

Case Report

Thirty-Eight Year Old Asian Female with Breast Cancer

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GL is a 38 year old Asian female 1 year postpartum with no significant PMH, who presented to her primary care physician after feeling a "large lump" on her right breast. She is G3P3 (3003), actively breastfeeding (had breastfed all three children for at least 8 months each) and was 29 years old when she delivered her first child. She has a family history significant for a paternal grandaunt, who had breast cancer in her 70's (died of other causes) and paternal aunt, who was diagnosed with stage 1 breast cancer in her 50's (alive). She is a non-smoker, occasionally consumes wine and has never used illicit drugs. She is a physician herself and lives with her husband and 3 children. She exercises regularly and overall follows a healthy lifestyle. She does self-breast exams and had her annual physical examination with her Gynecologist and PCP in the past 6 months. During those visits, there was no note of abnormal breast exam.

Her physical exam revealed a generally healthy appearing female with normal vital signs. Breast exam revealed some amount of nipple retraction on the right with a 2.5cm x 1cm ill-defined mass on the outer quadrant of the right breast, around the 7 o'clock position. This was non-tender, non-movable, not associated with breast discharge or appreciable lymphadenopathy. Heart and lungs were both unremarkable.

She had same day mammogram which demonstrated a density with associated clustered pleomorphic calcifications on the right breast. Targeted ultrasound of the area revealed a solid irregular 2.5 cm mass with increased vascularity on the 7 o'clock position. She was scheduled to return for biopsy but was advised to stop nursing 10 days prior to avoid milk fistula. Subsequent ultrasound-guided core needle biopsy proved to be invasive ductal carcinoma with lymphovascular invasion. FISH for HER-2 neu was negative and both estrogen and progesterone receptors were positive. Because of her age, she was tested for BRCA-1 & 2 which were both negative. She went on to have an uneventful lumpectomy and sentinel node biopsy a few weeks later. Unfortunately, the margins were not clear and 3 out of 4 lymph nodes were positive for metastasis hence, she was planned for mastectomy with lymph node dissection after completion of chemotherapy. Adjuvant chemotherapy with adriamycin & cytoxan (for 4 cycles every 2-3 weeks) and taxol (12 cycles weekly) was the chosen regimen. She was also planned for 6

weeks of daily radiation after surgery. She will be on tamoxifen for at least 5 years thereafter.

Epidemiology

Breast cancer remains one of the most common cancers among women in the United States. The American Cancer Society (ACS) estimates that out of 692,000 cancer cases among women in 2008, 26% is attributed to breast cancer and that 15% of cancer deaths in women are due to breast cancer, second only to lung and bronchial cancer.¹

Over the past several decades, there has been a steady rise in the incidence and prevalence of breast cancer. What was 1 out of 11 in the 70's, the lifetime probability of developing breast cancer has increased to 1 out of 8 in 2002-2004.¹ This may be attributed to early detection as a result of frequent exams and routine mammograms. Despite these numbers, the good news is that cancer deaths secondary to breast malignancy is decreasing. From 1975-1977, the 5-year survival rate for breast cancer in the United States was 75%. This has steadily increased over the past several decades to 89% from 1996-2003.¹

Etiology and Risk Factors

The etiology of most breast cancer cases is unknown. However, several risk factors are well known including female gender (although men can develop breast cancer), increasing age (half of women diagnosed after 60 years old), early menarche & late menopause (long menstrual history), older age at first live childbirth (after 30 years old) and previous exposure to hormone replacement therapy (especially combined estrogen and progesterone), obesity, alcohol use, physical inactivity, previous chest radiation for other cancer.² History of previous breast cancer increases ones risk at least two to three-fold.² While family history is important, it is noteworthy to mention that only 5% of newly diagnosed breast cancers have identified family members while the rest of 95% have no known family history. Inherited mutations from BRCA 1 and BRCA 2 genes have also been identified as increasing risk factor for developing breast cancer.

Breast Cancer during Pregnancy and Postpartum

Although there is very limited data available, breast cancer during pregnancy and the postpartum period is not uncommon. According to Helewa, et al, there appears to be a

transient increase in risk of breast cancer in the first 3-4 years postpartum although the lifetime risk of nulliparous women is higher.⁴ With women choosing to postpone childbirth for professional advancement, this is thought to play a role in the diagnosis of breast cancer during this period.

Diagnosis

As mentioned above, more women are being diagnosed with breast cancer largely as a result of screening mammogram. Current guidelines recommend annual mammogram for women 40 years and older. After abnormalities on mammogram are identified, a diagnostic mammogram and/or ultrasound are performed and eventually followed over time for stability with serial mammograms. If a specific mass is identified and amenable to biopsy, targeted tests to characterize this is done with ultrasound-guided biopsy. With the biopsy, tests for HER-2 and hormone receptors are also done.

HER-2 stands for human epidermal growth factor receptor-2 which is a protein that promotes the growth of cancer cells. There are 4 commercially available tests for HER-2 but in this case, FISH was used. A positive test means that there is an over expression of the gene as a result of mutation and that the type of cancer is more aggressive than the other types.⁵ Because response to hormone treatment differs, testing for HER-2 is very important to guide treatment choices.

Genetic testing for BRCA is also done when one is concerned about hereditary form of breast cancer. It is recommended that genetic testing for BRCA be performed under the guidance of a trained genetic specialist who can address results accordingly.

Treatment

There are several other factors that affect treatment options including age of patient, co morbid conditions, status of auxiliary nodes, hormone receptors and HER-2, presence or absence of metastasis, menopausal status.² Conventionally, local disease is treated with surgery and/or radiation while systemic disease is usually approached with chemotherapy and/or endocrine therapy. More importantly, patients play a significant role in the decision-making process especially when survival rates are similar among available treatment options.²

References

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