

A review on ayurvedic and modern aspects of breast cancer

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Abstract

Breast cancer is the commonest cancer among women globally. According to World Health Organization, more than twenty lakh females were diagnosed with breast cancer in 2020. The Globocan data 2020 estimates that, in India, breast cancer accounted for 13.5% of all cancer and around 10.6% of all trends of this disease is rising in younger Indian women. According to epidemiological data, more than 25 in every one lakh women develop breast cancer. By 2030, breast carcinoma will cause most deaths among women in India than the other malady. In Ayurveda there isn't as such mention of Cancer or *Karkaroga* in *Ayurvedic* literature like *Charaka Samhita*, *SushrutaSamhita*, *Vagbhata Samhita* i.e. *Brihatrayi* of *Ayurveda*. But there are some diseases which resemble with Cancer. Acharya *Sushruta* has mentioned some diseases in his *Nidansthan* chapter no.11 "*GranthypachyArbudagalGandanaam*" *Adhyaya* in this context Acharya *Sushruta* mentioned diseases like *Arbuda*, *Granth*, *Gulma*, *Vranashotha*, *Kustha* etc. which shows similar signs and symptoms of tumors. In the present study we try to focus all the ayurvedic and modern aspects about the breast cancer.

Keywords: Cancer; Breast cancer; Stan-roga; Ayurveda; Modern aspect

1. Introduction

Cancer may be a group of diseases involving abnormal cell growth with the potential to invade or spread to other parts of the body. Breast cancer is that commonest invasive cancer in women and the second leading cause of cancer death in women after lung cancer^[1]. Acknowledging that breast carcinoma is one among the essential health issues in India would be the primary step towards making people cognizant of the disease^[2] About 1 in 28 women are expected to develop breast cancer during their lifetime. By 2030, breast carcinoma will cause most deaths among women in India than the other malady^[2]. The risk of breast carcinoma increases with age. At 20 years, the prospect of developing cancer within the next decade is 0.06%. By the age of 70 years, this figure goes upto 3.84%^[1] Having some types of noncancerous breast lump increases the chances of developing cancer later on. Women with more dense breast are more likely to receive a diagnosis of breast cancer. Those who drink moderate to heavy levels of alcohol have a higher risk than light drinkers. Undergoing radiation treatment for a special cancer may increase the danger of developing breast carcinoma later in life. In *Ayurveda* there is not mention of Cancer or *Karkaroga* in literature like *Charaka Samhita*, *SushrutaSamhita*, *VagbhataSamhita* i.e. *Brihatrayi* of *Ayurveda*. But there are some diseases which resembles with Cancer, Acharya *Sushruta* has mentioned some diseases in his *Nidansthan* chapter no.11 "*GranthApachiArbudaGalGandanaam*" *Adhyaya*^[3]. In this context Acharya *Sushruta* mentioned diseases like *Arbuda*, *Granth*, *Gulma*, *Vranashotha*, *Kustha* etc. which shows similar signs and symptoms of tumors. The description of "*Granthi*" and "*Arbuda*" by *Charaka* and *Sushruta* can be considered as a tumor in the body. Imbalance of three *Dosha's* that is, *Vata*, *Pitaa* and *Kapha* in the body are responsible for disease.

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1.1. Ayurvedic Aspect

Ayurveda is the ancient sciences of medicine; it encloses almost all diseases which are seen in the present era. As the time passes, the disease profile of the population changes. In *Ayurveda* itself, new diseases were added in newer *Samhitas* like *Yoga:Ratnakar*. New diseases would have appeared in *Ayurveda*. Acharya Charaka states that sometimes it becomes difficult to label a particular disease and we have to treat a symptom complex. Acharya *Sushruta* mentioned diseases like *Arbuda*, *Granth*, *Gulma*, *Vranashotha*, *Kustha* etc. which shows similar signs and symptoms of tumors.

1.1.1. Gulma

Madhukoshkar the read actor of *Madhavnidan* has explained *Gulma* as follows:

Gulma is a swelling in the abdominal cavity. It is rounded in shape and has a tendency to protrude or disappear. It is a movable swelling. It is a condition which can be compared with Ileocecal tuberculosis, Crohn's disease; ball segments of sphincters in the intestines; history related to tumors (malignant or non:malignant) and *Kushthaghna* are also included in these.

1.1.2. Granthi (Cysts)

They are also encapsulated and contain their own secretions: sebaceous cysts, ovarian cysts, cystic hygroma, polycystic disease of kidney or liver, brachial cysts, lymphadenopathy. They have to be removed before they suppurate.

