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BREAST CANCER IN MEN: CLINICAL FEATURES AND DISEASE COURSE.

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Annotation: Male breast cancer (MBC) is a rare but clinically significant malignancy that accounts for less than 1% of all breast cancer cases worldwide. Due to its low incidence and limited public awareness, diagnosis is often delayed, resulting in more advanced disease at presentation compared to female breast cancer. This paper reviews the clinical features, risk factors, diagnostic challenges, and disease course of breast cancer in men. It also analyzes current literature on epidemiology, pathology, treatment approaches, and prognosis. Understanding the unique clinical and biological characteristics of male breast cancer is essential for improving early detection, management strategies, and patient outcomes.
Keywords: Male breast cancer, clinical features, disease course, risk factors, diagnosis, prognosis, hormonal receptors

Breast cancer is traditionally perceived as a disease affecting women; however, men also possess breast tissue and are susceptible to malignant transformation. Male breast cancer (MBC) is rare, representing approximately 0.5–1% of all breast cancer cases and less than 1% of cancers in men. Despite its rarity, the incidence of MBC has shown a slight increase over recent decades, possibly due to longer life expectancy, improved diagnostic techniques, and increased awareness.

The rarity of the disease contributes to limited clinical experience, fewer large-scale studies, and a lack of male-specific treatment guidelines. Consequently, most therapeutic strategies for MBC are extrapolated from data on female breast cancer. Men are often diagnosed at an older age and at more advanced stages, which negatively impacts prognosis. This paper aims to summarize current knowledge regarding the clinical presentation and disease course of breast cancer in men, emphasizing the importance of early recognition and tailored clinical management.

A review of existing literature reveals that male breast cancer differs from female breast cancer in several epidemiological and biological aspects. Studies consistently report that the median age at diagnosis for men is between 60 and 70 years, approximately 5–10 years later than in women. Risk factors identified in the literature include genetic predisposition (particularly BRCA2 mutations), hormonal imbalances, testicular disorders, obesity, liver disease, and exposure to radiation.

Histopathological analyses show that invasive ductal carcinoma is the most common subtype in men, accounting for over 85–90% of cases. Unlike female breast cancer, lobular carcinoma is rare in men due to the absence of well-developed lobular structures. Numerous studies highlight a high prevalence of estrogen and progesterone receptor positivity in male breast tumors, suggesting strong hormone dependence.

Breast cancer in men (male breast cancer, MBC) remains a rare malignancy, representing less than 1% of all breast cancer cases and approximately 1% of cancers diagnosed in men. In the United States, estimates for 2026 project around 2,670 new cases of invasive male breast cancer

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and about 530 deaths from the disease. The condition shares many biological similarities with female breast cancer but differs in presentation, diagnostic delays, stage at diagnosis, and some prognostic aspects, often due to anatomical factors, lower awareness, and later medical consultation.

Clinical Features and Presentation

Men with breast cancer are typically diagnosed at an older age compared to women, with the average or median age at diagnosis ranging from 65 to 70 years (often around 68–69 years in recent analyses), versus approximately 62–63 years in women.

The hallmark and most frequent presenting symptom is a painless lump or mass in the breast tissue. This lump is usually hard, fixed, and located in the subareolar region (directly under or around the nipple/areola complex), as male breast tissue is predominantly ductal with minimal lobular development. In many cases (often around 75%), the mass is central and involves the nipple area early.

Other common clinical signs and symptoms include:

- Nipple changes such as retraction (inversion), ulceration, scaling, crusting, redness, or eczema-like appearance.
- Nipple discharge, which may be bloody, serous (clear), or serosanguinous.
- Skin alterations over the breast/chest wall, including dimpling, puckering (resembling orange peel texture due to lymphatic involvement), redness, swelling, or thickening.
- Axillary (armpit) swelling or palpable lymph nodes, indicating regional spread.
- Rarely, breast pain, though the majority of cases are painless.

These symptoms are frequently mistaken for benign conditions such as gynecomastia (hormone-related breast enlargement), infection, or trauma, which contributes to diagnostic delays. Men often wait months to years before seeking evaluation, leading to more advanced disease at presentation. Nipple involvement and ulceration tend to occur earlier and more commonly in men than in women because of the limited amount of surrounding breast tissue.

Recent data indicate that a substantial proportion of men present with advanced disease: more than 40% may have stage III or IV at diagnosis in some cohorts, with higher rates of lymph node involvement (often 40–50% node-positive) and larger tumor sizes compared to women.

Pathological and Biological Characteristics

The vast majority of male breast cancers (90–95%) are invasive ductal carcinomas. Hormone receptor status is notably favorable: estrogen receptor (ER)-positive in approximately 90–96% of cases and progesterone receptor (PR)-positive in 90–94%, higher than typical rates in women. This high hormone receptor positivity makes endocrine therapies particularly effective.

