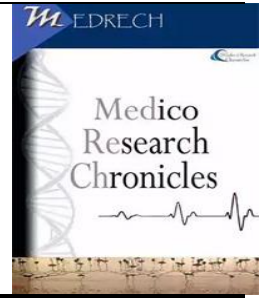




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Case report: Breast Cancer in a 57-year-old Obese Male

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ABSTRACT

Male breast cancer accounts for approximately 0.9% of all breast cancer cases, and its true etiology remains largely unknown. The recognized risk factors include age, Klinefelter syndrome, BRCA2 mutation, diabetes, and elevated estrogen levels. Some studies have also identified obesity as a risk factor. Here, we present a case of a 57-year-old obese male diagnosed with breast cancer. His medical and family history were unremarkable, with no apparent genetic risk factors contributing to his condition.

CASE REPORT

2024, www.medrech.com

INTRODUCTION:

Breast carcinoma predominantly affects females, while male breast carcinoma is relatively rare, accounting for about 0.9% of all breast cancer cases [1]. The mean age at diagnosis for men with breast cancer is older than the average age at diagnosis for women [2]. However, the incidence of male breast cancer is on the rise. A large population-based study reported that the incidence of male breast cancer increased from 0.091 to 1.092 per 100,000 between 1980 and 1999 [3]. The rise in male breast cancer parallels the increase in obesity among males. We present the case of a 57-year-old obese male diagnosed with invasive ductal carcinoma of the breast, who is currently undergoing treatment. This patient has no risk factors for breast cancer other than Class 1 obesity.

CASE PRESENTATION:

A 57-year-old male presented to the clinic with a chief complaint of a palpable mass in his left breast. He reported first noticing the lump six months prior. Physical examination revealed a 1.6 cm solid mass with mild tenderness located in the upper outer quadrant of the left breast.

The patient has no significant medical history or family history of similar conditions. He is not currently on any medication, does not consume alcohol, and is a non-smoker. Testicular volume is within normal limits. He is married and has three children. The patient is classified as Class 1 (low-risk) obesity with a body mass index (BMI) of 31 kg/m².

A breast ultrasound was conducted, revealing a solid hypoechoic mass with irregular margins in the left breast.

Therefore, a decision to remove the lump was made, and during the surgery, a

frozen biopsy was performed. The final diagnosis was a 1.6 cm invasive ductal carcinoma with histologic grade 1, nuclear grade 1, estrogen receptor-negative, progesterone receptor-negative, and human epidermal growth factor receptor 2-negative. A subsequent left simple mastectomy was performed.

Axillary lymph node dissection revealed 24 negative nodes, and there was no evidence of systemic metastasis on positron emission tomography-computed tomography (PET-CT). The staging was T1N0M0. As a result, the patient did not undergo chemotherapy or radiotherapy.

The serum study showed normal levels of cancer antigen 15-3 (14 U/ml), estradiol (21.3 pg/ml), and testosterone (7.41 ng/ml). Genetic analysis confirmed the patient as a eukaryote without chromosomal abnormalities and no mutations in BRCA1/2.

Seven years after the mastectomy, the Patient was found to have a tumor recurrence in the left supraclavicular lymph node only, with no involvement of the axillary lymph nodes. Consequently, he is currently undergoing chemotherapy.

DISCUSSION:

As mentioned above, male obesity and male breast cancer are related. In an obese male, the excess of adipose tissue provides a suitable environment for testosterone to be converted to estrogen via increased aromatase activity [2]. Obese males produce twice as much estrogen as men with an average BMI [4]. The male breast cancer pooling project demonstrated that obesity was a positive risk factor for male breast cancer from 10 cohort studies observing over 2,400 patients [5, 6]. Our patient had a BMI of 31 kg/m².

The etiology of male breast cancer is poorly understood, partly due to its relative rarity. However, several risk factors have been identified. Approximately 5% of men with breast cancer report a family history of breast or ovarian cancer [2]. It is estimated that 12%

of men with breast cancer have a genetic predisposition, with BRCA2 being the most clearly associated gene mutation [7]. BRCA1 mutation is also associated with male breast cancer [8]. However, in this case, the patient had no chromosomal abnormalities, no mutations in BRCA1/2, and no family history of breast or ovarian cancer.

