



Finger on the pulse



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CHRISTIAN MEDICAL COLLEGE VELLORE

On World Health Day 2018, we focus on the basics of Breast Cancer and its treatment

How common is Breast Cancer in India?

Breast Cancer is currently the most common cancer of women in India, constitutes about 25% of all cancers in women, and is set to rise even more as socio-economic changes continue toward urban sedentary living and late childbearing.

Overall, half to two-thirds of women diagnosed nowadays should survive beyond 5 years and this statistic will improve further as awareness and

screening improve. If detected and treated in the early stages, around 80% of women can hope for long-term survival.

What causes Breast Cancer? Can I prevent it?

Breast Cancer is an abnormal growth of cells caused by changes in the genetic code that regulates growth and division.

Normal cells are programmed to grow, divide, and function adequately in harmony with the other cells in the organ. Mutations caused by gene

copying errors during cell division occur by chance, and can be induced by gene damaging radiation and chemicals, gene altering viral inclusions and, sometimes, are inherited from parents, in the code that is passed on to the offspring.

An unfortunate combination of critical mutations can empower a cell to grow without limit and spread to other organs - that is the cancer cell. Less than 10% of the patients seem to have an inherited gene.

Reproductive factors such as more menstrual periods caused by early menarche (the start of



periods), late menopause, lack of childbearing, late first live birth, not breast feeding, and the use of hormone medication, act, by complex hormonal signaling mechanisms, exposing the breast cells to more growth stimulus and division, and increase the chance of mutations getting through with each cell generation.

The other factors are categorised as lifestyle and environmental factors. Obesity, reduced physical activity, and the intake of hormone replacement tablets by post-menopausal women significantly increase the risk of developing Breast Cancer.

Other risks include alcohol intake, smoking, increased fat and red meat intake, and decreased intake of fruits and vegetables. Many of these risk effects are observable only in a large population, and not in individuals.

Unfortunately, getting cancer is largely a matter of bad luck and one must be aware of any changes in the breast to detect it early and improve the chances of cure.

Is regular checking helpful for Breast Cancer?

'Screening' involves the testing of normal individuals at increased risk to detect cancer early; breast examination by a physician or trained health worker; and screening mammography (two X-ray pictures of each breast are taken to look for early signs of cancer formation; the breast is briefly squeezed between two plates for the X-ray, which is uncomfortable for many and painful for some.)

Ultrasound or MRI scans may also be used in rare cases. In India, with a low-risk prevalence, there is consensus that it would be prudent to recommend screening only to high-risk women apart from age.

Any woman above 30 - 35 years who wishes screening because she feels herself to be at risk should see any physician or surgeon for a physical examination and ask for a mammogram; also advisable for relatives of cancer patients or those with known breast disease.

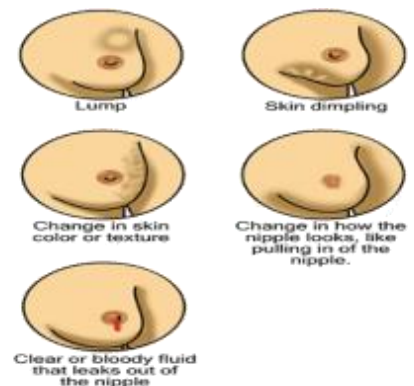
How do I know? What are the symptoms and signs of Breast Cancer?

The most common presentation is a painless lump in the breast or axilla that could feel rounded, irregular or as just a hard, shapeless knot, particularly if

it does not shrink or lessen after the next period.

Pain is uncommon and usually signifies a non-cancer type (benign); however, about 10% of Breast Cancers may have associated pain, usually a dull ache.

Other symptoms include a change in size, shape or symmetry of the breast, any dimpling, puckering or indentation in the skin of the breast caused by the underlying tumour; nipple getting pulled in; having scaling or ulceration; and any blood-stained fluid discharge from the nipple.



