ANWER KHAN MODERN
BREAST CARE UNIT
& RESEARCH CENTRE

BREAST DISEASES MANAGEMENT

STEPS TOWARDS BETTER BREAST CARE

EDITORIAL BOARD

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WELCOME
MESSAGE

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Visiting consultant & advisor of
Anwer khan modern Breast care unit & Research Centre

Acknowledgement

At the outset, I would like to express my gratitude to All those who have contributed to this booklet.

Breast disease management particularly breast cancer have become so diverse with new evidence based recommendations, with 'less is More' approach without compromising oncological safety yet offering a great quality of lives of our patients. Newer techniques, guidelines have enriched the management pathways for breast disease. This is a small effort to publish some basic, up-to-date and practical information for the benefit of breast surgeons and more importantly, our patients. Special thanks to Dr. Ali Nafisa, Associate Professor whose relentless support, enthusiasm to learn and developing skills and to share this to others, have prompted this effort. A big recognition to my family members specially, my wife Rina who tolerated my absence regularly enabling me to set this breast unit and run smoothly. As part of our multidisciplinary team, leading the radiology imaging and interventional sonologist, Dr Humaira Islam khan has been amazingly supportive. Also our two medical officers, Dr. Samanta Meharin Priam and Dr. Hasnatul Ferdous Supti has been a great support. Thanks to Prof. Dr. MIM Nasim Sobhani Khondkar and Head of the Department, Prof Dr. Abdus Salam Arif for continuously supporting the team. Last but not the least, respected Chairman, Dr. Anwer Hossain Khan MP has been a great inspiration and unconditional direct support to run this Breast unit.

I sincerely hope that this little effort will be of some benefit to our Surgeons and ultimately, the patients for whom we are committed to provide high quality up to date care, they rightly deserve

Dr. SK Farid Ahmed MBBS FRCS

Md. Tazul Islam MP
Minister
Ministry of Local Government,
Rural Development and Co-operatives

Message

I am extremely glad to be informed that the Breast unit of Anwer Khan Modern Medical College and Hospital is going to conduct a Live Surgery and Workshop on Oncoplastic Breast Surgery for the second time at Anwer Khan Modern Medical College and Hospital. I would like to convey my best wishes to all the seven foreign delegates who are going to attend the live surgery & workshop and the Surgeons, Oncologists, Radiologists, and Pathologists who are going to participate in the workshop.

Breast cancer is one of the most common cancers among women in Bangladesh and day by day its bad consequences are increasing at a very large scale. It is possible to avoid the unexpected deaths from cancer; which will save the country from irreplaceable loss. The Awami League Government has made outstanding progress in the health sector over the years and has been working to improve the quality of the health service. As a part of the ongoing development program in the health sector, our government is working continuously to expand the network of one step healthcare centers all over the country specially focusing at the rural area to create awareness among the women on Breast cancer.

Government has already taken initiatives to establish 100-bed cancer hospitals in every divisional headquarters. Moreover, steps have been taken to upgrade cancer care in the country by providing modern equipment and developing skilled manpower.

I am very hopeful that the "Live Surgery and Workshop on Oncoplastic Breast Surgery" will give opportunity to share, interact and exchange knowledge about the preventive measures of breast cancer among the participants and gradually help to spread out the awareness all over the county. I wish The "2nd Live Surgery and Workshop on Oncoplastic Breast Surgery 2020 conducted by AKMBURC" a outstanding success.

Joy Bangla, Joy Bangabandhu.

Md. Tazul Islam MP

Prof. Dr. Md.Habibe Millat MP
MBBS, FRCS (Edin)
63 Sirajganj-2

Message

Breast Cancer is one of the most common cancers in Bangladeshi women in present time and gradually it has been becoming one of the major causes for the death of the women. The exact cause of breast cancer is not known. However, several factors like early puberty, using of pills, Genetics, High breast density, late menopause that affect our risk of developing breast cancer. In addition this incident rate grows up day to day due to unawareness.