Vidradhi (Abscess) : It is among 90% acute condition, very tender, painful and always suppurate. If they undergo suppuration, *bhedan* has to be carried out, as it contains pus. In *Abhyantara Vidradhi*, the prognosis depends on where it opens.

1.1.3. Stanavidradhi^[4]

A special emphasis has been given on the description of *Stana Vidradhi* which means breast abscesses and has been elaborated in the ancient texts.

In *SushrutaSamhita*, *Madhava Nidana* and *Bhavaprakasha* we can find mention of a disease named 'Stana Roga' which actually means 'disease of breasts' but describes breast abscesses. Therefore 'breast disease' is used interchangeably with 'breast abscesses'.

AacharyaVagbhata gives a small description of breast abscesses along with the description of general external abscesses^[5,6].

Charaka Samhita which deals with general medicine and principle doesn't give details of these surgical disorders. In fact *Charakacharya* gives a short description of abscesses in *Sutra Sthana* chapter 17^[7].

Aacharya Kashyapa has described a disease named 'Stanavajra' or 'Stankilaka' in place of 'StanVidradhi'^[8].

1.1.4. Classification of Stanaroga^[4,9]

According to *AacharyaSushruta* the causes and *Doshas* responsible for the causation of general abscesses is also responsible for manifestation of breast disorders. The causes are vitiated *Vata*, *Pitaa*, *Kapha*, Simultaneous vitiation of all three *Doshas* and Trauma.

There are 5 types of breast abscesses

- *Vataja* – caused by vitiation of *Vata*
- *Pitaja* – caused by vitiation of *Pitaa*
- *Kaphaja* : caused by vitiation of *Kapha*
- *Sannipataja* : caused by Simultaneous vitiation of all *Doshas*
- *Abhigataja* – due to trauma.

Both *Vagbhatas* have given the same opinion of *Sushruta* but have included the breast abscesses caused by vitiated *Doshas* as the sixth type^[5,6].

Though *Aacharya* Kashyapa hasn't given the classification of Stankilaka breast disorder, he has mentioned the clinical features caused by *Vata*, *Pitaa* and *Kapha* in the disorder^[8].

Sharangdhar Samhita has mentioned the word Kshataja in place of agantuja while Bhavaprakasha treatise has mentioned the same condition as agantuja.

1.1.5. Etiology and Pathogenesis^[4,9]:

According to *Sushruta* and Dalhana, the vitiated *Doshas* reach the breast, especially in the dilated veins of the breast. The *Doshas* on reaching the breast cause vitiation of blood and muscles therein and cause hard swelling. The swellings are characterized with features of five types of external abscesses, the symptoms of vitiated *Doshas* are also seen.

In a lactating mother, if the breast milk is not expressed out from the engorged breast, the *Doshas* compressed by the milk will get vitiated and will produce the breast disorders.

According to Kashyapa^[8] : Consumption of vajra i.e. piece of grass / straw, insect, chaff of grains, bristle, fly, piece of stone, hair, wool or bone is said to be the main cause for breast abscess.

These materials are not digested because of being foreign bodies. They get moistened and are propelled by *Vata* along with lymph. They then reach the milk carrying channels of the breasts. Due to excessive dilatation of the breast channels these foreign substances reach the breasts and produce abnormality immediately. This causes breast abscess.

1.1.6. Symptoms^[4,9]:

Symptoms of breast abscess

The features of the abscess and associated symptoms are enumerated according to the cause of abscess.

1.1.7. Vata symptoms

Black or reddish color

Hard, stiff, rough or rugged

1.1.8. Pitta symptoms

Resembles ripe fruit of in shape and size

Blackish / red / coppery / yellow color

Yellow discharge comes out when the abscess gets burst open

1.1.9. Kapha symptoms

Resembles earthen plate, slightly protuberant in the center with wide base

Yellowish white in color

Cold in touch

1.1.10. Tridosha symptoms

Manifestation of multiple colors i.e. black, yellow or white

Different kinds of discharges i.e. thin, yellow or whitish

Various kinds of shape and size i.e. raised, irregular or incurable

1.1.11. Symptoms due to trauma

Fever

Thirst

Burning sensation

Features of abscess caused by vitiated *Pitaa*

1.1.12. Blood vitiated symptoms

This type of abscess is covered with black blisters, is blackish and is associated with severe burning sensation, pain, fever and other features of abscess caused due to vitiation of *Pitaa*.

