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Invasive Ductal Carcinoma near the Site of a Previously Excised Patient-Reported Benign Breast Tumor in a 93-Year-Old Male: A Case Report

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Abstract

Background and Clinical Significance: Male breast cancer is rare, representing less than 1% of breast carcinomas diagnosed annually in the United States. Invasive ductal carcinoma is the most common histologic subtype in men. Prior benign breast disease is associated with later breast cancer risk in women, but corresponding data in men are limited. This case describes invasive ductal carcinoma in a 93-year-old man with a remote history of ipsilateral breast tumor excision. Case Presentation: A 93-year-old male presented with newly diagnosed left breast cancer confirmed by diagnostic mammogram, ultrasound, and biopsy. His history included left-sided gynecomastia at age 20 treated without surgery and a patient-reported teratoma excised from the left breast in his late 50s. Mammogram showed an equal-density circumscribed round mass in the central left breast. Ultrasound showed a parallel mixed-echogenicity 3.5 cm mass with normal-appearing lymph nodes. Biopsy demonstrated grade 2 invasive ductal carcinoma, estrogen receptor positive, progesterone receptor positive, HER2 negative, Ki-67 15%, and Magee score 14. The patient underwent left mastectomy and sentinel node biopsy. Final pathology confirmed stage IIA disease, pT2N0, with margins greater than 10 mm and 0 of 6 lymph nodes involved. Conclusions: This case reinforces that new male breast masses require careful evaluation, even with a remote history of benign breast disease or prior breast surgery.

Keywords

Male Breast Cancer, Invasive Ductal Carcinoma, Benign Breast Tumor, Gynecomastia, Mastectomy, Sentinel Node Biopsy, BRCA, Case Report

1. Introduction

Male breast cancer is rare, representing less than 1% of breast carcinomas diagnosed annually in the United States [1]-[4]. Invasive ductal carcinoma is the most common histologic subtype in men as shown in **Figure 1** [1] [2]. Although uncommon, male breast cancer is clinically important because diagnosis may be delayed when patients or clinicians do not initially suspect malignancy in a male breast mass [1] [3] [4]. This delay may be more likely when a patient has a history of gynecomastia, prior benign breast disease, or remote breast surgery, which may create an assumption that a new breast mass is also benign. Male breast cancer is commonly hormone receptor-positive. In the EORTC 10085/TBCRC/BIG/NABCG International Male Breast Cancer Program, male breast cancer was frequently estrogen receptor positive, progesterone receptor positive, androgen receptor positive, and luminal B-like/HER2 negative [2]. These receptor patterns are clinically relevant because they guide endocrine therapy, systemic treatment, prognosis, and survivorship planning [2]-[4]. Management principles for male breast cancer generally parallel those used for breast cancer in women, but male-specific considerations include endocrine therapy selection, genetic testing, surveillance, and counseling [4].

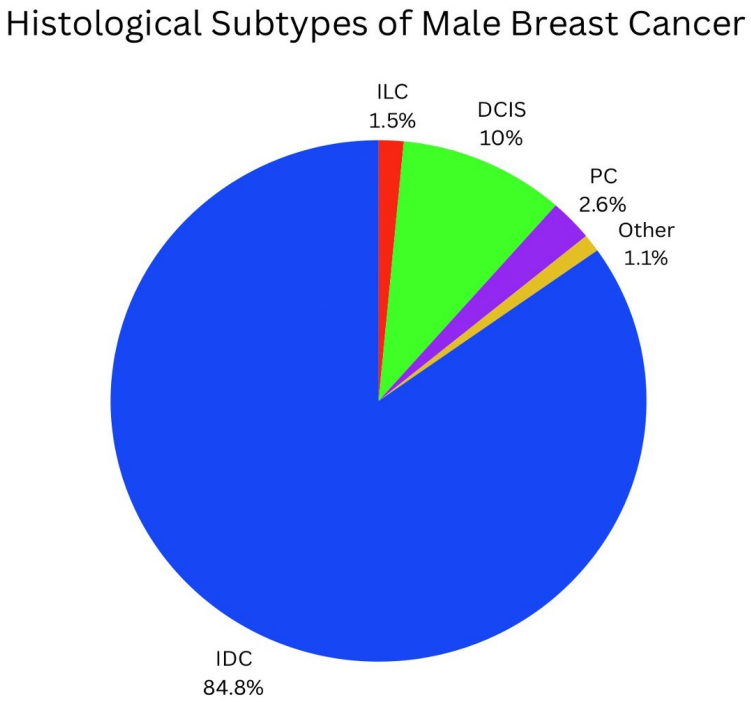


Figure 1. Prevalence of breast cancer subtypes in men 1, 2. IDC: invasive ductal carcinoma, ILC: Invasive lobular carcinoma, DCIS: Ductal carcinoma *in situ*, PC: Papillary carcinoma.