We can change the above risk factors to some extent by modification of lifestyle. But all women should be breast aware – this means knowing what is normal for you so that you are aware as soon as something changes. The sooner you notice a change the better, because if cancer is found early, treatment is more likely to be successful. Get into the habit of looking at and feeling your breasts from time to time. This will help you to notice any change if it occurs.

To create awareness on breast cancer and to fight against it our government has already taken initiatives like early detection program and installation of HI-TECH radiotherapy machineries in different government medical hospitals. In addition, our government is going to introduce 8 (eight) divisional cancer centers for the wellbeing of the cancer patients. However we address the breast cancer as a national issue and I strongly believe that the government as well as the private sector should come forward and fight against breast cancer.

I am very delighted to be informed that the Breast unit of Anwer Khan Modern Medical College and Hospital is going to conduct a Live Surgery and Workshop on Oncoplastic Breast Surgery for the second time in Bangladesh. About 300 surgeons, oncologists, radiologists, pathologists will be participating in this workshop. Six foreign delegates will be performing the live surgery. I strongly believe this kind of initiative is defiantly going to help to create and raise awareness on breast cancer among the participants as well the community.

I wish The “2nd Live Surgery and Workshop on Oncoplastic Breast Surgery 2020 conducted by AKMBURC” is going to be successful one and I hope the international delegates are going to have great times staying in Bangladesh.

Joi Bangla, Joi Bangabandhu
May Bangladesh Live Forever.

Prof. Dr. Md. Habibe Millat, MP

Dr. Anwer Hossain Khan MP
Chairman, Anwer Khan Modern Medical College & Hospital

Message

It is indeed a great news that Anwer Khan Modern Medical College and Hospital breast unit is hosting 2nd live surgery and workshop on oncoplastic breast surgery. Now a day's, cancer has become a common phenomenon in medical science. Breast cancer is one of them and it is very common in women in Bangladesh. It is becoming the cause of death for many women but it is assuring that early detection and treatment of breast cancer can cure it fully. And our breast unit is doing a great job in screening & detection of the breast cancer in early stage and they are providing international standard of treatment.

In Bangladesh most of the breast cancers are diagnosed when patient reaches at advance stage and this is only happening due to lack of awareness and some social stigma. To overcome this situation different awareness program has been initiated and this leads to many early detection of the breast cancer. In recent years lots of improvement has occurred in the management of Breast Cancer, which includes Surgery, Radiotherapy, Chemotherapy, Targeted therapy and also immunotherapy.

I really appreciate that the initiative taken by Anwer Khan Modern Medical College Hospital Breast Unit on doing this 2nd live surgery and workshop for 2 days. I truly believe that this kind workshop will help us all to know all about breast cancer treatment and what we should do if one knows that she has breast cancer.

I would like to extend my greetings to all the surgeons, foreign delegates and all the participants in this 2nd live surgery and workshop on Oncoplastic breast surgery. I wish all the success of this live surgery and workshop and hope our International Delegates will have great time staying in Bangladesh.

Joy Bangla, Joy Bangabandhu

Long Live Bangladesh

Dr. Anwer Hossain Khan, MP
Chairman of Anwer khan Modern Medical College & Hospital

Prof. Dr. Kanak Kanti Barua
Vice Chancellor
Bangabandhu Sheikh Mujib Medical University

Message

It's my great pleasure to attend 2nd live surgical workshop on Oncoplastic breast surgery at Anwer Khan Modern Medical College & Hospital organized by Breast Care Unit and Research Centre.

Breast cancer is the second most common cancer worldwide and the most commonly occurring malignancy in women with more than 2 million of new cases diagnosed in 2019. Although the incidence is higher in Western countries, it is rising in developing countries as well. Almost all BC deaths are caused by secondary breast cancer, where cancer has spread from the breast to other parts of the body. Survival rates for breast cancer have thankfully increased dramatically. More than 80 percent of women who develop breast cancer will now live beyond five years.