In this case the flow of breast milk may be obstructed due to swelling resulting in marked engorgement, redness, tenderness of breasts with high fever.

1.2. Arbuda

The definition of *Arbuda* when at any part of the body when vitiated *Doshas* takes place by afflicting flesh it produce a swelling which is rounded, fixed, slightly painful, big in size, broad based, slowly growing and not suppurate. It is deep seated and takes place by *mansaDushti* and *MedoDushti*^[10].

Arbuda is the term used for a typical swelling in the body inside or outside, as quoted in the *Ayurvedic* treatises, *Arbuda* is considered as tumor or neoplasm. There are different types of swelling (*Utsedha*) And it is essential to differentiate them from each other. *Arbuda* is the cell multiplication of the same types of cells, growing at the cost of individual, sub serving no useful function to the body. They grow in size even through; a host may lose the weight. A foetus growing in the uterus is the best example of this phenomenon.

Tumor is a cell mass when they are of same genotype; they are called as non:malignant tumors, e.g. *Medorbuda*, *AsthyArbuda* and have a false capsule around them formed by normal cells to arrest the growth. They are called as non:malignant tumors. When the cell mass is of primitive type, with a change in genetic structure, without any arrest of growth, and its encroachment in the neighbouring tissue, it is called as a malignant tumor.

1.3. Stanarbuda^[10]

Acharyas says that the signs and symptoms of *StanArbuda* are same as *Granth*. If *Arbuda* is present on *Stana*, then it is named as *StanArbuda*. Likewise all *Arbudas* were named. The chapters on *Arbuda* were found in *bruhatrai* as well as in *Laghutrai*. The acharya says that the signs and symptoms of *StanArbuda* are as same as *Granth*. The difference is only *Arbudas* are non:suppurating and in *Granth* suppuration occurs. Only the location of *Arbuda* is, where it is situated is named as that type of *Arbuda*.

1.3.1. Classification of *Arbuda*^[11]

The disease *StanArbuda* is not found separately but the description of *Arbuda* which is available in *Ayurveda* texts is more applicable to the benign nature of neoplasia, so it is perfect for benign growth. For malignant growth it provides a solid base and outline to explore the subject. The subject is scattered and thus a systemic classification is not found. But Acharya *Sushruta* gives a view of classification. The same disease entity is available in scattered form relating to the site of organ, chronicity, prognosis, etc. in various other places with different *Ayurvedic* texts.

Acharya *Sushruta* describes in *nidansthan Adhyaya*^[11]: *GranthApachiArbuda* and *Samprapt* in detail. He also focuses on sign and symptoms of *Granth* and says that, these signs and symptoms were granted for *Arbuda*. He describes that the large vegetarian and flesh which appear at any part of body become slightly painful, rounded, immobile and deep seated. It's Root sunken considerably deep in the affected part and which is due to the vitiation of flesh and blood by the deranged and aggravated *Doshas* (*Vata*, *Pitaa*, *Kapha*) is called as *Arbuda* by learned physician.

Acharya *Charak* has not given any detailed description in his *grantha* but while dealing with treatment of *shavathu*, he says that the line of treatment to be followed in *Arbuda* is like *Granth*. He also states that *samanya hetu* and *manaspraDoshaja vyadhi* and *shotha* can be considered as *samanya hetu* of *Arbuda*^[12].

Acharya *vagabhata* have mentioned the similar reference about *Arbuda* like *ashtanga sangraha*.

Acharya vruddha *vagabhata* has mentioned *Arbuda* in *uttarStana* under *Granth Arbuda Apachi nadi vidnyaniya* *adhayaya*, mentioned that the common characteristic of *Arbuda* is that it is relatively bigger than *Granth*. *Sangrahakara* has also mentioned the treatment of *Arbuda*.

1.3.2. Etiology and Pathogenesis^[11]

When studied about *Vishesh hetu* Acharya *Sushrut*, *Madhav*, *Bhavmishra* had explained that, when the body part is inflicted with blow of flesh the vitiation of muscles takes place, and it gives rise to growth which is swollen. As well as the characteristics they given, that the growth is painless, glossy of the same colour, non-suppurating stone like and immovable. This can be curable and not found in those peoples whose muscle is vitiated and who indulge in meat eating. When studied about *Purvarupa* the thing came to know that none of the *achryas* describe premonitory symptoms of the disease *Arbuda*. But *AchryaVagbhat* mentioned that the swelling of *Granth* which is smaller in comparison to that of *Arbuda* should be considered as *purvrupa* of *Arbuda*. Regarding *Rupa* of *Arbuda* the special signs and symptoms of each type of *Arbuda* is mentioned by *Sushrutacharya*. While studied the *Samprapt* all the *acharyas* said that when *PrakupitDoshas* enter in the *raktnadi* and obstruct the way, due to this obstruction an extra large growth appears called *Arbuda* develops.