The clinical evaluation of a male breast mass requires careful assessment of benign and malignant causes, including gynecomastia, benign neoplasms, inflammatory lesions, and carcinoma. The American College of Radiology recommends

diagnostic mammography or digital breast tomosynthesis as usually appropriate initial imaging for men 25 years of age or older with an indeterminate palpable breast mass, with ultrasound used as a complementary tool when mammography is suspicious or indeterminate [5]. Tissue diagnosis remains essential when imaging or clinical findings are concerning. Benign breast disease is an established breast cancer risk factor in women, particularly when proliferative disease or atypical hyperplasia is present [6]-[8]. However, male-specific data connecting benign breast lesions with later invasive carcinoma are limited. This creates a practical clinical problem: when an older male patient presents with a breast mass decades after prior benign breast surgery, clinicians must distinguish a new malignancy from benign recurrence, post-surgical change, gynecomastia, or other nonmalignant causes. The rarity of male breast cancer should not reduce clinical suspicion when a new palpable mass is present. This issue also has implications for patient education and surveillance. Men with BRCA mutations or other hereditary cancer risk factors have increased risk for breast cancer and should receive counseling regarding breast self-examination, clinical breast examination, genetic testing, and imaging surveillance when indicated [4] [9]-[12]. Although the patient in this report did not have a reported BRCA status, the case supports the broader conclusion that men should receive appropriate breast cancer education when risk factors or breast symptoms are present. The development of invasive ductal carcinoma in the same breast as a previously resected benign tumor is unusual. The literature contains limited information regarding the occurrence of invasive breast carcinoma at the site of a previously excised breast mass in men. This case report describes invasive ductal carcinoma in a 93-year-old male with a remote history of ipsilateral breast tumor excision. The objectives are to raise awareness for breast cancer in men, emphasize careful evaluation of new male breast masses, and support breast self-examination education and appropriate clinical surveillance for men with breast symptoms, prior breast lesions, or elevated hereditary risk.

2. Case Presentation

A 93-year-old male presented to the surgical oncologist with newly diagnosed left breast cancer, determined to be invasive ductal carcinoma by diagnostic mammogram, ultrasound, and biopsy. He had a long history of lumps on the left side. His history included gynecomastia at age 20, which was treated without surgery, and a lump that was excised in his late 50s. The patient reported that the previously excised lesion was a teratoma. Diagnostic mammogram showed an equal-density circumscribed round mass in the central left breast corresponding with the palpable abnormality. Breast ultrasound showed a parallel mixed-echogenicity 3.5 cm mass at the 1:00 N2 position, with normal-appearing lymph nodes. Examples of similar appearance are shown in **Figure 2** and **Figure 3**. This diagnostic sequence is consistent with recommended evaluation of an indeterminate or suspicious male breast mass [5]. Ultrasound-guided needle biopsy showed invasive ductal carcinoma, overall Grade 2. The receptors were estrogen positive, strong, 90%; proges-

terone positive, strong, 85%; HER2 negative; Ki-67 was 15%; and Magee score was 14. Histologic grade was 2. Nuclear pleomorphism was scored 3, mitotic rate was scored 1, and there was no evidence of ductal carcinoma *in situ*.

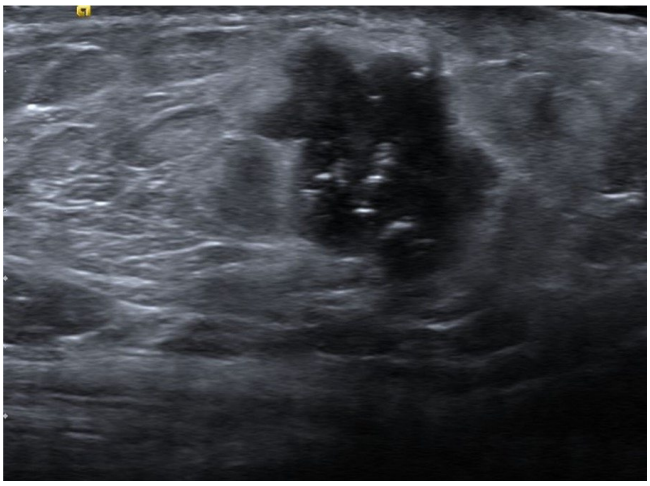


Figure 2. Ultrasound showing a parallel mixed echogenicity mass. This is representative of a mass similar to this patient' s case but is not the patient in question. Case courtesy of Zaki Zaheer, Radiopaedia.org, rID:92968.