Although new discoveries are being made every day around the world, there is still no cure for breast cancer. The disease is so complex, diverse, and is so connected to both genetic and environmental factors that finding a cure seems impossible to some people. May be most importantly, public perception about breast cancer has drastically changed. Breast cancer used to be a disease that a woman was ashamed to discuss, but now women are not only allowed but encouraged to get to know their bodies and be aware of any changes. Breast cancer has become a highly publicized disease, but there can never be enough awareness. Because of increased awareness and early detection the five-year survival rate of people that are diagnosed in the early stages is over 95%. Although we are still young, there are still things we can do to be aware. Both males and females can perform breast self-examinations to get familiar with your body and to know when and if there are any changes, which might just save your life. Today we have looked at common myths, the basic facts of breast cancer, risk factors, treatments protocols, surgery and new technologies being developed and available in our country.

I wish every success of this workshop.

Prof. Dr. Kanak Kanti Barua
Vice-Chancellor

Dr. Shahryar Nabi
Dean, Medical Faculty, Dhaka University.

Message

It gives me immense pleasure to let you all know that Department of Surgery,Breast Care Unit and research centre at Anwer Khan Modern Medical College and Hospital is going to organize 2nd live surgery & workshop on Oncoplastic breast surgery, March,2020. This surgical workshop and scientific session will bring great opportunity for the surgeons of Bangladesh to exchange their views with foreign surgeons & oncologist. This workshop & scientific session will be helpful for our surgeons to provide world-class advanced service. As one of the leading healthcare organization in Bangladesh ,Anwer khan Modern Medical Hospital has created Breast care unit in Bangladesh and their focus should be on providing care and aim should be delivering high quality care.

I would like to convey my greetings to all the surgeons, foreign delegates and all the participants in this 2nd live surgery and workshop on Oncoplastic breast surgery. I wish all the success of this live surgery and workshop I wish all the best & looking forward to a very successful live surgery workshop.

Dr. Shahryar Nabi
Dean, Medicine Faculty, Dhaka University

Prof. Dr. Ekhlasur Rahman
Principal, Anwer Khan Modern Medical College

Message

Anwer Khan Modern Medical College & Hospital is committed to ensure quality of health services to all citizens of Bangladesh. We are trying to strengthen the health facilities by adopting strategies for the best use of all available resources and restructuring management systems. I am pleased to know that Breast Care Unit, Department of Surgery is successfully arranging the Live surgery & Workshop on Oncoplastic breast surgery for the second time.

As there are no nationally applicable standard protocols or-guidelines for managing breast cancer in Bangladesh, the quality of treatment varies widely. Only a few patients have the opportunity to get treatment at well-equipped private hospitals that use international standard protocols. In addition, affluent people often prefer to travel to neighboring countries – Singapore, Thailand and India to seek high-quality treatment. This conference will highlight the proper guideline for management of breast cancer patients in Bangladesh. Anwer khan Modern Medical College and Hospital has created history to set up a Breast Care Unit for the first time in Bangladesh where our aim should be multidisciplinary treatment pathway as world have progressed with research and evidence based management of breast cancer surgery. It will enlighten the knowledge about appropriate breast cancer patient management right here in Bangladesh so that people in our country will be able to receive high quality treatment without having to travel abroad.

I would also like to thank the workforce engaged in the arrangement of the live surgery and workshop and would like to welcome all the foreign delegates who have come this far to Dhaka to share their valuable knowledge with us in this conference.

I look forward to see more innovative ideas and activities that will ultimately help us to start evidence based multidisciplinary treatment of breast cancer in Anwer Khan Modern Medical College and Hospital which eventually will become a Centre of excellence for treatment of breast cancer.