2. Modern aspect

2.1. Breast

2.1.1. Breast Anatomy^[13]

The breast is a modified sweat gland lying on the pectoral fascia and musculature of the chest wall and surrounded by skin and subcutaneous fat. Transversely it extends from the side of the sternum to near the mid-axillary line. Vertically it extends from the 2nd to 6th rib. The superolateral part of the breast is prolonged upwards and laterally towards the axilla forming the **axillary tail of Spence**.

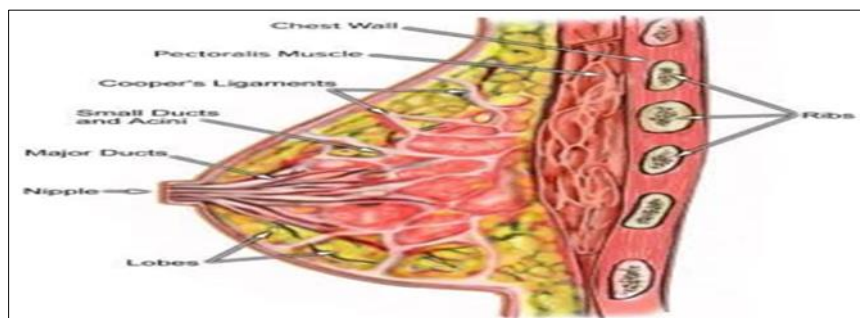


Figure 1 Anatomy of breast

The deep surface of the breast is slightly concave and is in direct relation with the deep fascia which separates the breast from the following muscles— *Pectoralis major*, *Serratus anterior*, *Obliquus extemus abdominis* and the *aponeurosis*. The **nipple** is a cylindrical or conical eminence which projects from just below the centre of the anterior surface of the breast and usually lies at the level of the 4th intercostal space. Its base is encircled by a more pigmented skin which is called **areola**.

2.1.2. Structure

The breast consists of (a) gland tissue, (b) fibrous tissue and (c) fatty tissue in the intervals between the lobes.

2.1.3. Breast Cancer

Like all forms of cancer, breast cancer is made of unusual cells that grow out of control^[14]. Breast carcinoma is the most common cancer in women in Europe, USA and Australia and in India, it is the second most common after cancer of cervix^[13].

2.1.4. Epidemiology^[13]

According to American cancer society, 182, 460 women in the USA are diagnosed with breast cancer annually. Incidence of breast cancer appear to have sigmoid function in women <55 years. Incidence is about 6.6% in <40 years, 2.4% in <35 years and 1% in <30 years of age. Most commonly originates in upper:outer quadrant (38.5%), central area (29%), upper:inner quadrant (14.2%) lower:outer quadrant (8.8%) and lower:inner quadrant (5%).

2.1.5. Prognostic Factors^[13,15]

Axillary Lymph Node Status: It is the most important prognostic factor. The number of lymph nodes involved and also presence of metastasis correlates with distant metastasis.

- Tumor Size: It is important even in absence of lymph node involvement. Size less than 1 cm and good histological types have good prognosis.
- Histologic grade: Poorly differentiated tumors have more aggressive behavior and poor prognosis.
- Oestrogen and Progesterone Receptors: Positive hormone receptors correlate with response to antihormonal agents and also better prognosis.
- HER2/neu: Over expression or amplification of this oncogene has been correlated with poor prognosis.
- P:53: Accumulation of this tumor superior gene correlates with reduced survival.

