CLINICAL VIGNETTE

Male Breast Cancer: A Case Report

Peter Galier, M.D., F.A.C.P.

Case Report

An 80-year-old male with coronary artery disease and atrial fibrillation status post bypass and pacemaker placement presented to the office with 1-2 weeks of left arm redness and swelling, which started after gardening. Physical exam-ination revealed inner left arm erythema extending into his axilla with edema over the dorsum of his hand extending up to his axilla and around the upper left chest near his pacemaker site. There was no tenderness over the pacemaker site, which had surrounding indu-ration. There was axillary full-ness initially thought to be reactive lymphadenitis. The patient was treated with oral cephalexin. He was re-examined two days later with no change in erythema, swelling or induration. He was switched to amoxicillin/clavulanate and reevaluated in another 48 hours, again without improvement. The patient was admitted to the hospital and started on intravenous antibiotics. A CT scan of his axilla and chest revealed significant axillary lymph-adenopathy and a large 5 cm mass inferior to his pacemaker site. Subsequent biopsy of this mass re-vealed invasive, moderately differentiated adeno-carcinoma of the breast, strongly positive for estrogen and progestin receptors.

Because of his stage, age and co-morbidities, he was initially started on tamoxifen. He tolerated therapy well and after six months he was changed to fulvestrant. He seemed to have an early response with softening of the primary mass, and decrease in the axillary lymph-adenopathy. He is currently tolerating maintenance therapy.

Breast cancer in males is rare compared to female breast cancer, with 1/100 the incidence in women. It represents less than one half of 1% of all male cancer deaths in the United States[1]. Most patients have no discrete risk factors, however, meta-analyses found risk of male breast cancer increases with gynecomastia, testicular or liver pathology, family history of breast cancer, or history of prior chest radiation[2]. Gynecomastia may increase risk because underlying medications which can cause gynecomastia may alter hormone balance.

Hormone imbalance may link risk factors and the risk of developing male breast cancer. Patients with liver disease may have increased circulating levels of estrogen, and diminished levels of androgens[3]. The underlying causes of liver disease are not independent risk factors for developing male breast cancer. Male patients with pro-lactinomas are at increased risk of developing cancer. The associated lower testos-terone levels and altered balance of estrogens and androgens seems to be the key factor[4]. Patients with Klinefelter's Syndrome have a very strong association with male breast cancer with a 50-fold higher risk than the general male population[5]. The association of testicular atrophy, gynecomastia, and high ratio of estrogens to androgens is the presumed link.

Many medications are associated with gyneco-mastia and altered estrogen levels. One drug unique to the male population is Finasteride. The use of Finasteride may be associated with the develop-ment of male breast cancer[6]. The United Kingdom has issued a warning regarding Finasteride and risk of male breast cancer.

As with female breast cancer, inherited genetic mutations also play a role in developing male breast cancer. Men with BCRA2 mutation have a 100-fold higher risk of developing breast cancer than the general male population[7].

Male breast cancer tends to present as a painless firm mass. Most are sub-areolar, where the highest density of breast tissue is located in males. The incidence is slightly higher on the left for unknown reasons. Bilateral disease is extremely rare[8]. At the time of diagnosis, the lesions tend to be fixed to the skin or chest wall due to the minimal amount of surrounding tissues in the male breast, causing more skin dimpling and nipple retraction.

The histology of male breast cancer is almost invariably infiltrating ductal carcinoma. Men tend to have a much higher degree of expression of estrogen and progesterone receptors than women[8]. In men, approximately 90% are estrogen receptor

positive, and 80% progesterone receptor positive compared to 60-70% of women with the disease.

Treatment for localized disease is usually local resection with a modified radical mastectomy.[9] Adjuvant chemotherapy may reduce local recurrence, but overall survival rates do not seem to be affected[9]. Radiation treatment is re-commended for more advanced disease[10]. Tamoxifen is almost universally recommended because of the high incidence of estrogen receptor positivity. Tamoxifen is less well tolerated in men due to side effects of decreased libido, mood alteration, and hot flashes. Nearly five times as many men compared to women stop tamoxifen therapy due to side effects [11].