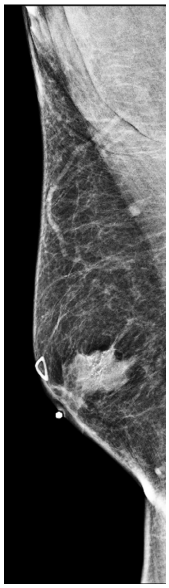


Figure 3. Mammogram showing increased density of tumor. This is representative of this patient's case but is not the patient in question. Case courtesy of Zaki Zaheer, Radiopaedia.org, rID:92968.

3. Clinical Course

Physicians discussed treatment options with the patient, including chemotherapy, radiation therapy, and mastectomy. After discussion, it was determined that a mastectomy would be prudent due to his age, risks, and side effects associated with chemotherapy and radiation. A left mastectomy and sentinel node biopsy were

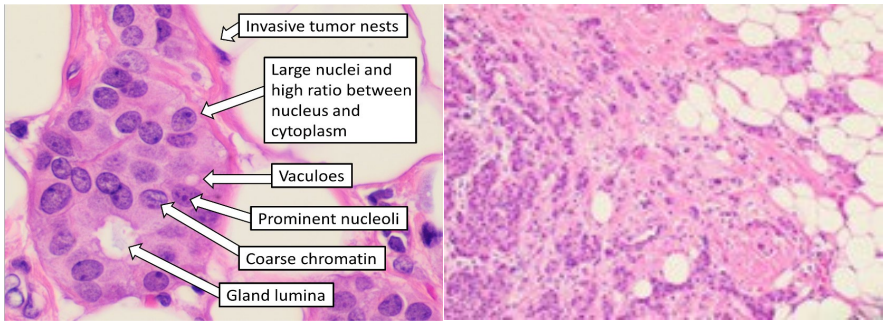
performed. The tumor was confirmed as invasive ductal carcinoma, grade 2. The tumor was reported as pT2N0, although the available pathology documentation describes a 2.5-cm combined area of hemorrhage/hematoma without providing a separate measurement of the invasive carcinoma. Surgical margins were greater than 10 mm. Lymph nodes were negative, with 0 of 6 lymph nodes involved. Receptor testing confirmed estrogen receptor positivity, strong, 90%; progesterone receptor positivity, strong, 85%; HER2 negativity; Ki-67 of 15%; and Magee score of 14. Final reported staging was stage IIA, pT2N0. Three weeks postoperatively, the patient presented to his surgeon and stated that he had done well after surgery. He did not take pain medications, denied fever, and his drain had put out less than 30 cc over the prior three days. At this visit, the surgeon noted that the surgical incisions were healing well with no erythema or drainage. The left breast flap was viable, and the Jackson-Pratt drain was intact with serosanguineous fluid. After drain removal, the drainage site was covered with gauze.

4. Discussion

The development of invasive ductal carcinoma near the same location as a previously resected benign tumor is unusual but highlights the importance of long-term vigilance in patients with a history of breast lesions. The presence of benign precursor lesions, such as atypical ductal hyperplasia or ductal carcinoma *in situ*, can increase the risk of subsequent invasive cancer in women [6]-[8]. In men, the relationship between prior benign breast disease and later invasive carcinoma is not well defined because of the rarity of both male breast cancer and male benign breast tumor cohorts [1] [3] [4]. In this case, the long interval between the benign tumor and the invasive ductal carcinoma suggests a de novo malignancy rather than recurrence with transformation. The patient's prior breast history included gynecomastia at age 20 treated without surgery and a patient-reported teratoma excised in his late 50s.

The invasive ductal carcinoma was later diagnosed in the left breast at age 93. Because the prior diagnosis was patient-reported, documentation of the original histology would strengthen the interpretation of this case. A retrospective cohort study by Visscher *et al.* showed a correlation between benign breast disease and breast cancer in women, with 9.4% of benign breast disease cases developing breast cancer, with 81% being invasive, of which 61% were ductal, 13% were mixed ductal/lobular, and 14% were lobular [7]. Earlier and contemporary benign breast disease cohorts have also shown elevated breast cancer risk, particularly with proliferative disease and atypical hyperplasia [6] [8]. Although no published studies have identified recurrence rates of benign tumors in men, recurrence rates of benign or borderline fibroepithelial and phyllodes tumors in women have generally been low after excision [13] [14]. Although no data are available to estimate the probability of breast cancer occurring near the same location as a previously excised breast mass more than 30 years after surgery, the occurrence of invasive breast carcinoma in this clinical context appears to be uncommon.

