ORIGINAL ARTICLE

Pregnancy Associated Breast Cancer (PABC): Management strategy

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Abstract

Objective: To study the presentation, diagnosis and management of pregnancy associated breast cancer and review of local and international literature regarding it.

Study design: Observational case series study.

Setting and duration: This study was conducted from January2009 toJanuary2010 at Hamdard University Hospital, Burhani Hospital and Kutyana Memon Hospital Karachi where the authors practice.

Methodology: Data of all pregnant and lactating women, presenting with breast lumps were recorded on proformas. Clinical examination, ultrasound findings and fine needle aspiration cytology and/or trucut biopsy was carried out to confirm the diagnosis of breast cancer which were then included in the present study.

Results: Out of a total of 45 pregnant and lactating women, 10(22.2%) were diagnosed with breast cancer on the basis of clinical examination, ultrasound of breasts and FNAC/ tru-cut biopsy. 5(50%) of these were pregnant and 5(50%) were post partum or lactating.

Conclusion: Pregnancy associated breast carcinoma is not a very uncommon disorder as thought previously. But very little work has been done locally on PABC. There is a need for increasing awareness about this problem ,especially amongst obstetrician and gynaecologists because they are the primary physicians attending to this group of women .

Keywords: Pregnancy Associated Breast Cancer (PABC), Breast Diseases, Carcinoma, Pregnancy, Lactation

Introduction:

Carcinoma of the breast is the commonest malignancy in women all over the world. Unfortunately, Pakistan has seen a very rapid rise in breast cancer in the recent years. A large number of Pakistani women diagnosed with breast cancer are under the age 50[1]. At least 10% of women with breast cancer who are less than 40 years of age will be pregnant at diagnosis[2]. Another study has estimated that up to 3% breast cancer may be during pregnancy[3]. Historically both breast cancer diagnosed during pregnancy ,lactation and the 1st year post partum have been considered to be pregnancy associated.[4] Because of increased incidence of breast cancer in young women in Pakistan[1], it is expected that pregnancy associated breast carcinoma will also increase. Diagnosis and management of PABC remains challenging because of the anatomic and physiological changes that occur during this period. Pregnant women with breast masses are as likely as non-pregnant women with breast masses to be diagnosed with cancer[5]. So it is essential that these lesions identified during pregnancy be promptly evaluated. The management of pregnant patients with breast cancer is complex involving a balance between optimal maternal treatment with minimum risk to the fetus.

A thorough search of local literature and Pakmedinet revealed a paucity of articles about PABC. Only a few research studies have been conducted about this important problem, locally.

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Methodology:

This is a prospective study carried out over last two years from January 2009 up to January 2010at Hamdard University Hospital , Kutyana Memon Hospital and Burhani Hospital. During this period, data of 45 pregnant and lactating women ,presenting with breast problems were recorded on proformas. Clinical examination, ultrasound findings and fine needle aspiration cytology and/or trucut biopsy confirmed the diagnosis of breast cancer in 10(22.2%) of these patients, which were then included in the present study. Ultrasound was done in all patients. Mammography was carried out in the post-partum patients but was not done in pregnant women. FNAC or trucut biopsy was done to achieve tissue diagnosis.

For the purpose of staging, ultrasound abdomen and x-ray chest was done in all patients.

Bone scans were done in all lactating women, but in case of pregnant women they were done after delivery.

The following data was recorded: patients age , parity, stage of pregnancy, lactation or post partum period at the time of diagnosis, stage of the disease , histological character of the tumour ,the disease management, delivery data and data on neonatal and maternal outcome. A close liaison was maintained between the obstetricians and oncologists.

Although sample size seems small but it includes significant number 10(22.2%) of patients with carcinoma.

Results:

Out of a total of 45 pregnant and lactating women, 10(22.2%) were diagnosed with breast cancer on the basis of clinical examination, ultrasound of breasts and FNAC/ core biopsy. 5(50%) of these were pregnant and 5(50%) were post partum or lactating. Out of the 5 pregnant women, 2 were in the second trimester of pregnancy and 3 in third.

The five patients who were post partum were all lactating.

The median age of the patients at diagnosis was 32.13 years (range 28-40) years.

The average parity was 2.5 years ranging from 1-5 years.

In the lactating patients , FNAC was done in 2 patients which showed the presence of malignant cells, whereas trucut biopsy done in 3 patients confirmed infiltrating ductal carcinoma, with estrogen receptor (ER) negative status.

Of the pregnant patients, one woman in the 16th week of pregnancy, had a T4 N2 M0 tumour, pregnancy was terminated and patient was referred for chemotherapy. In rest of the four pregnant as well as the five lactating women modified radical mastectomy (MRM) with axillary clearance was done. All four women delivered healthy babies at term. All patients were referred for chemo and radiotherapy after surgery and after delivery, in case of pregnant women (lactation was stopped prior to both).

Discussion:

Diagnosis of breast cancer in pregnant and lactating women poses a dilemma. The incidence of breast cancer diagnosed during pregnancy and lactation known as pregnancy associated breast cancer(PABC)has increased the world over in the past decade. The reasons being, increase of cancer in premenopausal women and higher number of women delaying pregnancy[6]. As studies have shown that PABC is associated with higher maternal age at first pregnancy[7]. Traditionally in our society women were , married at a young age and also had their first pregnancy at a young age. But there is a changing trend, because of effects of urbanization with more women delaying marriage and pregnancy for various reasons like education, economy and career; we are likely to see more pregnant and lactating women who are suffering from breast cancer. From a number of case series the median maternal age at the time of diagnosis is 33-34 years[8] and almost the same in our cases, ie32.13 years.

