



Review Article

Male Breast Cancer

Bhavani Ramesh.T, Prem Kumar.P, Sai Krishna.G* and K.Vadivelu

SIMS College of Pharmacy, Mangaldas Nagar, Guntur, A.p, India.

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Corresponding author: Southern
Institute of Medical Sciences, Guntur,
A.p, India.
E-mail address: sknanu06@gmail.com

ABSTRACT

A breast cancer is a malignant tumor that starts from cells of the breast. A malignant tumor is a group of cancer cells that may grow into (invade) surrounding tissues or spread (metastasize) to distant areas of the body. Breast cancer occurs mainly in women, but men can get it, too. Many people do not realize that men have breast tissue and that they can develop breast cancer. Male breast cancer is a relatively rare cancer in men that originates from the breast. As it presents a similar pathology as female breast cancer. Male breast cancer remains under diagnosed and, due to delays in diagnosis, is often also undertreated. The investigation and management of male breast cancer are based on studies on female patients. At present there is a need for further research into male breast cancer. The symptoms, diagnosis and treatment for male breast cancer are all similar to female breast cancer.¹ Cancer of the male breast accounts for about 1% of all malignancies in men and 1% of all breast cancers. Poor level of awareness often results in late presentation and delayed diagnosis in our environment. It is estimated that more than 90% of male breast cancers are estrogen receptor-positive, and an even greater percentage are progesterone receptor-positive. Male breast cancer tissue may also be positive for androgen receptors.

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Introduction^{1,2}

Breast cancer is a malignant tumor that starts from cells of the breast. 'Malignant' tumor can spread to other parts of the body – 'Metastasis'. Men possess a small amount of non-functioning breast tissue that is concentrated in the area directly behind the nipple on the chest wall. Like breast cancer in women, cancer of the male breast is the uncontrolled growth of the abnormal cells of this breast tissue. Breast tissue was seen in both boy and a girl which consists of tubular structures known as ducts. At puberty, a girl's ovaries produce female hormones [estrogen] that cause the ducts to grow and milk glands [lobules] to develop at the ends of the ducts. The amount of fat and connective tissue in the breast also increases. On the other hand male hormones [testosterone] secreted by the testis suppress the growth of breast tissues and the development of lobules.

See Fig. 1.

Pathology^{2,3}

As in females, infiltrating ductal carcinoma is the most common type. While intra-ductal cancer, inflammatory carcinoma, and Paget's disease of the nipple have been described, lobular carcinoma in-situ as not been seen in men. Breast cancer in men spreads via lymphatics and blood stream like female breast cancer. Accordingly, TNM staging system for breast cancer is the same for men and women. Size of the lesion and lymph node involvement determine prognosis, thus small lesions without lymph node involvement have the best prognosis. Estrogen receptors and progesterone receptor status and HER2/gene amplification need to be reported as they may affect treatment options. About 85% of all male breast cancers are estrogen receptor –positive, 70% are progesterone receptor-positive.

See Fig. 2.

Anatomy of the Breast³

The breast is made up mainly of lobules (milk-producing glands in women), ducts (tiny tubes that carry the milk from the lobules to the nipples), and stroma (fatty tissue and connective tissue surrounding the ducts and lobules, blood vessels, and lymphatic vessels).until puberty (usually around 13-14), young boys and girls have a small amount of breast tissue consisting of a few ducts located under the nipple and areola (area around the nipple). At puberty, a girl's ovaries make female hormones, causing breast ducts to grow, lobules to form at the ends of ducts, and the amount of stroma to increase. In boys, hormones made by the testicles keep breast tissue from growing much. Men's breast tissue has ducts, but only a few if any lobules.

See Fig. 3.

The Lymphatic System of the Breast⁴

The lymphatic system is important to understand because it is one of the ways that breast cancers can spread. This system has several parts. Lymph nodes are small, bean shaped collections of immune system cells (cells that are important in fighting infections) that are connected by lymphatic vessels. Lymphatic vessels are like small veins, except that they carry a clear fluid called lymph (instead of blood) away from the breast. Lymph contains tissue fluid and waste products, as well as immune system cells. Breast cancer cells can enter lymphatic vessels and begin to grow in lymph nodes.