2.1.6. Risk factors for breast carcinoma^[16]:

- Age: Incidence of breast cancer increases with age. There is a rapid rise in incidence rate upto the age of 50 years.
- Menstrual history: The girls whose menarche occurs before the age of 12 years have a relative risk of 2.50 compared to those starting menstruation after 12 years.
- Obesity : Being overweight after menopause raises your odds.
- Nulliparity: Single and nulliparous married women have a relative risk rate of 1.5 compared to parous women. Some evidences suggest that women whose first child birth was over the age 35 years may have an increased risk of breast cancer.
- Late age of first birth: You have your first child after age 30, if you don't have a full term pregnancy.
- Never breastfeed & Nipple discharge
- Radiation exposure: If you had treatment for cancers like Hodgkin's lymphoma before age 40, you have an increased risk of breast cancer.
- High dietary fat intake
- Oestrogen replacement therapy
- First degree relative with a breast carcinoma in other breast
- Previous carcinoma endometrial
- BRCA 1 and 2 mutation
- Benign duct disease

2.1.7. Pathology^[17]

Approximately 50% of breast cancers arise in the upper and outer quadrant, 12% to 15% in the upper and inner quadrant, 6% to 10% in the lower and outer quadrant, 3% to 5% in the lower and inner quadrant and 20% in the central or subareolar region. Near about 70% of breast cancers are scirrhous type, 6% medullary carcinoma, 3% tubular carcinoma, 3% colloid carcinoma, 1% Paget's disease, 2% papillary carcinoma and 6% combined lobular and ductal carcinoma. Non-infiltrating carcinomas of the mammary ducts constitute 5% of all carcinomas of the breast. There are many methods of pathologically classifying breast cancer — most are based on whether it is derived from the duct system or the lobule.

Ductal carcinoma of the breast

This is the most common form of breast cancer accounting for 85% to 90% of all cases.

- **Ductal carcinoma in:situ**

It is characterised by proliferation of malignant breast epithelial cells confined to the duct system and does not invade the basement membrane or surrounding tissues

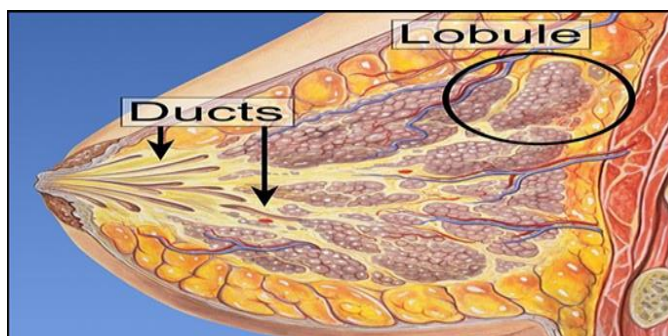


Figure 2 Ductal carcinoma in:situ

Two main histological types are detected — (i) the solid or *comedo* type is most common and more virulent. It is characterised by the closely packed cells within ductal spaces, so that the breast ducts become swollen. The ducts may expand to 1 or 2 mm in diameter. (ii) Papillary or cribriform type is characterized by papillary projections of tumour cells into the ductal lumen.

- **Invasive ductal carcinoma**

Once intraductal carcinoma has invaded the basement membrane of the duct, it has now the ability to infiltrate into the surrounding breast tissue and is called 'invasive ductal carcinoma'. A large number of different morphological types of invasive duct cancer is apparent to the pathologists —

- Infiltrating Ductal Carcinoma With Productive Fibrosis (Scirrhous Carcinoma)— It accounts for 70% of all invasive mammary cancers. This is presented in peri- or postmenopausal women in the 6th decade as solitary, non:tender, firm and ill:defined mass. The tumour characteristically possesses a poorly defined border which is better defined by palpation than inspection.
- Medullary Carcinoma— This cancer represents 2% to 15% of all breast cancers. The tumour takes origin from the large ducts. Grossly, the tumour is soft, well circumscribed, bulky, haemorrhagic and has uniform consistency.
- Tubular Carcinoma.— This type of breast cancer represents only 3% of all breast cancers. It is well differentiated. Macroscopically this cancer is small — about 1 cm in diameter and scirrhous.
- Mucinous (Colloid) Carcinoma— This carcinoma also develops from the ducts. This uncommon cancer constitutes only 2% of all breast cancers. It is typically bulky mucinous and is largely confined to the elderly women.
- Papillary Carcinoma.— This carcinoma accounts for less than 2% of all breast carcinomas and are generally seen in old women (around 70 years). Typically this tumour is a small one and rarely attains a size more than 2 to 3 cm in diameter

Lobular carcinoma of the breast

This can be conveniently subdivided into in:situ and invasive forms depending on whether the basement membrane of the lobule has been invaded by the tumour or not.

