Breast Cancer in Men
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After reading this article, the reader should be able to:

- Discuss the incidence and epidemiology of male breast cancer.
- Identify the risk factors for male breast cancer.
- Describe how male breast cancer is diagnosed.
- Understand the management of male breast cancer.
- Describe the role of medical imaging in the diagnosis and treatment of male breast cancer.

Breast cancer in men is rare, with an incidence of < 1% of all breast cancer cases. One case of male breast cancer occurs for every 150 cases of female breast cancer, and < 0.1% of all male cancers are breast cancers. Of the 188,467 individuals who were diagnosed with breast cancer in 2005, 1,764 were men, and 375 men died from the disease. In 2013, 2,240 new cases of male breast cancer were expected to be diagnosed and 410 men were projected to die from the disease. The lifetime risk of developing male breast cancer is about 1 in 1,000.

The rate of breast cancer in men has been increasing. Results of a 2004 study showed that the incidence increased 26% from 1973 to 1998. Despite this, however, the rate is lower than the 32% increase for women over the same period, and the disease still remains rare. Male breast cancer incidence is lower in countries that have a lower incidence of female breast cancer, such as Japan, and higher in countries in which the incidence of female breast cancer is higher, such as the United States and Great Britain. The incidence among Jewish men is higher than among other white ethnic groups.

The etiology of male breast cancer has not been studied as thoroughly as that of female breast cancer. Although the disease has been reported to occur in boys and men aged 5 to 93 years, it typically develops between the ages of 60 and 70 years. The median age at diagnosis is 67 years, which is 5 years older than the median age of 62 years for women.

As with female breast cancer, there appear to be racial differences associated with male breast cancer. Research has shown that the incidence rate is higher among black men than among white men in all age groups. One study has demonstrated a link between increased male breast cancer mortality and black race, after adjustment for demographic, clinical and treatment factors. The 5-year survival rate for blacks was 66%, compared with nearly 90% for whites.
This may be because black men were less likely to be referred to an oncologist and to receive adjuvant therapy. Another study showed that white men had a 66% 5-year survival rate compared with 57% for black men and 75% for men of other races or ethnicities.

**Normal Male Breast Anatomy and Benign Conditions**

**Normal Breast Anatomy**

Boys and girls have similar breast tissue at birth. For the first few weeks of their lives, the breasts of both sexes may be somewhat enlarged because of hormones received from the mother. After this period, boys’ breasts decrease to a tiny button of fibroglanular tissue beneath the nipple. The ducts do not develop any further in most men unless stimulated by drugs or hormones, and normally men do not develop lobules.

Figure 1 shows normal male breast anatomy.

The breast tissue remains inactive until the pubescent period, at which time hormonal changes take place. Estrogen causes girls’ breasts to develop, whereas male hormones inhibit additional breast growth in boys. For 1 to 2 years during puberty, there is slight stimulation of the fibroglanular tissue. An increase in body fat, long-term use of some drugs and hormonal imbalance can increase the amount of fatty and fibroglanular tissue in men.

**Benign Breast Conditions**

Most breast masses in men are caused by gynecomastia, which is an increase in fibroglanular breast tissue in 1 or both breasts. Men rarely develop benign breast tumors, such as papillomas, subcutaneous leiomyomas, sebaceous cysts, hematomas, fat necrosis, subareolar abscesses, lipomas and epidermal inclusion cysts. Breast cancer always should be excluded when a breast tumor is found in a man.

Approximately 30% of healthy men in the general population have gynecomastia. Nutall found that 57% of men aged 44 years and older have the condition. Fifty percent of male breast cancer patients have both gynecomastia and breast cancer. Gynecomastia is more prevalent in pubescent boys and in older men experiencing declining levels of testosterone. The condition also may occur as a result of excess estrogen levels, such as in obesity or disease of the endocrine glands or liver. In addition, certain medications can cause gynecomastia (see Box 1).

Symptoms of gynecomastia include breast enlargement that may consist of thickening of breast tissue or a palpable growth beneath the nipple and areola, similar to a disk. This mass sometimes is visible, usually occurs in both breasts and may be sensitive to touch. The number of ducts may increase, and they may become enlarged. The skin also may thicken. A number of boys aged 12 to 18 years undergo a temporary increase in breast tissue, which may consist of a disk about 1 to 3 cm beneath the nipple for a period of about 3 to 6 months. For a few boys, the enlargement may be more pronounced or may last up to 3 years. The increase in

**Figure 1. Anatomy of the male breast. Reprinted with permission from Alexa Rutherford, Edinburgh, UK.**