Treatment for stage II or III disease involves chemotherapy with an anthracycline based regimen, with hope of decreasing tumor size to be amenable to surgical resection[12]. As with female breast cancer, prognostic indicators include tumor size, number of involved lymph nodes, presence of metastatic disease, and the presence of hormone receptors[13].

When men and women with breast cancer are matched for age at diagnosis and disease stage, there is no significant difference in survival, despite men usually being diagnosed at a later age with more advanced disease. Screening men with a thorough family history and routine breast exams lead to earlier detection.

REFERENCES

1. **Jemal A, Siegel R, Xu J, Ward E**. Cancer statistics, 2010. CA Cancer J Clin. 2010 Sep-Oct;60(5):277-300. Epub 2010 Jul 7. Erratum in: *CA Cancer J Clin*. 2011 Mar-Apr;61(2):133-4. PubMed PMID: 20610543.
2. **Sasco AJ, Lowenfels AB, Pasker-de Jong P**. Review article: epidemiology of male breast cancer. A meta-analysis of published case-control studies and discussion of selected aetiological factors. *Int J Cancer*. 1993 Feb 20;53(4):538-49. PubMed PMID: 8436428.
3. **Gordon GG, Olivo J, Rafil F, Southren AL**. Conversion of androgens to estrogens in cirrhosis of the liver. *J Clin Endocrinol Metab*. 1975 Jun;40(6):1018-26. PubMed PMID: 1133151.
4. **Volm MD, Talamonti MS, Thangavelu M, Gradishar WK**. Pituitary adenoma and bilateral male breast cancer: an unusual association. *J Surg Oncol*. 1997 Jan;64(1):74-8. PubMed PMID: 9040805.
5. **Thomas DB**. Breast cancer in men. *Epidemiol Rev*. 1993;15(1):220-31. Review. PubMed PMID: 8405206.
6. Finasteride and the risk of male breast cancer. MHRA Public Assessment Report, December 2009.
7. **Tai YC, Domchek S, Parmigiani G, Chen S.** Breast cancer risk among male BRCA1 and BRCA2 mutation carriers. *J Natl Cancer Inst*. 2007 Dec 5;99(23):1811-4. Epub 2007 Nov 27. PubMed PMID: 18042939; PubMed Central PMCID: PMC2267289.
8. **Giordano SH, Buzdar AU, Hortobagyi GN**. Breast cancer in men. *Ann Intern Med*. 2002 Oct 15;137(8):678-87. Review. PubMed PMID: 12379069.
9. **Cutuli B, Lacroze M, Dilhuydy JM, Velten M, De Lafontan B, Marchal C, Resbeut M, Graic Y, Campana F, Moncho-Bernier V, et al**. Male breast cancer: results of the treatments and prognostic factors in 397 cases. *Eur J Cancer*. 1995 Nov;31A(12):1960-4. Review. PubMed PMID: 8562148.
10. National Comprehensive Cancer Network (NCCN) Guidelines.
11. **Anelli TF, Anelli A, Tran KN, Lebwohl DE, Borgen PI**. Tamoxifen administration is associated with a high rate of treatment-limiting symptoms in male breast cancer patients. *Cancer*. 1994 Jul 1;74(1):74-7. PubMed PMID: 8004585.
12. Early Breast Cancer Trialists' Collaborative Group (EBCTCG). Effects of chemotherapy and hormonal therapy for early breast cancer on recurrence and 15-year survival: an overview of the randomised trials. *Lancet*. 2005 May 14-20;365(9472):1687-717. PubMed PMID: 15894097.
13. **Giordano SH, Cohen DS, Buzdar AU, Perkins G, Hortobagyi GN**. Breast carcinoma in men: a population-based study. *Cancer*. 2004 Jul 1;101(1):51-7. PubMed PMID:15221988.

Submitted on December 12, 2011