- Lobular carcinoma in:situ.— Within this lobule there must be a uniform proliferation of cells. The most important aspect of this cancer is its potential for becoming invasive. The risk of becoming invasive following simple biopsy is only 25% over 20 years, which is much lower than that of ductal carcinoma in:situ.
- Invasive lobular carcinoma.— This accounts for 10% of all breast cancers. The histologic features include characteristic small cells with rounded nuclei, inconspicuous nucleoli and scanty indistinct cytoplasm. Clinically this tumour is almost equal to an ordinary infiltrating ductal carcinoma. generally somewhat better than that of the invasive ductal carcinoma.

Paget's disease: Sir James Paget in 1874 described this lesion, which is a chronic eczematous eruption of the nipple. Paget's disease constitutes approximately 1% of the histologic types of breast cancer. The surface becomes either scaly and crusted or moist and oozing.



Figure 3 Paget's disease

Inflammatory carcinoma — In this condition the tumour cells are very undifferentiated and involve the subdermal lymphatics quite early. As a result of this there is lymphatic blockage and lymphangitis. This gives rise to cellulitis of the breast.

2.1.8. Spread of carcinoma^[18]

Carcinoma of the breast spreads through the following routes :

- **LOCAL SPREAD** — Carcinoma of the breast spreads quite efficiently into the surrounding tissues by infiltration and invasion. The 2nd mode of spread is by direct infiltration along the ducts. It is unclear whether such spread represents actual tumour growth or it reflects a field change of pre-existing in:situ disease. This explains the phenomenon of multifocal nature of the breast cancer. The third mode of spread is by local lymphatic and vascular spread within the breast.
- **INTRADUCTAL SPREAD** — Carcinomatous cells in the breast often spread through the ducts and ductules. The examples are Paget's disease, lobular carcinoma, tubular carcinoma etc. This explains the phenomenon of multifocal nature of breast cancer.
- **LYMPHATIC SPREAD** — Breast carcinoma spreads through this route by (i) emboli and (ii) permeation. Lymphatic spread is quite early in scirrhus carcinoma of the breast.
- **Axillary nodal spread** — Axillary nodes are more commonly involved in breast cancer.
- **SPREAD BY BLOOD** — This spread occurs later than lymphatic spread in case of carcinoma of the breast. Cancer cells detach as emboli into the venules and are drifted through the venous blood to the lungs first. If they cross the capillaries of the lungs they reach the left atrium and hence to systemic circulation. So there is always the chance of lung metastasis first by this route.
- **INTRACOELOMIC SPREAD** — The cancer cells may spread into the peritoneal cavity from breast cancers. This is mostly through lymphatic spread which involves the subdiaphragmatic and retroperitoneal lymph plexus from the plexus over the rectus sheath by piercing rectus.

2.1.9. Clinical features^[18]:

Breast cancer may occur at any age after puberty, though it usually occurs after 40 years of age.

2.1.10. Symptoms

- Typically, the patient presents with a painless lump in the breast, commonly in the upper and outer quadrant. A lump in the breast should always be suspected as a carcinoma unless proved otherwise. Presence of this type of swelling is usually of short duration.
- Pain is conspicuous by its absence. Sometimes a bigger mass may give rise to a discomfort which is often referred to by the patient as pain. Only inflammatory carcinoma is painful and in majority of cases it is seen in lactational period. Pain is often complained of in advanced stages.
- Discharge through nipple is not usual. Though blood discharge is quite common in ductal carcinoma.
- Recent retraction of nipple may be noticed by intelligent patients.

- Sometimes patients complain of metastatic symptoms while they remain unaware of the primary cancer in the breast. Such symptoms are :—backache, chest pain, haemoptysis, dyspnoea, jaundice, ascites or enlarged axillary or left supraclavicular lymph nodes.

2.2. Local examination^[18]

On INSPECTION, retraction of nipple or dimpling of the skin may be obvious, (i) The nipple of the affected side may be raised from the normal level of its fellow, (ii) Retraction of nipple can be best ascertained by asking the patient to hold her arms up. (iii) Peau d'orange may be obvious in a few cases. Peau d'orange is due to cutaneous lymphatic oedema.

(iv) Oedema of the whole arm is sometimes seen as a complication of breast cancer treatment either after radical axillary dissection or after radiotherapy or after both of these. It appears at any time from months to years after such treatment

(v) Red eczematous lesion is apparent in Paget's disease, (vi) Nipple discharge is usually insignificant in scirrhous carcinoma, but bloody discharge is often found in papillary carcinoma.

