Male Breast Carcinoma: A Case Study
A A Omigie, C Hill

Citation

Abstract
Though male breast carcinoma is a rare disease, it is crucial that the nurse practitioner include assessment of the male breast during physical examinations. Male breast carcinoma, when identified at a late stage, has a poor prognosis with a high potential of mortality and morbidity. Prompt referral of any breast mass is essential in reducing deaths related to male breast carcinoma. This case study highlights an incident of preventable death from male breast carcinoma in a 29-year-old patient.

INTRODUCTION
The National Cancer Institute (NCI) reported 2,240 new diagnosed cases of male breast carcinoma (MBC) and 410 deaths in the United States (US) in 2013.1 Lack of awareness that a male breast mass could be associated with a medical problem delays the timeliness and diagnosis of male breast carcinoma. Male breast carcinoma accounts for about 1% of breast cancers in the US.1, 2,3 The patient in this case study lacked awareness of possible male breast carcinoma, did not seek early medical attention or screening, and unfortunately died from metastasis of breast cancer to other organs of the body. The nurse practitioner (NP), as a frontline primary care practitioner, has a very critical role of making early referrals, and must include any suspicious breast mass as breast carcinoma in the differential diagnosis until ruled out.4 Additionally, the NP has an essential role in including breast examination during a male physical examination.

CASE REPORT
History of Present Illness
A healthy 29-year-old male who was an established patient of a primary care clinic presented to his primary care provider, a nurse practitioner. The patient presented with a chief complaint of a painless, rubbery lump in the right breast at the 4 o’clock location. The patient reported no alleviating or aggravating factors and stated that this lump was smaller in size 2 months ago, but had grown in size by 4 centimeters.

History, Review of Systems, and Physical Examination (see Tables 1 and 2; only pertinent positive and negative findings noted in review of systems with all other systems

unremarkable).

Table 1
History and Review of Systems

![Table 1: History and Review of Systems](image)

<table>
<thead>
<tr>
<th>History</th>
<th>Review of Systems</th>
</tr>
</thead>
<tbody>
<tr>
<td>Past Medical</td>
<td></td>
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<tr>
<td>Past Surgical</td>
<td></td>
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<tr>
<td>Social History</td>
<td></td>
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<tr>
<td>Family History</td>
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<tr>
<td>Allergies</td>
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<td>Current Medications</td>
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<tr>
<td>Review of Systems</td>
<td></td>
</tr>
<tr>
<td>General</td>
<td></td>
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<tr>
<td>Cardiovascular</td>
<td></td>
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<tr>
<td>Respiratory</td>
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<tr>
<td>Breast</td>
<td></td>
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<tr>
<td>Lymphatic/Immunologic</td>
<td>Unremarkable</td>
</tr>
<tr>
<td>Skin</td>
<td></td>
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</tbody>
</table>

Abnormal findings highlighted
Table 2

Physical Examination

<table>
<thead>
<tr>
<th>System</th>
<th>Findings</th>
</tr>
</thead>
<tbody>
<tr>
<td>General</td>
<td>Alert and oriented to persons, place, and time. In no distress, but was very uncomfortable about painful lump in right breast. Vital Signs: Temperature 97.6°F, Pulse rate 86 beats minute and regular, respiration 18 breaths minute and unlabored, blood pressure 128/80, height 5′5″ inches, weight 200 pounds, body mass index 31.2.</td>
</tr>
<tr>
<td>Cardiovascular</td>
<td>Auscultable regular heart rate and rhythm S1, S2.</td>
</tr>
<tr>
<td>Lungs</td>
<td>Breaths sounds clear to auscultation in all lobes.</td>
</tr>
<tr>
<td>Neck and lymph nodes</td>
<td>Negative. No palpable lymph nodes in neck, axillary, or groin area.</td>
</tr>
<tr>
<td>Chest</td>
<td>Right breast right lower quadrant of breast at 4 o’clock position had a hard, nonmobile nodule approximately 5.3 cm x 1.8 cm in diameter of well-confined mass noted with deep palpation of tissue. No nipple discharge or edema. Rubbery fixed texture of nodule. Left breast nodule 0.6 cm on soft nonmobile mass noted. No nipple discharge or edema. Rubbery fixed texture of nodule.</td>
</tr>
</tbody>
</table>

DISCUSSION

Prognosis and Survival Rate

Prognosis or survival from diagnosis of male breast carcinoma is determined by stage and by pathologic findings. Mortality related to male breast carcinoma (MBC) has a potential to be increased with lymph node involvement. Landero et al.6 reported that the survival rate of breast cancer is determined by the stage of breast cancer at the time of diagnosis: stage I=78%, stage II=67%, stage III=40% and stage IV=19%. In describing the criteria for staging, the American Joint Committee on Cancer7 provided a plan for categorizing patients with respect to prognosis. Therapeutic decisions are articulated by the stage of the tumor. Unfortunately, in 80-90% of the cases, male breast carcinoma is diagnosed at a later stage of the disease.1-3,5-9 The American Cancer Society (ACS)2,3 reported the most common type of breast cancer found in men is the invasive ductal carcinoma (IDC). This type of breast cancer is prevalent in men and metastasizes to other parts of the body.3 MBC prognosis is very poor when discovered at the later stage of the disease.1, 3, 5-7