HER2 overexpression or amplification occurs in about 7–15% of cases (often around 13–15%), which is generally similar to or slightly lower than in women. Triple-negative disease (ER-, PR-, HER2-) is rare, typically under 5%. Tumors are often of higher grade or show more aggressive features in some subsets, but the predominance of hormone receptor-positive disease is a key biological difference favoring response to treatment.

Disease Course and Natural History

The disease course in male breast cancer follows a pattern of local progression, regional lymphatic spread (primarily to axillary nodes), and eventual distant metastasis if untreated or advanced. Due to diagnostic delays and anatomical constraints, local extension to skin or nipple and nodal involvement often occur earlier relative to tumor size.

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Without intervention, the cancer can progress to locally advanced disease with ulceration, fixation to chest wall, or widespread nodal involvement, followed by distant spread to common sites such as bones, lungs, liver, and brain.

Recurrence patterns in treated patients show a mix of local (chest wall/skin) and distant events, with many recurrences occurring within the first 5 years (around 80% in some series), though late recurrences (beyond 5 years) are possible, particularly in hormone receptor-positive cases. Median time to recurrence in some studies is around 3 years.

Prognosis and Survival Rates

Overall prognosis depends heavily on stage at diagnosis, age, comorbidities, tumor biology, and treatment received. Stage-for-stage comparisons often show similar or only modestly worse outcomes in men compared to women, but overall survival appears poorer due to later presentation, older age at diagnosis, higher comorbidity burden, and occasional undertreatment.

Recent 5-year relative survival rates (adjusted for expected survival in the general population) include:

- Overall: approximately 84–85%.
- Localized (confined to breast): 95–98%.
- Regional (spread to nearby lymph nodes): 83–86%.
- Distant (metastatic): 20–30% (around 25–26% in some large datasets).

Some institutional or population-based cohorts report 5-year overall survival around 63–70% (reflecting mixed stages and older patients), with 10-year rates lower (e.g., 79% in select surgical series, but often 35–55% in broader data). Breast cancer-specific mortality remains low in early stages (e.g., 2–3.5% at 10 years in some reports), with many deaths attributed to other causes in older men.

Key prognostic factors include:

- Stage at diagnosis (strongest predictor; advanced stage significantly worsens outcomes).
- Age (older age >65–70 associated with poorer survival).
- Lymph node status (positive nodes reduce survival markedly).
- Hormone receptor status (positive status improves prognosis due to endocrine therapy response).
- HER2 status (positive HER2 may confer worse outcomes in some analyses, though targeted therapies help).
- Tumor grade and size.

Compared to women, men may face a modestly increased risk of death (e.g., 1.3-fold in adjusted analyses), partly from later stage, differences in treatment receipt (e.g., lower rates of certain therapies), and biological nuances, though high hormone receptor positivity often allows good response to tamoxifen or other endocrine agents.

Treatment generally mirrors female breast cancer guidelines: surgery (mastectomy common due to limited tissue, though breast conservation is feasible in select cases), sentinel node biopsy/axillary dissection, adjuvant radiation, endocrine therapy (tamoxifen preferred for 5–10 years in ER/PR-positive cases), chemotherapy for higher-risk or node-positive disease, and HER2-targeted therapy when indicated. Early detection through prompt evaluation of symptoms significantly improves outcomes.

The findings highlight that male breast cancer is frequently underrecognized, leading to diagnostic delays and poorer outcomes. The strong hormone receptor positivity observed in most male breast tumors suggests that endocrine therapy plays a crucial role in management.

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Tamoxifen remains the cornerstone of adjuvant hormonal therapy in men, with evidence showing improved survival.

Surgical management typically involves modified radical mastectomy due to limited breast tissue, while breast-conserving surgery is less common. The role of chemotherapy and radiotherapy is similar to that in female breast cancer, although data specific to men remain limited.

Psychosocial factors also play a significant role in disease course. Men diagnosed with breast cancer may experience stigma, delayed help-seeking behavior, and psychological distress, all of which can influence treatment adherence and quality of life.

Conclusion

Male breast cancer is a rare but important clinical entity with distinct features and challenges. Delayed diagnosis remains a major issue, contributing to advanced-stage disease and reduced survival. Increased awareness among healthcare providers and the general population is essential to promote early detection.

Future research should focus on male-specific clinical trials, genetic studies, and tailored treatment guidelines. Education campaigns targeting men, particularly those with known risk factors, could improve early presentation. Additionally, integrating psychological support into the management of male breast cancer patients may enhance overall outcomes and quality of life.

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