Most lymphatic vessels in the breast connect to lymph nodes under the arm (axillary nodes). Some lymphatic vessels connect to lymph nodes near the breast bone (internal mammary nodes) and either above or below the collar bone (supraclavicular or infraclavicular nodes).

See Fig. 4.

Types of Breast Cancer in Men^{4,5,6}

1. Ductal carcinoma in situ-(DCIS)

In ductal carcinoma in situ also known intraductal carcinoma, cancer cells form in the breast ducts but do not grow through the walls of the ducts into the fatty tissue of the breast or spread outside the breast. DCIS accounts for about 1 in 10 cases of breast cancer in men. It is almost always curable with surgery.

2. Infiltrating ductal carcinoma (IDC)

This type of breast cancer breaks through the walls of the duct and grows through the fatty tissue of the breast. At this point, it can spread (metastasize) to other parts of the body. At least 8 out of 10 male breast cancers are IDCs. Because the male breast is much smaller than the female breast, all male breast cancers starts relatively close to the nipple, so they are more likely to spread to the nipple. This is different from paget disease as described below.

3. Infiltrating lobular carcinoma (ILC)

This type of breast cancer starts in the breast lobules and grows into the fatty tissue of the breast. ILC is very rare in men, accounting for only about 2% of male breast cancers. This is because men do not usually have much lobular tissue.

4. lobular carcinoma in situ (LCIS)

In LCIS, abnormal cells form in the lobules, but they do not grow in to the fat tissue of the breast or spread outside the breast. Although LCIS is sometimes grouped with DCIS as a type of invasive breast cancer, most breast specialists think it is a risk factor for developing breast cancer rather than a true non-invasive cancer. As with invasive lobular carcinoma, LCIS is very rare in men.

5. Paget disease of the nipples (PDN)

This type of breast cancer starts in the breast ducts and spreads to the nipple. It may

also spread to the areola (the dark circle around the nipple). The skin of the nipple usually appears crusted, scaly, and red, with areas of itching, oozing, burning, or bleeding. The fingertips can be used to detect a possible lump within the breast.

Paget disease may be associated with DCIS or with IDC. It accounts for about 1% of female breast cancers and a higher percentage of male breast cancers.

6. Inflammatory breast cancer (IBC)

Inflammatory breast cancer is an aggressive, but rare type of breast cancer. It causes the breast to be swollen, red, warm and tender rather than forming a lump. It can be mistaken for an infection of the breast. This is very rare in men.

Symptoms⁶

- Skin dimpling
- Swelling of the breast
- Nipple retraction
- Redness of the nipple
- Discharge of the fluid from nipples
- Bleeding from the nipples
- Change in the breast/nipple shape.
- Lumps
- Skin lesion

Causes⁷

- Family history of breast cancer
- Radiation exposure to the chest
- Gynacomastia
- Kline felter's syndrome
- Severe liver disease
- Disease of the testicles
- Obesity
- Alcohol consumption
- Age

Diagnosis^{7,8}

- **Physical exam and history:** An exam of the body to check general signs of disease, such as lumps or anything else that seems unusual. A history of the patient's health habits and past illnesses and treatments will also be taken.
- **Clinical breast exam:** An exam of the breast by a doctor or other health professionals. The doctor will carefully feel the breasts and under the arms for lumps or anything else that seems unusual.
- **Ultra sound exam:** A procedure in which high-energy sound waves are bounced off internal tissues or organs and make echoes. The echoes from a picture of body tissues called a 'sonogram'. The picture can be printed to be looked at later.
- **Mammography:** A procedure in which mammary glands were examined to determine the breast cancer.
- **Magnetic resonance imaging (MRI):** A procedure that uses a magnet, radio waves, and a computer to make a series of detailed pictures of areas inside the body. This procedure is also called nuclear magnetic resonance imaging (NMRI).
- **Blood chemistry studies:** A procedure in which a blood sample is checked to measure the amounts of certain substances released into the blood by organs and tissues in the body. An unusual amount of a substance can be a sign of a disease in the organ or tissue that makes it.

