

Cancer Diagnostics Conference and Biotechnology 2018: Diagnostic evaluation of pregnancy associated breast cancer- Naseera Khanum-Shaukat Khanum Memorial Cancer Hospital and Research Center

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Pregnancy related breast cancer is the breast cancer detected through pregnancy and within a year postpartum. It is a rare and stimulating problem. Diagnosis of Pregnancy Related Breast Cancer is frequently delayed, due to difficulty in characterizing tumors in the gravid breast; less general awareness and reluctance of patients as well as PABCs are usually found at advanced stage, and have higher recurrence and mortality rates relative to non PABC. Delay in diagnosis is one of the major causes of destructive appearance of PABC. Mortality of PABC is not higher when matched for age and stage to patients with breast cancer not related with pregnancy. However, one study reported 40% mortality among patients with advanced PABC who received chemotherapy when studied over 13year period. The article highlights radiological presences of PABC defines the diagnostic approach for the evaluation of palpable lumps in pregnant and lactating women.

Patients who choose breast conservation or who require post mastectomy radiation must delay radiation treatment until after delivery to avoid exposure to the fetus. Timely treatment initiation is imperative, as patients undergoing lumpectomy with adjuvant radiation should begin radiotherapy within 8–12 weeks to maintain disease-free survival advantage and to avoid increased risk of local recurrence. Estimate radiological presence of pregnancy related breast cancer on various imaging modalities along with determination of diagnostic accuracy of these imaging modalities in PABC. Study would be conducted in the Department of Diagnostic Radiology of Shaukat Khanum Hospital and Research Centre Lahore. Breast cancers diagnosed at our during pregnancy of 12 months post-partum will be reviewed from 1st April 2008 to 30th April 2018, describing the radiological as well features of pregnancy-associated breast cancer emphasizing diagnostic difficulties. Since all the patients who get enrolled in the inpatient of SKMCH have already consented at the time of entry to be the part of any research and study that been done in the hospital, no formal consent has been taken. Their data would be retrieved from the system for the last ten years. Their sonographic, mammographic and MRI features would be assessed by the multiple radiologists of the department. Radiological analyses along with histological sorts, duration of indications as well as related risk factors shall be on the pro forma as given in Appendix. These findings would be compiled and results finalized.

Pregnancy-associated breast cancer (PABC), by definition, is breast cancer diagnosed in the prenatal period, 12 months

postpartum, or during lactation. It is the second most common cancer in pregnancy worldwide, second to only cervical cancer. Between 0.2% and 2.5% of all breast cancers associated with pregnancy, and one in five breast cancers diagnosed in women aged 25–29 are PABCs.

The evaluation of breast symptoms during pregnancy and the postpartum period can be challenging due to the hormonally induced changes in breast tissue that may lead to increased firmness and nodularity. Furthermore, the symptoms of postpartum locational mastitis mimic locally advanced or inflammatory breast cancer. The majority of PABCs are diagnosed after presenting with a palpable mass. However, skin thickening and skin redness can be present up to a quarter of the time. Completing a reliable diagnostic workup with imaging to determine the extent of disease is important in treatment decision-making. In a non-pregnant patient, breast imaging can include ultrasound, mammogram, and breast magnetic resonance imaging (MRI).

Ultrasound helps discern between cystic and solid masses, and mammography can reveal calcifications that may not be visible by ultrasound alone. Ultrasound is widely used in pregnancy and the safety has been previously established. Mammography confers minimal dose to the fetus with abdominal shielding (0.001–0.01 mGy with two views), far below the minimum threshold of 200 mGy for adverse effects during organogenesis (up to 10 weeks of gestation). Although contrast-enhanced breast MRI can be a useful diagnostic tool in non-PABC, the safety of gadolinium in pregnancy is controversial. Free gadolinium is considered toxic and therefore only administered to humans in chelated form. It crosses the placenta and remains in the amniotic fluid to be swallowed by the fetus and re-enters the fetal circulation.

In some advanced PABC cases where metastases are suspected, a metastatic workup before delivery may be necessary to guide treatment decisions. Given that lungs, bone, and liver are the most common metastatic sites of breast cancer, a pregnant patient may undergo a chest X-ray with abdominal shielding, liver ultrasound, and non-contrast supine MRI in place of the bone scan to complete the metastatic workup. The fetal dose of PET/CT has been found to be 10–50 mGy and therefore is usually deferred to the postpartum period.

Conclusion: Delaying treatment due to misconceptions regarding risk of local and systemic therapy most certainly worsens oncologic outcomes. Treatment timing and delivery planning require the assembly of a multidisciplinary team at diagnosis. By mirroring no pregnant treatment regimens as much as possible, using neoadjuvant chemotherapy may improve long-term oncologic outcomes while allowing for effective down staging, positively impacting choice of surgical modality and subsequent management of the axilla. Although breast cancer in the postpartum period may portend a worse prognosis, pregnancy itself is no longer considered an independent risk factor for poor outcome. Historically, uncertainties regarding the safety of diagnostic modalities and treatment of PABC may have led to worse outcomes in this group of younger women with breast cancer.