On PALPATION, the (i) breast lump which is best palpated by the flat of the hand is probably a case of carcinoma.

(ii) Axillary lymph nodes are always palpable due to their involvement. The nodes become enlarged and hard which indicate that carcinoma has involved the axillary nodes.

(iii) An attempt should always be made to find out if there is any distant metastasis. The opposite breast should always be palpated methodically —

2.3. Breast Cancer Stages^[19]

Clinical staging is an attempt by the surgeon to identify the extent of the malignant lesion based on clinical examinations and special investigations. Whereas microscopic typing and grading are important to understand the prognosis of a breast cancer, clinical staging is a guide to treatment. There are three methods of clinical staging in use at present : 1. The Manchester system, 2. The Columbia system and 3. The TNM (tumours, nodes, metastases) system. By far the TNM classification has achieved widespread acceptance.

2.3.1. Manchester system

Stage I : The growth is confined to the breast.

Stage II: The growth is confined to the breast, but palpable and mobile lymph nodes are present in the axilla.

Stage III : The growth extends beyond the mammary parenchyma as shown by —

(a) Skin invasion or fixation over an area larger than the size of the breast or skin ulceration.

(b) Tumour fixation to the underlying muscle or fascia — Axillary lymph nodes, if enlarged, are mobile.

Stage IV : The growth extends beyond the breast area; Fixation of the tumour to the chest wall; Fixation or matting of the axillary lymph nodes, supraclavicular nodes involvement; Distant metastasis.

2.3.2. Columbia system

Stage A : No skin oedema, ulceration or fixation of the tumour to the chest wall i.e. the tumour is confined to the breast substance. Axillary nodes are not clinically involved.

Stage B : No skin oedema, ulceration or fixation of the tumour to the chest wall. Axillary nodes are clinically involved but less than 2.5 cm in transverse diameter and are not fixed to the overlying skin or deeper structures of the axilla.

Stage C : Presence of oedema of the skin, skin ulceration, fixation to the chest wall, massive involvement of axillary nodes (more than 2.5 cm in transverse diameter) and fixation of the axillary nodes to the overlying skin or deeper structures.

Stage D : All those present in Stage C. Over and above there may be extensive oedema of the skin, satellite skin nodules, clinically supraclavicular node involvement, parasternal metastasis, oedema of the ipsilateral arm and

diStant metastasis.

2.3.3. TNM system

This was first presented by the International Union Against Cancer, which was organised in 1959 by the American College of Surgeons. It is based on Clinical observation related to the tumour (T), regional lymph nodes (N) and diStant metastasis (M). The system is described as follows:

Tumour (T).—

T0 : No demonstrable tumour in the breast.

T1S : Preinvasive carcinoma (carcinoma in Situ).

T1 : Tumour of 2 cm or less; skin is not involved or involved locally in Paget's disease.

T2 : Tumour size 2 to 5 cm.

T3 : Tumour is greater than 5 cm in size.

T4 : Tumour of any size with any of the following : Skin infiltration, ulceration, skin oedema, Peau d' orange, pectoral muscle or chest wall attachment.

Regional lymph nodes.—

N0 : No clinically palpable axillary lymph nodes.

N1 : Clinically palpable axillary nodes (N1a — metastasis not suspected, N1b — metastasis suspected).

N2 : Clinically palpable, fixed axillary nodes (metastasis suspected).

N3 : Homolateral supra: or infraclavicular nodes considered to contain metastasis; oedema of the arm.

DiStant metastasis.—

M0 : No diStant metastasis.

M1: Clinical and radiologic evidence of metastasis except those to homolateral axillary or infraclavicular lymph nodes; includes skin involvement beyond the breast.

STAGING :

Stage I : T1, N0 or N1a, M0.

Stage II : T1, N1b, M0; T2, N0, M0 or T0, N1b, M0; T2, N1a, M0 or T2, N1b, M0.

Stage III : T3, N2, M0 or T4, N2, M0.

Stage IV : Any T, Any N with M1.

2.4. Breast Cancer Diagnosis^[20]

These are aimed at (i) early diagnosis of the case and (ii) to detect diStant metastasis if present for proper clinical staging. It should be remembered that the tumours do generally become palpable until they are bigger than 1 cm in diameter. The accuracy of diagnosis of breast cancer on physical examination is only 70% among the most experienced clinicians.

Imaging tests: Your doctor will use these to learn more about breast.