- **Biopsy:** The removal of cells or tissues so they can be viewed under a microscope by a pathologist to check for signs of cancer.
- **H.E.R-2 test:** A test to measure the amount of HER2 in cancer tissue. HER2 is a growth factor protein that sends growth signals to cells. When cancer forms, the cells may make too much of the protein, causing more cancer cells to grow. If cancer is found in the breast, tissue from the tumor is checked in the laboratory to find out if there is too much HER2 in the cells.

Treatment^{8,9}

- Surgical excision
- Radical mastectomy
- Lumpectomy
- Radiation therapy
- Chemotherapy
- Hormonal therapy
- Lymph node biopsy.

“Even if the percentage of men diagnosed with male breast cancer is small, it is often more fatal for a large percentage of the men diagnosed. Since most men don't know to look for it, the disease is usually found after it has progressed to a more dangerous level.”

Outlook

The outlook for breast cancer in men is less favorable than for breast cancer in women. This is because there is less awareness of the conditions, so it often takes longer to diagnose.

Healthcare professionals assess the outlook for cases of cancer by measuring how many people survive for five years following

the initial diagnosis. This is known as ‘five year survival rate’.

The estimated five year survival rate for:

- Stage-1 breast cancer is 75% -100%
- Stage-2to3 breast cancer is 50% -80%
- Stage-4 breast cancer is 30% -60%

Conclusion

Breast cancer occurs mainly in women, but men can get it too. Male breast cancer is a rare tumor in all parts of the world. It happens most often to men between ages of 60 and 70. About 1% of breast cancers occur in men. Although the epidemiologic literature regarding female breast cancer is extensive, relatively little is known about the etiology of male breast cancer (MBC). The incidence of male breast cancer (MBC), once thought to be relatively stable, now seems to be substantially increasing. Incidence of MBC increased significantly from 0.86 to 1.06 per 100,000 populations over the last 26 years. If it is identified in early stages it is easy to cure the disease.

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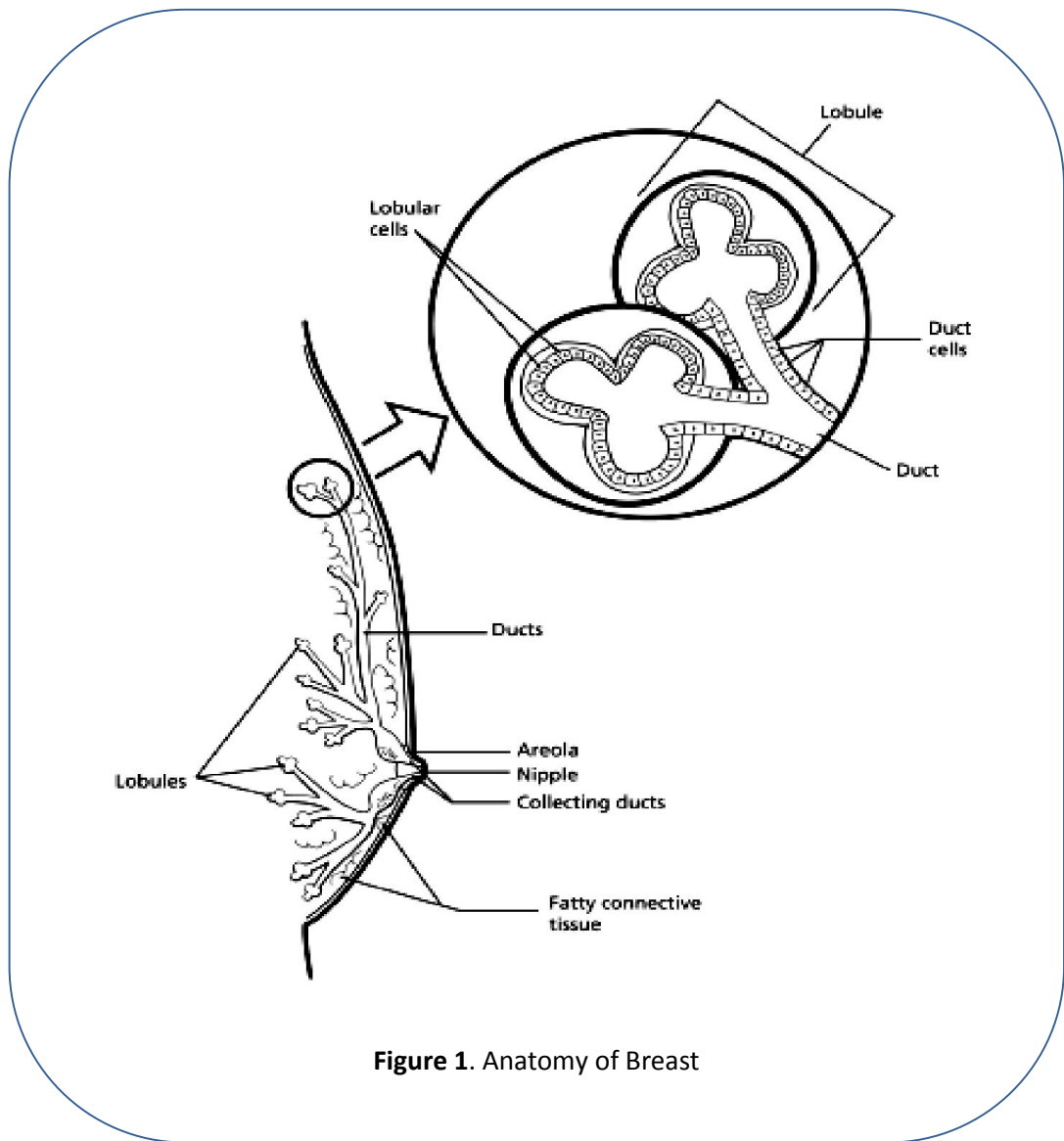