The scarcity of comparable reports supports the rarity of this clinical scenario. The tumor characteristics in this patient were consistent with common features of male breast cancer. The tumor was estrogen receptor positive and progesterone receptor positive, with HER2 negativity. Male breast cancer is commonly hormone receptor positive, and large male breast cancer cohorts have shown high rates of estrogen receptor positivity [2]-[4]. The Ki-67 was 15%, and the Magee score was 14. There was no evidence of ductal carcinoma *in situ* on biopsy. Surgical management with mastectomy and sentinel node biopsy confirmed invasive ductal carcinoma, grade 2, with margins greater than 10 mm and no lymph node involvement in 0 of 6 lymph nodes. An example of the histology of invasive ductal carcinoma is shown in **Figure 4**. ASCO guidance for male breast cancer generally supports management principles similar to those used in female breast cancer, while also emphasizing male-specific considerations including endocrine therapy, genetic testing, and survivorship care [4]. Men with hormone receptor-positive breast cancer who are candidates for adjuvant endocrine therapy should generally be offered tamoxifen for an initial duration of 5 years [4]. This case supports the need for vigilance and follow-up care in men with a history of breast tumors. Although male breast cancer is rare, a new palpable breast abnormality in a man should not be dismissed as benign solely because of prior gynecomastia or prior benign breast disease. Diagnostic mammography, breast ultrasound, and biopsy remain important tools when evaluating suspicious male breast masses [5]. Men with BRCA gene mutations should receive education on breast self-examination and should undergo appropriate clinical surveillance [4] [9]-[12]. High-risk male breast cancer screening literature suggests that image-based screening may have benefits in selected high-risk men, although evidence remains more limited than for women [11] [12]. Genetic counseling and germline genetic testing are also important because ASCO recommends that men with breast cancer be offered genetic counseling and germline testing for cancer predisposition genes, and ASCO-SSO germline testing guidance supports BRCA1/2 testing in newly diagnosed breast cancer patients 65 years or younger and selected older patients based



(a) (b)

Figure 4. Histology of invasive ductal carcinoma. This is representative of histology likely similar to this patient's case but is not the patient in question. Courtesy of Michael Häggström.

on clinical factors [4] [10]. Although BRCA status was not reported for this patient, these recommendations remain relevant to the broader clinical issue of male breast cancer surveillance and education. This report has several limitations. First, the prior benign breast tumor diagnosis was patient-reported, and original pathology was not available. Therefore, the lesion should be described as a patient-reported teratoma rather than a confirmed benign precursor. Second, the long interval between the prior lesion and the invasive ductal carcinoma makes direct malignant transformation less likely but does not allow a definitive conclusion. Third, follow-up was limited to early post-operative recovery, and information regarding endocrine therapy, genetic testing, recurrence surveillance, and longer-term oncologic outcome was not available.

5. Conclusions

This case demonstrates the need for consistent vigilance and follow-up care in men with a history of benign breast tumors. There is a scarcity of cases detailing a benign breast tumor preceding breast cancer, supporting the low likelihood of recurrence with transformation. Men with BRCA gene mutations should receive self-breast examination education and perform self-examinations regularly. Men with BRCA gene mutations should also undergo appropriate clinical breast surveillance beginning at age 35, consistent with high-risk male breast cancer surveillance recommendations [4] [9]-[12]. This case also reinforces that male breast masses require careful evaluation. Prior benign breast disease, remote breast surgery, or advanced age should not reduce clinical suspicion when a new palpable breast abnormality is identified.

Author Contributions

Conceptualization, G.C., J.D.G., J.D. and B.B.; investigation, G.C., J.D.G. and J.D.; writing—original draft preparation, G.C., J.D.G. and J.D.; writing—review and editing, B.B.; supervision, B.B. All authors have read and agreed to the published version of the manuscript.

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Institutional Review Board Statement

This case report was reviewed by the Rocky Vista University Institutional Review Board and determined to be exempt, IRB #2025-088.

Informed Consent Statement

Written informed consent was obtained from the patient for publication of this case report. If patient-specific images, radiology, pathology, or other identifiable clinical materials are included, the consent must explicitly cover publication of

those materials.

Data Availability Statement

No new datasets were generated or analyzed for this case report. Additional clinical details are not publicly available to protect patient privacy.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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