A lump may be noticed in the armpit also. Clinically, a cancer lump would be hard and immovable with irregular borders.

Advanced lesions would include skin changes such as redness and thickening of the overlying skin, with lymph nodes felt as lumps in the armpit.

Symptoms of spreading Breast Cancer depend on the organs involved, with the most common sites of involvement being the bones of the spine (recent, continuous back or leg pain), liver (abdominal pain or nausea), and

the lungs (shortness of breath or cough lasting more than a week)

How do I get tested for my symptom?

The doctor will take a detailed history and examine thoroughly before ordering a mammogram and an ultrasound.

If the lump is suspicious, a needle test (biopsy) will be done painlessly under local anaesthesia to see the cellular details under a microscope (pathology report), which will confirm whether there is a cancer or not. If cancer is confirmed and spread is suspected, images of the bone by isotope scan, lung by X-ray / CT, and liver by ultrasound will be done to check for spread of the tumour, before the treatment plan is made.

If clinical breast examination, needle test and imaging indicate benign disease, re-assessment in 2 to 3 months by clinical examination is still advisable for women over 30 years of age. This is to confirm that it is not enlarging, since the initial examination is 95% sure and we recheck for the last 5%.

On the other hand, direct surgical removal of an apparently benign lump, without a needle biopsy, sometimes leads to a surprise cancer diagnosis, and makes further optimal cancer management difficult, and is best avoided.

Are there different types of cancer?

Cancer is not a single type of disease but a spectrum of types with variable behaviour that can have very different outcomes. They are classified according to histological type arising commonly from the milk-conveying ducts - infiltrating ductal carcinoma - and rarely from the milk-producing lobules - infiltrating lobular cancer. The grades 1, 2 or 3 indicates how actively it is dividing and how aggressively it may behave (Grade 3 being the highest). Currently, the best information is given by looking at the presence of growth factor receptors on the cell surface - Estrogen, Progesterone and HER2.

The TNM staging system (T = tumour, N = lymph node and M = metastasis) gives an idea of how far the cancer has spread: Stage I - tumour only; Stage II - tumour and lymph nodes; Stage III - locally advanced tumour involving the skin or chest wall; and Stage IV - tumour spread to other organs. This gives a good idea of the chances of surviving the disease for at least 5 years, from as high as 90% for Stage I down to 20% for Stage IV.

What is the treatment for Breast Cancer?

Breast Cancer treatment can be grouped into:

- *Local-regional (breast and lymph nodes) by surgery and radiation.
- *Systemic (organ systems like bone, lung, liver) by chemotherapy (in all cases),
- *Targeted antibody Trastuzumab

against the HER2 receptor mentioned above.

Since it is the systemic disease that causes death and determines survival, the modern treatment dictum is 'less local and more systemic treatment' to improve the outcome for the patient. It has been found that in early stages, removal of the tumour alone, with radiation of the remaining breast, can provide equal survival as removing the whole breast.

Management of Early stage I / II involves surgical removal of whole breast (mastectomy) or lump only (breast-conserving surgery) followed by systemic therapy which includes chemotherapy, radiotherapy and endocrine therapy, based on the receptor type.

Though the presence of spread cannot be confirmed in most cases, it has to be assumed by looking at the characteristics of the breast tumour and systemic treatment given, because from earlier studies, the risk of spread looks significant.

The treatment does not work as well if we wait for the spread tumour to grow and become visible on scans. This is a difficult problem in cancer care and we are hoping gene analysis of the tumour can predict the chances of spread better. So far, the usefulness of gene testing has been limited.

In Locally advanced Stage III, management includes initial systemic therapy to reduce the

size of disease and make it amenable to surgery. Following surgery, the patient receives radiotherapy and endocrine therapy, if hormone receptor (ER = Estrogen Receptor) is positive. In Stage IV metastatic disease, systemic therapy alone is used.