Figure 1. Anatomy of Breast

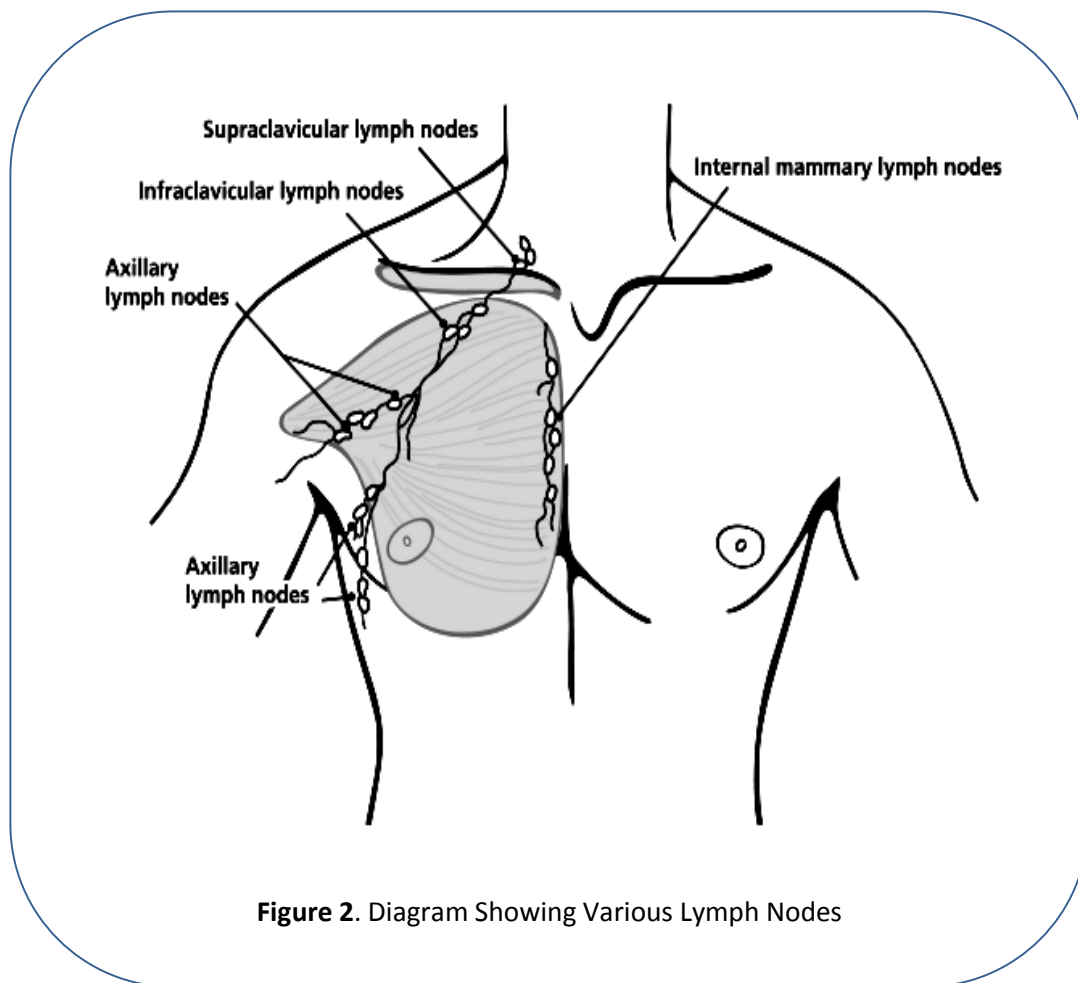


Figure 2. Diagram