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Case Report

Pregnancy in breast cancer survivor with anthracycline induced cardiomyopathy

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ABSTRACT

With earlier diagnosis and improved treatment modalities and management of breast cancer patients, survival is improving. An increasing number of survivors are in the reproductive age group; however a neglected medical area is contraceptive advice, failure of which can result in unwanted pregnancy and further medical complications. An undiagnosed pregnancy in a breast cancer survivor with known anthracycline- induced cardiomyopathy is presented here.

Keywords: Cardiomyopathy, Pregnancy, Anthracycline-induced, Adriamycin-induced, Contraception in cancer survivor

INTRODUCTION

Prevalence of cancer is ever-increasing and survival has also been improving, especially among patients who are diagnosed at early stages. As a result, pregnancy among cancer survivors is a situation all health care professionals must be empathetic to. However, this set of patients have unique issues, ranging from mistaken attribution of amenorrhea exclusively to chemotherapy, problems during pregnancy, to neonatal complications due to anti-neoplastic chemotherapy or radiotherapy. In this context, we present a breast cancer survivor with anthracycline induced cardiomyopathy with undiagnosed pregnancy, presenting with intrauterine fetal demise.

CASE REPORT

A 26 year old G3P2L1A0 with 9 months amenorrhea presented to the emergency room with complaints of pain abdomen. Approximately a year prior, she was a diagnosed as a case of grade 2 infiltrating ductal carcinoma of the breast (unilateral), for which she underwent modified radical mastectomy followed by 12 cycles of weekly paclitaxel and 1 cycle of doxorubicin. Simultaneously, radiotherapy was administered and completed. Prior to the start of doxorubicin therapy, patient had a normal echocardiography study, with a left ventricular ejection Fraction (LVEF) of 55%. Patient was regularly following up in the outpatient department; a few weeks following completion of chemotherapy, patient developed symptoms suggestive of cardiac problems. She was evaluated and found to have cardiomyopathy, which was attributed to anthracycline therapy. LVEF gradually deteriorated to 30%. Ramipril and combination of furosemide and spironolactone was started, and later, when LVEF deteriorated to 25%, digoxin was added. Patient was on regular follow up with the cardiology outpatient department, where she reported 9 months' amenorrhea and perception of fetal movements; she was accidentally diagnosed to be 26 weeks' pregnant. ACE inhibitor was stopped and she was referred for obstetric services.

However, patient visited the labor room 2 weeks later with complaints of loss of perception of fetal movements since few days and pain in abdomen since few hours. Patient gave no complaints of bleeding or leaking per vaginum. She was compliant with cardiac medications and gave no complaints suggestive of cardiac problems at admission.

On examination, she was conscious, oriented with a normal pulse rate, hypertension (blood pressure 140/90mm Hg), normal JVP, no edema and no lymphadenopathy. Cardiovascular examination revealed normal cardiac sounds; on respiratory examination normal bilateral breath sounds were heard. On abdominal examination, the uterus was 26 weeks' with minimal uterine activity and absent fetal heart sounds. Urgent ultrasonography confirmed a single cephalic intrauterine gestation with no gross malformations with oligohydramnios with absent cardiac activity corresponding to 29 weeks gestation. Complete blood counts, renal function tests, electrolytes and coagulation profile were all normal. Cardiology opinion was sought in view of LVEF was 35%; they advised to continue the same medications and restart Ramipril. Labor was induced with dinoprostone gel and augmented with oxytocin drip after patient went into active labour, under antibiotic cover. A fresh stillborn female of 925 grams, with no malformations was delivered vaginally. Patient was asymptomatic from cardiovascular point of view throughout the course of labour and postpartum, was discharged and advised to follow up regularly in cardiology outpatient department.

DISCUSSION

Breast cancer accounts for 27% of all cancer cases and 15% of all cancer deaths, and is a common malignancy affecting women of reproductive age group. Surgery, chemotherapy and radiotherapy are integral parts of the management of breast cancer.[1]

Anthracyclines are a well established group of chemotherapeutic agents for breast cancer and anthracycline induced cardiomyopathy is a well established side effect.[2] Of the three types of cardiomyopathy, our patient developed early onset type of cardiomyopathy during chemotherapy, the seriousness of which correlates with the cumulative dosage of the chemotherapeutic agent.[3] Though no specific recommendations exist for the management of cardiomyopathy induced by chemotherapeutic agents, ACE inhibitors are an important modality of treatment.[4,5].

Our patient was unique as she had cardiomyopathy and accidentally conceived while on chemotherapy and ACE inhibitors. While the offspring of patients who become pregnant after completion of chemotherapy have shown no adverse effects and congenital anomalies from the chemotherapy itself, [6] ACE inhibitors are contraindicated in pregnancy as they cause fetal hypotension and renal hypoperfusion, with subsequent ischemia and anuria. Reduced perfusion may cause fetal-growth restriction and calvarium maldevelopment, whereas oligohydramnios may result in pulmonary hypoplasia and limb contractures.[7]

While amenorrhea due to chemo-radiotherapy is a well-established phenomenon, it is not always due to chemotherapy, which is clearly highlighted in this patient. Pregnancy should always be ruled out in cancer survivors in the reproductive age. This crucial step was done late in this patient; an earlier diagnosis of pregnancy could have possibly prevented neonatal demise and severe maternal morbidity. This also highlights the unmet need for contraception in this patient.

In a recent study, it has been reported that little data on contraceptive choices in women with cancer exists and reproductive-aged women diagnosed with cancer underutilized contraceptive agents.[8] In a retrospective study, it was shown that there was a nearly 3 fold increased risk relative to the general population of an unintended pregnancy among patients with cancer.[9] Another study concluded that pregnancy planning is critical for women with chronic disease that can progress to life threatening complications during pregnancy and subject the mother and fetus to risks of serious morbidity[10].

These recommendations highlight the need for contraception among cancer survivors; oncologists and oncosurgeons should either provide contraceptive services directly to the patients or include womens' health practitioners in the care team.[8-10]

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