Radiation therapy is needed for all patients who undergo breast-conserving surgery because of the remaining breast tissue that is at risk; conversely, early stage patients usually do not need radiation following mastectomy. This may influence the decisions regarding treatment and needs to be considered, as radiation has its own side effects.

Surgery

In early stages, Breast Cancer surgery is the principal modality of treatment. It can be either breast-conserving surgery or mastectomy, along with axillary node removal.

Breast conservation surgery involves removal of involved breast tissue with a margin of normal tissue, along with lymph node biopsy (only few representatives), or dissection (all armpit nodes).

Mastectomy involves removal of the entire breast tissue and axillary lymph nodal biopsy or dissection.

The decision about breast conservation surgery in early Breast Cancer depends upon patient choice and tumour: breast ratio, and is recommended when

adequate cosmesis can be achieved with adequate tumour-free margin. It will always require radiotherapy.

Sentinel lymph node biopsy is a technique to identify and remove only the first draining nodes in the axilla (armpit), at the time of surgery, to detect metastasis, and to avoid the complications of a full axillary dissection.

What to look out for, post-surgery?

Surgery of the breast is usually less painful than you expect because the breast is a skin organ and deeper tissues are not cut.

Movement of the arm to the full range may take some time as stretching of the operated armpit may cause pain.

Rarely bleeding or wound infection may occur, which will be monitored by the operating team and the nurses.

There is usually a draining plastic tube that comes out of the wound to remove the collecting fluid in the healing cavity, after breast or lump removal. This needs daily emptying and may take 1-2 weeks for removal, as it drains around 30 ml per day.

Sutures are absorbable and do not need removal. The drain removal should be painless too. Do not worry!

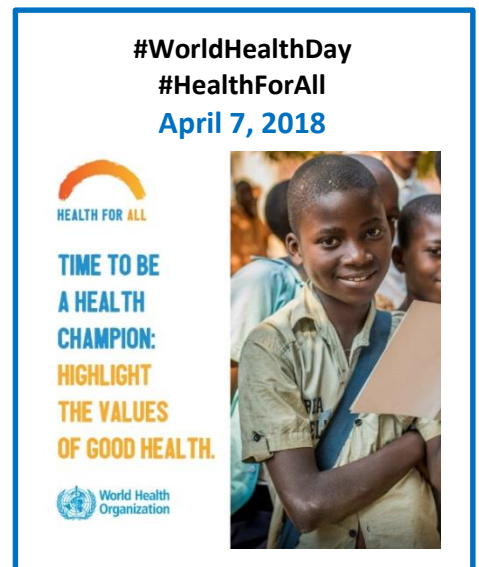
You may feel numbness around the area and twinges of pain for a few weeks from the cut ends of nerves where the breast tissue

was removed.

Post-mastectomy pain syndrome is a group of nerve-related symptoms in the breast, chest, shoulder, axilla and arm, that may sometimes persist and require physiotherapy and medication to control.

You will be taught a set of exercises to restore arm function and advised on how to prevent arm swelling (lymphedema), which is a side effect of removing axillary nodes, in about 20% of cases.

You will slowly adapt to the new shape. You can opt for an artificial breast prosthesis to be worn in your brassiere to maintain your figure under your clothes; or a reconstruction of the breast mound using your own excess tissue from the tummy or the back; or opt to have a silicone breast inserted into your chest muscle.



This can be done at the time of removal or better still, 6 months after surgery, once the treatment is completely over. The plastic surgeon will explain it to you by

appointment, if you wish to consider this.

Radiation therapy

Radiotherapy is an integral part of loco-regional Breast Cancer treatment. It involves the use of high-voltage X-rays or Gamma ray beam to kill all the remaining cancer cells in the remaining breast or the chest wall, axillary and lower neck nodes.

Radiation therapy is usually given after the completion of chemotherapy. Following breast-conserving surgery, all patients should undergo radiotherapy to the breast. Following mastectomy, radiation therapy is indicated in locally advanced disease and in cases of node positive disease. Normally, the duration is for 5 weeks, plus 1 week for planning; however, newer schedules of 3 weeks can be used with similar cosmetic outcomes.