Showing Various Lymph Nodes

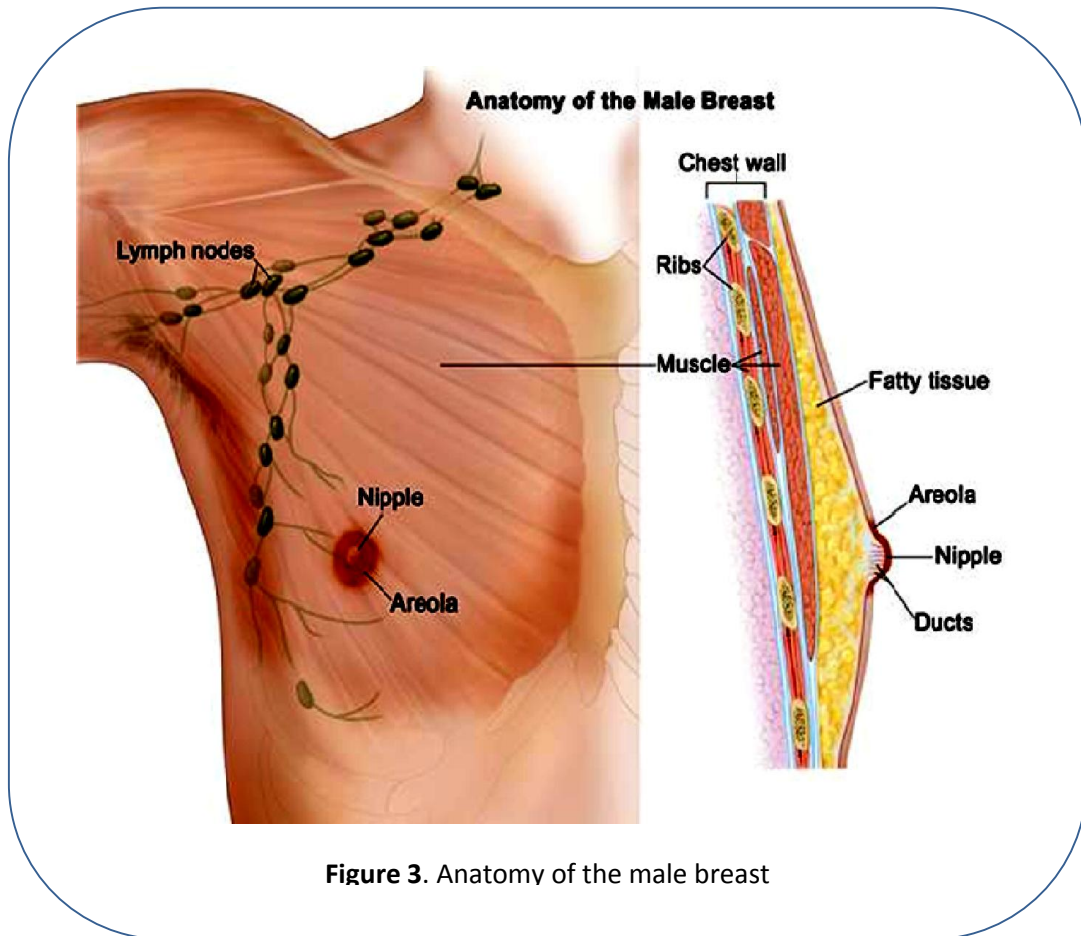


Figure 3. Anatomy of the