Estrogen excess and lack of androgens contribute to several conditions associated with the risk of breast cancer [2]. Klinefelter's syndrome has been described in the literature as occurring in 6% of men with male breast cancer [9]. Men with Klinefelter's syndrome present with testicular dysgenesis, gynecomastia, and low testosterone concentration [2, 9]. However, this patient had no hormonal abnormalities, gynecomastia, or abnormal testicular volume.

Some studies have found a slightly elevated risk of breast cancer associated with a history of diabetes [7]. Hyperinsulinemia, as occurs in adult-onset diabetes, may promote breast cancer because insulin may act as a growth factor for human breast cancer cells [10]. However, this patient has not been diagnosed with diabetes.

Alcohol consumption has not been consistently identified as a risk factor for male breast cancer. In a case-control study involving 74 male breast cancer cases and 1,432 controls, the risk of breast cancer increased by 16% per 10 g daily alcohol intake [2, 8]. However, our patient does not have alcohol use disorder.

In this case report, we have presented an obese male who was diagnosed with breast cancer with a tumor size of 1.6 cm and 24 negative axillary lymph nodes. However, there was a recurrence in the left supraclavicular lymph node seven years after the initial diagnosis. This patient did not have any risk factors except for obesity. The causes of the increase in male breast cancer incidence have not been clearly recognized yet, but the rising rate of obesity may be linked to breast cancer.

CONCLUSIONS:

Male breast cancer is rare, and little is known about its true etiology. Obesity has been documented as a risk factor for male breast cancer in some studies, although it is not officially recognized as a risk factor. What makes our case special is that our patient did not have any risk factors except for Class 1 obesity. There have been no previously reported cases of breast cancer in males with only obesity as a risk factor.

Conflict Of Interest: No potential conflict of interest relevant to this article was reported.

Human Ethics: Consent was obtained by all participants in this study.

REFERENCES:

1. Siegel, R. L., Miller, K. D., & Jemal, A. (2016). Cancer statistics, 2016. *CA: A Cancer Journal for Clinicians*, 66(1), 7-30.
2. Sousa, B., Moser, E., & Cardoso, F. (2013). An update on male breast cancer and future directions for research and treatment. *European Journal of Pharmacology*, 717(1-3), 71-83.
3. Ahmed, M., & Esposito, E. (2015). Report from the 37th San Antonio Breast Cancer Symposium, 9-13 December 2014, Texas, USA. *Ecancer medical science*, 9, 508.
4. Schneider, G, Kirschner, M. A, Berkowitz, R., & Ertel, N. H. (1979). Increased estrogen production in obese men. *The Journal of clinical Endocrinology & Metabolism*, 48(4), 633-638.
5. Brinton, L. A. Richesson D. A., Gierach, G. L., Lacey, J. V., Park, Y., & Hollenbeck, A. R (2014). Prospective evaluation of risk factors for male breast cancer. *Journal of the National Cancer Institute*, 106(3), djt465.
6. Heller, K. S., Rosen, P. P., Schottenfeld, D., Ashikari, R., & Kinne, D. W. (1978). Male breast cancer :A clinicopathologic study of 97 cases. *Annals of Surgery*, 188(1), 60-65.
7. Couch, F, J., Farid, L. M., DeShano, M. L., Tavtigian ,S. V., Calzone, K., & Campeau, L. (1996). BRAC2 germline mutations in male breast cancer cases and breast cancer families . *Nature Genetics* 13(1), 123-125.
8. Guenel, P., Cyr, D., Sabroe, S., Lynge, E., Merletti, F., & Ahrens, W. (2004). Alcohol drinking may increase the risk of breast cancer in men :A European population -based case-control study. *Cancer Causes & Control* , 15(6). 571-580.
9. Hultborn, R., Hanson, C., Kopf, I., Verbiene, I., Warnhammer, E., & Weimark, A. (1997). Prevalence of Klinefelter's syndrome in male breast cancer patients. *Anticancer Research*, 17(6D), 4293-4297.
10. Freiss, G., Prebois, C., Rochefort, H., & Vignon, F. (1990). Antisteroidal and anti-growth factor activities of antiestrogens and antiprogestins. *The Journal of Steroid Biochemistry and Molecular Biology*, 37(5), 777-781.