Pathophysiology of MBC

The actual etiology of MBC is not precise or well-understood, and primary care providers have been challenged to determine the exact risk factor associated with MBC.1-3,6-11 Several hypotheses try to describe the pathophysiology and etiology of MBC. These theories may be linked to the development of MBC: (a) mutations or inherited DNA changes; (b) disruptions of transduction in DNA pathways; (c) mutations in the BRCA 1 and BRCA 2 genes; (d) Klinefelter syndrome; (e) testicular disorders; (f) exposure to radiation; (g) changes in lifestyle; or (h) alcohol intake.1-14 However, more research in this area is required. Alterations in the BRCA2 may be a cause for some male breast cancers. White et al.8 reported that men with inherited gene mutations in BRCA2 are associated with a potential risk of developing male breast cancer. Other hypotheses suggest that MBC is cultivated from alterations in tumor suppressor genes as a consequence of contact with cancer triggering chemicals or radiation in the environment.2-3, 5-8

Differential Diagnoses

The following lists of differential diagnosis below were considered by the NP after a comprehensive history, review of system, and physical examination of the patient. These differential diagnoses could be possible but not confirmed. Therefore a diagnostic workup was still required to distinguish and confirm the actual presenting problem of the physical findings.

1. Ductal carcinoma in situ - These tumors are a category of breast cancer in men. The cancer cells are in the breast ducts but do not advance through the wall of the breast into fatty tissue. The ACS2,3 reported only 1 out of every 10 cases develop into male breast carcinoma.

2. Invasive lobular carcinoma - Infiltrating or invasive lobular carcinoma (ILC) is a category of breast cancer in men. The malignant cancer cells begin in the breast lobules that produce milk ducts and grow into fatty cells. Two out of every 100 cases develop into MBC.2,3

3. Carcinoma in situ - Carcinoma in situ is cancer in an early stage. Tumor cells have not invaded into adjoining tissue.2, 3

4. Infiltrating or invasive ductal carcinoma - Infiltrating or invasive ductal carcinoma (IDC) is the most prominent category of breast cancer found in men. The ACS2,3 reported these cancer cells migrate from the ducts and metastasize to other parts of the body. The ACS2,3 reported 8 out of every 10 cases develop into infiltrating or invasive ductal carcinoma (IDC).

5. Gynecomastia – This condition is the most frequent presentation in men,2,3,5-14 and refers to an increase in breast tissue that is noncancerous. Presentation is a button-like or disk-like lump beneath the nipple and areola.2, 3

Diagnostic Workup

The ACS2,3 guidelines for management of a male patient with any suspicious lesion or growth require that the provider must get a baseline for his/her patient’s condition.
The ACS2,3 and the National Comprehensive Cancer Network (NCCN)5 guidelines for breast cancer screening for men include obtaining selected laboratory testing. These tests include mammograms, aspiration biopsy, computerized tomography (CT) scans, and Human Epidermal Growth Factor Receptor 2 (HER2) testing.1,2,3,5 Diagnostic workup is essential to identify the suspicious mass in the patient’s breast because it is an unusual finding and may be cancerous; a diagnostic work-up will help confirm exact diagnosis of this patient’s breast mass. For this case patient, the first step made to determine if the patient had breast cancer was to order a mammography, aspiration biopsy, estrogen and progesterone receptor test, HER2 test, and CT of the abdomen and chest to check for metastases of the disease.1,-3,5 This diagnostic workup was done through a referral oncologist. These tests were selected to determine the most accurate diagnosis of breast malignancy. Landero et al.6 reported that mammogram is over 90% sensitive and specific in determining the difference between malignancy and gynecomastia. The biopsy is considered a very definitive test. Breast tissue biopsy is a very precise diagnostic test for analyzing breast cancer cells.2, 3, 5, 6, 9-11

Diagnostic Findings (see Tables 3, 4, and 5)
Diagnostic findings were consistent with those for invasive ductal carcinoma grade III patient, but the left breast tissue was a benign soft tissue which was confirmed as noncancerous.