male breast

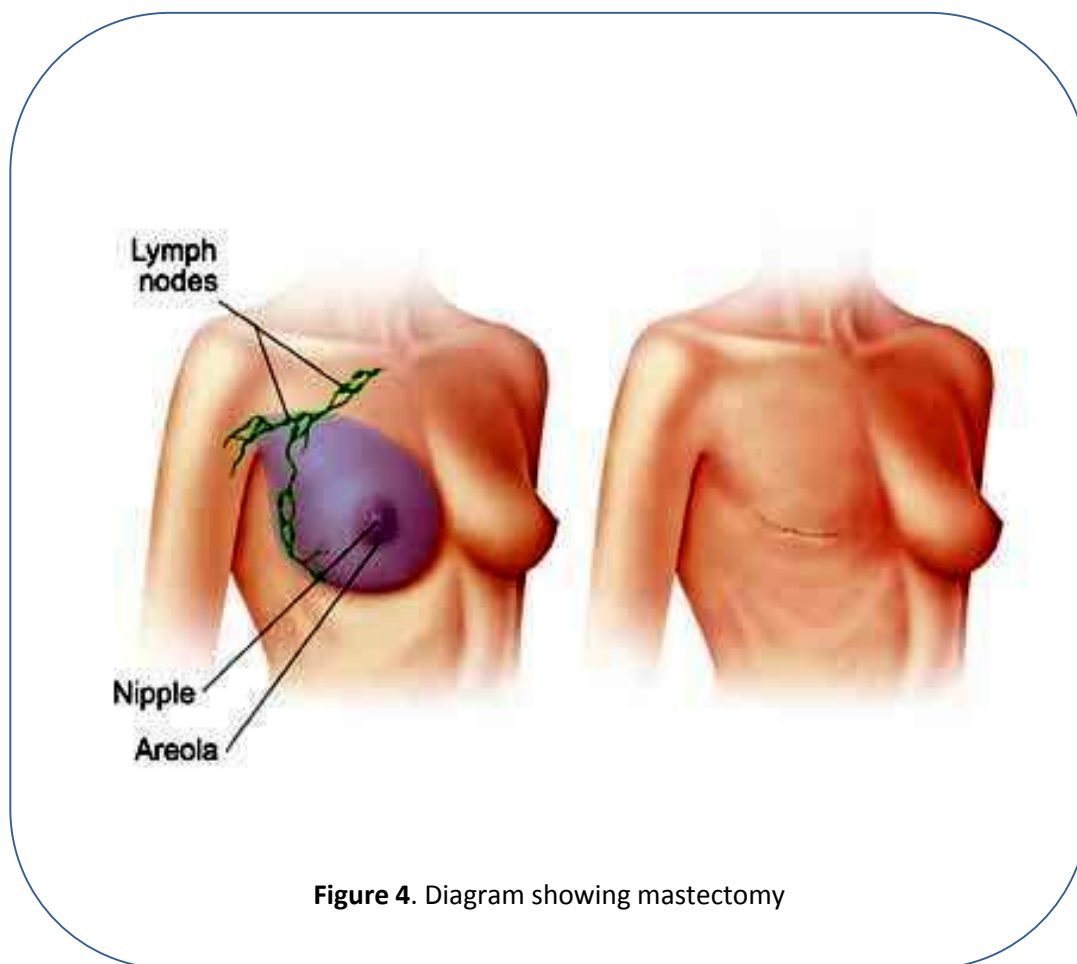


Figure 4. Diagram showing mastectomy