection followed by radiation. Stage 4 requires chemotherapy in addition to above management. Five year survival rate for invasive thymoma is 12-54%.

Case History

A 26 yr old primigravida was referred from a private hospital to the Cancer Centre at our hospital at around 32 weeks of gestation, with a suspicion of mediastinal mass. She was married for 4 years and conceived following IUI treatment. She had her antenatal checkups at the private hospital and was asymptomatic until 14 weeks of pregnancy when she developed cough and breathlessness for which she was managed symptomatically. By 32 weeks she had developed orthopnoea. She underwent detailed evaluation for the persisting symptoms. Chest X-ray and MRI revealed a mediastinal mass.

Management

USG guided FNAC was done which reported Thymoma. The diagnosis was confirmed using trucut biopsy. The findings were suggestive of malignant spindle cell variety of thymoma, WHO Type A. She was referred to Cardiothoracic unit for surgery department. However considering the advanced spread and advanced gestational age, surgery was deferred. She was referred to our tertiary care centre with advice of considering oncological management after delivery. On examination she was conscious and oriented, afebrile, tachypnoea with a respiratory rate of 34 per minute. Pulse rate was 88 per minute with blood pressure of 120/80 mmHg. She had no pallor, jaundice, clubbing, cyanosis or lymphadenopathy. She had bilateral pitting pedal oedema. She had dilated veins over her chest wall. Examination of respiratory system revealed bilateral scattered creps, impaired percussion note, bronchial breath sounds, decreased vocal resonance on the right side and decreased vocal fremitus on the right side. Examination of CVS revealed normal heart

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sounds and no murmurs. Abdominal examination revealed uterus was corresponding to 32 weeks of gestation, fetus in longitudinal lie with cephalic presentation and good foetal heart rate. Her haemogram, liver function and renal function tests were within normal limits and echocardiography revealed pericardial effusion with good LV function. She was managed symptomatically with antibiotics, nebulisation and bronchodilators. She developed profuse bleeding per vaginum at 34 weeks of gestation which could not be controlled with conservative measures and hence underwent emergency LSCS on same day under spinal anaesthesia (indication-Type 2 posterior placenta praevia) and delivered a female baby of weight 2.41 kg at 12.51 pm with good Apgar score. She was discharged on the 6th post-operative day on 4/3/2010 after initiating oncological treatment. She was given one cycle of chemotherapy with ifosfamide and actinomycin D from the cancer centre, but she developed generalised oedema, cough and dyspnoea and was admitted with suspected pulmonary embolism. CT chest showed extensive anterior mediastinal lesion with invasion into SVC and right atrium, mass effect, right bronchiectasis, minimum pericardial effusion, right pleural effusion, small thrombus in sub-segmental branch of left pulmonary artery of left lower lobe with ECHO revealing same mass extending to right atrium. She was anticoagulated with heparin. Her next course of chemotherapy was deferred due to poor general condition which gradually worsened until she expired on the 47th postnatal day.

Discussion

Masses in the anterior mediastinal compartment include thymoma, lymphoma, pheochromocytoma, teratoma etc. Masses in these areas are likely to be malignant. Patients may present with myasthenia gravis like symptoms.\(^1\) This patient did not have any such symptoms. Invasive tumours can produce compression effects such as Superior Venacaval Syndrome.\(^6,8\) In this patient, it is possible that patient and the physician attributed her respiratory embarrassment to pregnancy. Also because of the fear of radiation exposure to the foetus, resorting to Chest X-ray and other radiological investigations might have been deferred and subsequent delay in arriving at the diagnosis. Primary treatment in most cases is surgery with wide excision and negative margins, which was not possible in this case due to pregnancy and spread of the disease. Immuno-histochemistry and staining techniques along with histopathological examinations help in diagnosis.\(^7\) In type A thymoma, neoplastic epithelial cells are stained strongly for EMA, CK7, vimentin, and CD20. Immunostaining for CD57 and calretinin are noted in scattered neoplastic cells. Maximum permissible radiation exposure in pregnancy is 1mSv. One Chest X-ray delivers 0.02 mSv. This case highlights the need for judicious use of radiological investigations sufficiently for early diagnosis and optimal management. Natural history of slow and localised growth of thymoma seems to have been accelerated due to pregnancy, causing rapid distant spread.\(^12,13\)

End Note

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