Table 3
Laboratory Reports

<table>
<thead>
<tr>
<th>Test</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>HER2</td>
<td>Negative</td>
</tr>
<tr>
<td>Progesterone Receptor test</td>
<td>Negative</td>
</tr>
<tr>
<td>Estrogen Receptor test</td>
<td>Positive</td>
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</table>

Table 4
Pathology Biopsy Report

<table>
<thead>
<tr>
<th>Test</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biopsy of right breast</td>
<td>Positive for malignancy. The needle biopsy result reported a grade III invasive ductal carcinoma.</td>
</tr>
<tr>
<td>Biopsy of left breast</td>
<td>Negative for malignancy but has benign soft tissue</td>
</tr>
</tbody>
</table>

Table 5
Radiology Report

Assessment
The severity, rate of progression, and characteristics of MBC depends on the category of the disease. MBC may be divided into 5 different categories: (1) benign breast tumors; (2) ductal carcinoma in situ; (3) invasive lobular carcinoma; (4) carcinoma in situ; and (5) invasive ductal carcinoma.1-3,5

Diagnoses
1. Invasive Ductal Carcinoma grade III in right breast
2. Benign soft breast tissue neoplasm in left breast. These lumps are noncancerous based on the pathology findings. According to the ACS2,3, benign soft breast tissue neoplasm may present as a bulk of tissue like fibroadenomas or papillomas.

The decision and assessment of invasive ductal carcinoma was made based on the diagnostic, pathology findings and the physical examination. These findings were consistent with the clinical presentations discussed for MBC.2,3,5,10-14 The patient’s pathology findings were identified as late stage breast carcinoma. This patient had a grade III MBC in right breast.

Treatment
Family and Patient Education
The patient and wife were informed of the diagnosis of male breast carcinoma and prognosis based on the pathology findings, medications, and the plan for radiation and chemotherapy. The patient was referred to the oncology team for more evaluation and treatment. Patient education materials were provided regarding the diagnosis, the staging of breast cancer, and the pathological results. Genetic testing for presence of BRCA 2 gene for the patient was done and the result was negative.

Collaborative Surgical and Medication Treatment Plan
Surgery
For the diagnosis of invasive ductal carcinoma, the NCCN5 and the ACS2,3 guidelines recommend modified radical mastectomy of the right breast and retro-areolar lumpectomy.
of the left breast. Surgery was recommended for this patient by the oncology team. The patient was referred to a surgeon and plans were made to prepare for surgery.

Radiation therapy

Post-surgery radiation is recommended for patients diagnosed with invasive ductal carcinoma. Radiation therapy was recommended by the oncologist to aid in blocking the development of potential cancer cells.

Medications

Systemic adjuvant chemotherapy and drug combination systemic therapy was prescribed to inhibit cancer cell activity. Systemic adjuvant chemotherapy is a combination of cyclophosphamide, methotrexate, and fluorouracil (CMF). Acetaminophen and diphenhydramine were to be taken prior to administration of CMF to reduce side effects of hypersensitivity or allergic reactions like itching, to provide comfort, and for analgesic effects during therapy.

A combination of medication and systemic adjuvant therapy was recommended by the oncology team as treatment after surgery to improve the survival rate of cancer after surgery. CMF treatment was administered and monitored by the oncologists. This evidence-based practice of systemic chemotherapy is recommended by the NCCN and the ACS guidelines. CMF chemotherapy has a 5-year or more survival rate following surgery. The oncology team made adjustments to chemotherapy treatments as needed to manage and control the cancer cells.

Hormone Therapy

Tamoxifen has been the first line of treatment for the past 5 years. Tamoxifen is an anti-estrogen hormone therapy that blocks estrogen receptors. This evidence-based practice is recommended by NCCN and ACS guidelines. CMF chemotherapy has a 5-year or more survival rate following surgery. The oncology team made adjustments to chemotherapy treatments as needed to manage and control the cancer cells.

Outcome of Intervention/Interdisciplinary Care

The patient followed the plan of care with the oncology team and continued to receive chemotherapy treatments supervised by the specialty team. Six months after surgery, the oncology team reported that the cancer cells had metastasized to the lungs and bone in the thoracic region. The patient had a 64 pounds weight loss. The patient was later referred to hospice care due to deterioration in health status. The patient died 2 years from the time of diagnosis of disease.

CONCLUSION

The assessment of the male breast by the NP is essential during any physical examination for early detection and reduction of mortality and morbidity related to male breast cancer. The patient in this case study did not realize the importance of seeking prompt medical advice when the breast mass initially developed. When the breast mass was evaluated it was already at the late stage of breast carcinoma, and unfortunately the patient died at a young age. The NP as a frontline primary care provider has a significant role of thorough assessment and patient education to promote the awareness of male breast cancer which could increase early identification of disease and result in a significant reduction of deaths related to MBC. Limited awareness of MBC could have a potential of being fatal. However, prognosis for a higher survival rate can be improved with the establishment of monthly male self-breast examination, increased breast cancer awareness, and timely diagnosis.

References


Author Information

Ade Adesuwa Omigie, DNP, APRN, FNP-BC Assessment Clinician
United Health Group
Houston, Texas, USA

Catherine Hill, DNP, APRN, GNP-BC Adjunct Professor
Texas Woman
Dallas, Texas, USA