What should I expect?

This is painless apart from the discomfort of lying still for the procedure. A CT scan for planning the beam direction is required. Your radiation technician will mark the skin of the chest, and after a few sessions, the area under the beam will darken like bad sunburn, which is usually fully reversible. Occasionally, patients react more and skin peeling and ulceration can occur. Long-term side effects include skin changes like fibrosis

and pigmentation, and reduction in heart and lung function.

What is Lymphedema?

Lymphedema is the swelling up of the upper limb, a side effect of both surgery and radiotherapy caused by removal of fine, fluid-draining channels called lymphatics from the arm, crossing the axilla, damaged unavoidably by the treatment.

A CMC study found that 1 out of 4 women had this. Prevention strategies include avoidance of injury and infection in the arm, which can further damage the few remaining channels.

The patient should return to all normal, non-strenuous household or employment activity after 6 weeks, to encourage lymphatic drainage in the limb. Generally, all 'table top' activities of housework, office work, and mild physical activity are encouraged. Avoid picking up a full bucket, heavy bag, or suitcase. Lymphedema can be detected early by measuring arm thickness, and effectively cured by massage and bandaging.

Chemotherapy

Almost all patients benefit from chemotherapy (injectable drugs that kill the tumour cells). Two classes of drugs called Anthracyclines and Taxanes are most commonly used in combinations of 2 or 3 drugs for 6 to 8 injections, which are more effective.

The veins generally react to the drug and may close up after repeated injections, making it difficult to put in a needle. To avoid this, you can opt for a 'chemo port' device implanted under the skin of your chest.

Side effects

Chemotherapy kills all dividing cells indiscriminately including the cancer cells. Unfortunately, this affects your normally active dividers like skin, hair, gut lining and bone marrow, which causes the common side effects of hair loss, skin rash, nausea, diarrhoea, tiredness and fall in blood counts with lowered immunity.

The bone marrow effect can be countered with growth factor injections to avoid life-threatening infections. The other effects cannot be effectively countered as of now and use of a wig or cap may be resorted to as desired, but work should be avoided for a short period after the dose. Anthracyclines can reduce heart function and Taxanes can affect the nerves, causing tingling and loss of sensation in the extremities.

Hormonal therapy

Hormonal therapy is given to patients with either estrogen or progesterone hormone receptor positive population. Tamoxifen is used, preferably, in pre-menopausal women. Aromatase Inhibitors (AIs) like Letrozole or Anastrozole are used in the post-menopausal setting.

Patients taking Tamoxifen should continue taking the drug for at least 5 to 10 years, or switch over to another agent if menopausal status achieved. In young patients with advanced cancer, the ovaries can also be removed surgically, irradiated or their function blocked by drugs. All these strategies act by reducing the estrogen stimulation to remaining cancer cells, and reduce cancer formation in the opposite breast by the same effect.

Side effects

Tamoxifen may cause menopausal symptoms like hot flashes, sweating, nausea, bleeding from the uterus or blood clots in the leg. The Aromatase Inhibitors can weaken the bones and this effect needs to be counteracted by other medication.

Targeted therapy with monoclonal antibodies against Tyrosine Kinase receptor HER-2: Patients with amplified HER-2 status can be offered monoclonal antibody treatment with Trastuzumab for a period of at least one year. **Side effects include reduction in heart function.**

How long will all this take?

The whole spectrum of loco-regional and systemic treatment initially takes **about 6 to 8 months** and you have to be prepared to make adjustments at home and work.

- Initial evaluation will take a week to 10 days; surgery and recovery, 2 weeks

- Radiation with planning: 4 - 6 weeks, and
- Intensive chemotherapy: 3 - 4 months.

