

# Ductal carcinoma in situ presenting as a cystic retroareolar lesion in an African American man

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## Abstract

We report an unusual finding of DCIS within a cystic lesion in a black man highlighting the need for adequate workup, and timely follow-up for men with breast/chest wall masses given the lack of screening in this population. Furthermore, we will explore how race contributes to prognosis and health outcomes.

## Introduction

Breast cancer in men is rare accounting for less than 1% of all breast cancers in the United States.<sup>1-3</sup> Given the rarity of this disease, there are significant knowledge gaps pertaining to the management of breast cancer in men, and even more so when assessing the impact of race and other health disparities. The literature as it stands today consists only of small, single-institution retrospective case series and many of the clinical decisions regarding the management of breast cancer in men are not derived from randomized clinical trials but rather are interpolated from breast studies in women.<sup>4</sup> This poses a challenge as it has been noted that the presentation amongst men and women differ significantly with men presenting at an older age, with an average of 67 years compared to 62 years in women, more advanced stage, and lower overall survival.<sup>5</sup> The known risk factors associated with male breast cancer include family history of breast cancer, black or African ancestry, radiation exposure, predisposition to germline genetic mutation, and hypoestrogenism.<sup>5</sup> Here, we report an unusual finding of DCIS within a cystic lesion in an elderly black man with a delay in diagnosis. This case highlights the need for adequate workup with diagnostic imaging and timely follow-up for men with breast/chest wall masses to rule out a malignancy given the lack of screening in this population. Furthermore, we will explore how race contributes to prognosis and health outcomes.

## Case Description

A 71-year-old African American/ black male presented with a self-palpated left retroareolar breast mass. This was evaluated with a bilateral diagnostic mammogram and left breast ultrasound demonstrating a complex cystic and solid mass. Biopsy of the solid component of the mass was performed along with cytologic evaluation of the fluid showing benign fibroadipose tissue, without malignant cells identified. After the procedure the mass reduces in size and the patient is lost to follow-up until five years later when he again complains of an enlarging left breast mass.

Subsequent repeat bilateral diagnostic mammogram demonstrated an oval circumscribed hyperdense 4.5 cm mass with an associated U-shaped biopsy clip (from prior biopsy with benign pathology) at the lateral margin of the palpable mass. Ultrasound demonstrated a cystic structure containing dependent and mobile debris measuring 5.1 x 2.9 x 4.5 cm [Figure 1 and 2]. A core needle biopsy was again performed showing atypical ductal hyperplasia involving a cystically dilated duct [Figure 3 and 4].

He was referred for surgical consultation where on exam there was a ~5cm well circumscribed, mobile, retroareolar mass without associated skin changes. He was recommended to have a left breast excision which was performed through an inframammary incision, the lesion was excised intact. Pathology revealed intermediate grade DCIS pattern [Figure 5]. The surgical margin was negative, but with multiple close margins (<1 mm). Biomarker studies showed the DCIS was positive for estrogen receptor (95%, strong intensity), and progesterone receptor (95%, strong intensity). Given the close margins the patient was recommended to have a re-excision which he declined. He was referred for radiation and completed whole breast external beam irradiation. Endocrine therapy was also discussed and recommended which he also declined.

The patient was last seen for 6 clinical follow-up and remains without evidence of clinical or radiographic disease benign one year after treatment.

## Discussion

The majority of breast cancers diagnosed in men are classified as an infiltrating ductal carcinoma type.<sup>1</sup> The incidence of ductal carcinoma in situ (DCIS) in women has increased primarily due to screening however, due to the fact that men do not routinely screen for breast cancer the incidence of DCIS is very rare. The majority of men only obtain a mammography when symptoms arise. Most male DCIS will be diagnosed after clinical findings develop yet, the time elapsing from the appearance of symptoms until the diagnosis of DCIS of the male breast can be as long as 20 years.<sup>6</sup> Similar to the patient in this case, the most common presentation of male breast cancer is a unilateral, palpable, and painless subareolar mass. On physical exam a male may present with a nodular subareolar cystic lesion associated with serosanguinous nipple discharge and additional gynecomastia.<sup>1</sup> Although subareolar cancers are common in men, they still are considered more difficult to diagnose and often missed on mammography and ultrasound<sup>6</sup>. Additionally, morphologically, DCIS in the male breast displays different than women with most common type being the intraductal papillary type and 43% of men with DCIS are of intermediate grade. High grade lesions are rare.<sup>6</sup>

The treatment of choice for males with DCIS is mastectomy and has been reported to be curative course of treatment in virtually 99% of DCIS cases.<sup>1</sup> However, it has been demonstrated that men can undergo lumpectomy with radiation therapy over mastectomy and some male patients actually demand breast conserving surgery.<sup>8, 9</sup> In addition, endocrine therapy is often recommended for patients presenting ER+ or PR + but similar to the patient presented in this case, there are high rates of men refusing endocrine therapy. For example, in a study investigating side effects of adjuvant tamoxifen treatment, 63% of male breast cancer cases complained of one or more side effects indicating low compliance with endocrine therapy.<sup>10</sup> In regard to management of disease, it is important to consider the genetic risk associated with male breast cancer. BRCA2 mutations account for up to 14% of breast care cases in men and it is recommended that all male breast cancer patients should be tested for genetic mutations.<sup>11, 12</sup>

Lastly, it is important consider how racial disparities are associated with breast cancer in men. Studies have shown that black men were more likely to present with advanced-stage disease, larger sized and poorly differentiated tumor and positive lymph nodes compared with white men.<sup>4</sup> Black men had a greater than three-fold increased risk of dying as a result of their breast cancer compared to non-Black patients.<sup>4</sup> In female breast cancer, racial disparities have been attributed to advanced stage at diagnosis, negative HR status, higher tumor grade, and other socioeconomic factors. It is possible these factors also contribute to the reduced survival in black men.<sup>2, 4, 13, and 14</sup>

## Conclusion

DCIS is rare in men and the lack of standardized diagnostic procedures and evidence-based treatment guidelines may contribute to poorer outcomes compared to women. The research is limited, and a lack of randomized control trials cannot inform standard of care. The management and the overall outcome of male breast cancer can be improved through early detection screening, genetic counseling, and high-quality treatment.<sup>3</sup> These changes may help to guide challenging decisions and cases of male breast cancer.

## Author Contributions:

All authors made substantial contribution to the preparation of this manuscript and approved the final version for submission. AN: did the literature search and drafted the initial version of the manuscript. BO: acquired the images. AN, AK, GT, SO, BO: revised the manuscript for critically important intellectual content.

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## Figure Legend:

Figure 1. Diagnostic mammogram demonstrating an oval circumscribed hyperdense mass measuring approximately 4.5 cm, with previous biopsy clip in the area of palpable concern.

Figure 2. Diagnostic US at the area of palpable concern, demonstrates a large cystic mass with some irregularity of the anterior wall with some solid appearing areas along the wall that are nondependent

Figure 3. Scanning magnification (20x) from the breast core needle biopsy specimen showing cystically dilated duct

Figure 4. Medium power (200x) view from the breast core needle biopsy specimen shows the cystically dilated duct is focally lined by a proliferation of atypical ductal epithelial cells with micropapillary growth pattern (atypical ductal hyperplasia)

Figure 5. Medium power (200x) view from the breast excision showing intermediate nuclear grade DCIS with solid and focal cribriform pattern