- **Ultrasound:** This is an important diagnostic tool in many organ systems, but its application in breast cancer detection remains in the development stage. At present, ultrasonic examination of the breast is useful only in differentiation between solid and cystic swellings greater than 2.5 cm in diameter
- **Mammography:** This is nothing but an X:ray examination of the breast. Special and careful are necessary with fine:grain X:ray film. It has achieved world wide acceptance in the last decade. Views are taken of each breast from the superior and medial aspects, with the inferior and lateral surfaces the breast respectively against the cassette. Mammography is especially useful in (a) Screening procedure. Clinically undetected cancer has been diagnosed by mammography in 10% of patients.
- (b) It is particularly useful in older patients with large and fatty breasts where palpation is rather difficult to make the diagnosis. Younger women have dense and active breast stroma which obscures lesions in mammography,
- **Magnetic resonance imaging (MRI):** Contrast enhancement of **MRI** of the breast is a new technique. Gadolinium chelate is given as a rapid intravenous bolus injection.
- **Xeroradiography** — It is basically the same technically as mammography, except that the image is recorded on selenium coated film producing a positive impression to make it easier to the untrained eyes. Its diagnostic capacity is more or less same as mammography.
- **Thermography** — The skin over the malignant tumour of the breast is usually warmer than the surrounding areas. Special scanners may be used to delineate these “hot spots” on film. Infection may give false positive result. All cancers are not hot and thus give false negative results. Its main utility may be to differentiate between malignant and benign tumours.
- **Biopsy:** It is customary when presented with a palpable mass in the breast to remove the lump for accurate diagnosis. Whatever the degree of suspicion of cancer, most surgeons still prefer to be quite definite before committing a woman to mastectomy or radiotherapy.
- **Fine Needle Aspiration Cytology (FNAC)**— It has become an almost routine practice in the investigation of a breast lump. A 22:gauge needle and an appropriate size syringe is required. If mammography is necessary, this procedure is postponed, till mammography is done, as a small haematoma resulting from needle puncture may confuse the mammographic picture. Though its value in breast cyst is discussed elsewhere, here we shall discuss its investigative potentiality in breast carcinoma. This method has the advantage that it can be performed as an out:patient procedure

2.5. Search for distant metastases

One should consider breast cancer as a systemic disease. No woman therefore should be subjected for mastectomy until a most careful search has been undertaken for distant metastases.

- **Chest X:ray**— This is the simplest method of looking for potential site of visceral metastasis. This should be a routine investigation for all women with early carcinoma of the breast.
- **Metastatic lesions in the mediastinal lymph nodes** will not be visualised by chest X:ray until they reach 2 cm in size, because the lesions tend to blend with other mediastinal structures. These lesions are usually asymptomatic till the tumour grows out of the node and invades adjacent structures such as recurrent laryngeal nerve or oesophagus.
- **Computerised Tomography (CT scan)** can be used to detect mediastinal or retroperitoneal masses of malignantly involved lymph nodes.

Modern treatment^[20]:

The clinical treatment of neoplastic diseases relies on the complementary procedures of:

- Surgery
- Radiation treatment
- Immunotherapy
- Chemotherapy

But there are severe toxic side effects of chemotherapy and radiation therapy. However; a more urgent need soon arose from the common experience of clinically limiting toxicities of most anticancer drugs, i.e. the necessity to develop less toxic clinical drug candidates. Thus, there is need of Ayurvedic medicine effective against various types of cancer.

3. Discussion

Breast cancer represents a significant global health challenge, it is the most commonly diagnosed cancer in the world with an estimated 2.26 million cases recorded in 2020 and is the leading cause of cancer mortality among females. According to the World Cancer Report 2020, the foremost efficient intervention for breast carcinoma control is early detection and rapid treatment. The early detection of breast cancer can be improved through cost-efficient screening methods, training of health workers, raising public awareness and improved patient navigation. By knowing the seriousness of increasing breast cancer in women worldwide, present study try to aware to all of us about the etiology, pathogenesis, signs and symptoms, stages, detection and treatment of breast cancer in both Ayurved and Modern aspects.

4. Conclusion

Breast cancer is the most common cancer in women worldwide. It is largely preventable and treatable if detected early in stage and for that we have to know the basic anatomy and physiology of breast. Present study tried to focus the all points related to breast cancer as per Ayurveda and Modern also, such as, breast cancer stages, diagnosis, differential diagnosis, screening tests, treatments etc.

Compliance with ethical standards

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Authors declare that there is no conflict of interest.

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