Trastuzumab, if used, will be continued for a year but will not interfere with normal functioning. Hormonal therapy will not stop your routines. Some patients cope better than others do, as the side effects are very variable from "I breezed through chemotherapy" to "It almost killed me". Most have some unpleasant effects for a day or two. Therefore, it is advisable to improvise initially and prepare for the worst, where you may have to be off everything for 6 months. However, keep your work and home support flexible as you may be one of the luckier ones.

What happens once treatment is over?

The usual protocol is to review every 3 months in the first year, then once in 6 months in the second year, and annually thereafter for at least 10 years. There is a slowly reducing but significant risk that the disease may come back 10 to 15 years later, but there is nothing to be gained worrying about it beforehand. Doing regular scans to check has not proven to be useful, but it is very important that you report any symptom related to bone, lung, liver, or brain to your oncologist, who is following up your case and with whom you should follow up on a regular basis. A new bone pain, troublesome cough, or abdominal discomfort that

persists more than a week, and any headache for more than a day, should be examined and imaged. If disaster has struck in the form of a recurrent cancer, you may need another round of chemotherapy or change in the hormonal therapy strategy.

Each patient following a diagnosis of breast cancer undergoes uniquely personal struggles. At CMC, as medical professionals, we try to be scientific and objective, and do what is best for the patient. However, including the personal angle in our assessment does not detract from, but strongly improves the outcome of treatment, and the patient's perception of success. We try to use the practical approach -

'What would I do if this was my mother or sister?'

The difference today

Until recently, according to the Hippocratic ethical tradition, physicians were exhorted to make decisions on behalf of their patients in a paternalistic approach, relying solely on good intentions and professional knowledge. Today, patient autonomy is considered paramount, and the physician is often restricted to the role of a 'service provider' who offers options for the patient to make a choice, and then helps them see it through. However, patients are often unable to make a decision faced with so many choices and the enormity of the impact their disease will have on them and their family.

The best approach is for the physician to take the role of a guide and counsellor to help the patient navigate the different and difficult choices to make the decision that will suit them best.

To make choices that will align with the patient's core concerns and life goals, physicians often have to enter the realm of the patient's personal attitudes and preferences, family relationships and economic concerns, as well as the religious and social traditions by which they live. This approach usually leads to comfortable decision-making and less stressful feelings by all concerned. Multiple sessions of counselling by Surgeon, Oncologist, and Nurse is an essential component for effective healing.

For better outcomes

Understanding the personality of the patient including pain thresholds and anxieties also plays a part in making the outcome better. For instance, we have come to appreciate that surgery under anaesthesia is usually a breeze with the patient unaware of anything. However, post-operatively she may fret about an imagined painful removal of drain or suture.

A brief explanation that the absorbable sutures do not need removal and that no pain is felt with gentle drain removal will relieve unnecessary worry. Fears about body image and side effects of chemotherapy like hair loss are also common and can be effectively addressed early in the

course of illness, so that the patient feels a sense of wholeness. The paramount fear is that the cancer diagnosis is a 'death sentence' and bland survival statistics from the physician do not allay irrational worry; however, group counselling and listening to survivors narrate experiences years after treatment is the strongest encouragement that they too can survive the disease with a high probability. Patient support groups are therefore a powerful source of encouragement, answers, and strength.

A positive attitude helps!

Though the diagnosis is a time to confront your own mortality and the picture seems bleak initially, you will grow to realise that death is the only certainty for all of us and we need to accept it and stop worrying about it, with immediate effect.

It is a significant statistic – one out of every one person born dies, as if dying is *all* we can ultimately do.

The only antidote is to focus on the life in front of you, cooperate fully with the treatment schedules, and hope for the best. Get involved in the lives of the ones you love, do your duties cheerfully, and make the rest of your life worth the living.

Most of our patients have successfully completed the treatment phase and have gone on to live fruitful, fulfilling lives as homemakers, teachers, scientists, as well as doctors.



May you find that what appeared a 'death sentence' initially, has actually woken you up to a fuller and richer experience of life.

Good luck and may God bless your own special journey!

Dr. M. J. Paul
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