The physiological changes in the breast during pregnancy and lactation makes clinical exami-

nation more difficult as breasts become larger, firmer and more nodular.[9] In one study, over half of the women with breast cancer diagnosed post partum, had a mass detected but not biopsied during pregnancy.[10] So there is a need for increased awareness about this serious problem among obstetricians and primary physicians.

Imaging techniques used for the diagnosis of breast masses are ultrasound, mammography and more recently magnetic resonance imaging (MRI). The dense breasts in premenopausal women, along with the physiological changes of pregnancy and lactation not only make mammography difficult to interpret ,it also poses a threat to the developing fetus in the pregnant woman. However, according to some studies mammography with abdominal shield can be performed during pregnancy with minimal risk to the fetus[11]. On the other hand ultrasound is a simple and sensitive alternative to mammography[12]. In our study, also ultrasound was exclusively used imaging modality in pregnant patients , although mammography was done in two of lactating patients. As regards MRI, there are theoretical risks to the fetus from exposure to high magnetic fields used to generate a magnetic resonance image (MRI), and it is recommended to avoid MRI scans during the first trimester of pregnancy until more information is available about this modality[13].

Initial imaging of the lesions was followed by an attempt to acquire tissue diagnosis (FNAC & trucut biopsy). Fine needle aspiration cytology (FNAC) is a simple diagnostic test in the evaluation of breast lumps in non pregnant women, but the atypical cytomorphologic features seen in breast tissue during pregnancy and lactation may make interpretation difficult and lead to incorrect diagnosis[14]. Therefore a core biopsy is the more appropriate procedure. With any interventional procedure performed on the pregnant breast there is an increased risk of infection and mammary fistula formation[15]. Therefore it is recommended that the risk be minimized by stopping breast feeding prior to biopsy, using prophylactic antibiotics and paying close attention to hemostasis[15]. None of this complication was seen in any of our patients.

Many routine staging investigations require the use of ionizing radiation and therefore pose a risk to the developing fetus. These investigations should only be done when history or clinical findings are suggestive of metastatic disease and where the result would alter immediate management. In our study, investigation like bone scan was delayed till after delivery. Ultrasound of abdomen was done for metastasis in liver. X-ray chest is considered safe during pregnancy as the doses of radiation to which fetus is exposed is far less than the risk threshold[16], especially when performed with appropriate shielding of abdomen. So x-ray chest was done in all our patients to check for lung metastasis.

According to literature, majority of PABC are invasive ductal carcinomas[17], with a high frequency of estrogen receptor(ER) negative tumours. Our study had a similar result. However this may be accounted for by younger age group as in younger women ER negative tumours are more common[18]. Some international studies have recorded HER2 positivity in 28-58% of PABC[17]. Not carrying out this test is a limitation of our study. This was due to non availability of the test readily, as well as cost of it.

Numerous studies have shown that PABC patients are more likely to present with larger tumours and pathological involvement of lymph nodes[17,19].This can be attributed to delay in part of the patients as well as clinicians. All of our patients had tumours of more than 3 cm with axillary nodes involvement.

Successful patient management requires a good communication with the patient and family and professional liaison between surgeon, oncologist, radiotherapist, pathologist as well as obstetrician and gynaecologist. Termination of pregnancy is not recommended as it does not predict a better outcome[20]. Although one of our patients opted for termination prior to chemotherapy.

First treatment option for patients diagnosed with breast cancer is surgery. As most of the pa-

tients present with big tumors and involvement of axillary lymph nodes, they need modified radical mastectomy(MRM) with axillary clearance under general anesthesia. Pregnant women undergoing surgery are more likely to have low birth weight infants and increase in neonatal mortality[21]. However breast surgery appears to be reasonably safe with no complications reported in 14 women undergoing MRM during pregnancy, and only one spontaneous abortion reported in 134 patients undergoing biopsy under general anesthesia[22]. Modified radical mastectomy (MRM) with axillary clearance is the favourable surgical procedure because then radiotherapy can be omitted during pregnancy[23]. Although breast conservative surgery can be performed when indication criteria fulfilled but radiotherapy has to be delayed until after delivery.

Chemotherapy in first trimester is associated with increased risk of miscarriage or fetal malformations, but some studies using fluorouracil, doxorubicin and cyclophosphamide in second and third trimester have reported no maternal or neonatal complications[24], whereas some other studies have reported Down's syndrome in one patient and congenital abnormalities (club foot, congenital bilateral ureteral reflux)[25]. Breast feeding is contraindicated during chemotherapy, because most drugs are released into the milk[26].

Until recently PABC was regarded as having a poor prognosis. But in a significant number of case control studies, majority of authors did not find any survival difference between patients with PABC and nongestational breast cancer matched for age and stage[27]. The unfavourable prognosis has been attributed to late diagnosis rather than distinct tumour biological behavior[23].

Conclusion:

Pregnancy associated breast carcinoma is not a very uncommon disorder as thought previously. But very little work has been done locally on PABC. There is a need for increasing awareness about this problem, especially amongst obstetrician and gynaecologists because they are the the primary physicians attending to this group of women. Any delay on their part in referral and diagnosis will lead to increased morbidity and mortality in these relatively young patients.

The drawback of this study is the small sample size. Case control matched studies are desired to be conducted for development of better management guidelines.

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