Prof.Dr. Ekhlasur Rahman
Principal, Anwer Khan Modern Medical College

Prof. Dr. Abdus Salam Arif
Head of the department of Surgery
Anwer Khan Modern Medical College

Message

Indeed it is a pleasure to watch the transformation process of a dream coming to reality. Breast Unit of Anwer Khan Modern Medical College within a short span of time has become an iconic centre in the whole country. It is delightful to know that this unit is going to organize a live surgery workshop for the second time in 9th & 10th March, 2020.

Many eminent personalities involved in the management of breast cancer management, both from home and abroad are taking part in the workshop. There will be exchange of knowledge, views, expertise and ideas among themselves. I hope this will greatly help the junior aspiring doctors of our country to develop and tune themselves. I hope this workshop will be a pleasant experience for all the participants and especially for the dignitaries from abroad.

I wish all the success of the program.

Index

INTRODUCTION

Breast symptoms are common occurrences in the female all over the world. Symptoms could be trivial and respond to simple remedies. However, some symptoms become source of concern for both the patient and the clinicians especially when they become persistent. The major concern has been the possibility of occurrence of breast cancer. Breast cancer is usually asymptomatic in the early stages during which it is curable, this is the paradox of breast cancer. Therefore, screening for breast cancer appears to be the viable option in reducing the mortality and morbidity of breast cancer. Breast screening in UK has already proved to be effective as 25% reduction of breast cancer related mortality since its introduction over 30 years.

Surgical evaluation of the symptomatic patients by triple assessment, namely, clinical examination of the breast, mammography, and breast biopsy for definitive histological diagnosis is required in many patients.

Patients coming with breast symptoms should be investigated with a mammogram if over 35 years with or without ultrasound scan depending on clinical and mammographic findings, tissue diagnosis with core biopsies in certain cases.

Some common presentations and their management are discussed below.

Less is more:-

BCS vs Mastectomy

Axillary clearance vs SNB

Axillary clearance for SNB positive vs Axillary RT

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Breast surgery is more than just surgery. It offers a holistic approach to patient care, underpinned by a strong ethos of team working.

It is undoubtedly an emotionally and physically demanding specialty—with the patient always the main focus, nothing is ever routine!

Breast is definitely best!

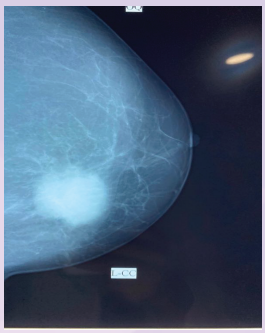
Historically, we encounter many myths which needs to be challenged as they are not supported by any solid evidence. Few examples are as follows

- Mastectomy is superior to Breast conserving surgery for survival.
- Clinical breast examination is a better method of screening.
- Mastectomy cures breast cancer or stops recurrence.
- Node positive axilla even with small breast cancer, needs Mastectomy with axillary clearance.
- Post BCS with clear margins and positive nodes: Needs completion mastectomy.
- FNAC is enough to proceed to breast cancer surgery.
- No mammogram needed for palpable breast carcinoma.
- No mammogram for palpable breast cancer required prior surgery.
- Central cancer needs – Mastectomy.
- DCIS – Need mastectomy.
- No radiotherapy required if Mastectomy is done.
- Lobular cell carcinoma always need mastectomy.
- Paget's disease need mastectomy.
- No need of immunocytochemistry results before surgery.
- No need of any lump biopsy if USG & Mammogram is normal.
- No need tumor orientation in lumpectomy for suspected mass.
- No need of core biopsy before excisional biopsy.
- No axillary biopsy is needed (FNAC & core biopsy) for suspicious node
- If lymph node is enlarged/palpable, it is always metastatic
- Mastectomy for small cancer with positive family history.
- USG of breasts enough for assessment of breast.
- Mastectomy need if cancer in pregnancy (BCS contraindicated).
- Cancer in pregnancy always aggressive.
- Mastectomy first treatment option for inflammatory cancer
- FNAC showing cancer cells, enough for surgical decision making.
- Surgery is always the first line of Rx for carcinoma breast.
- Level 3 axillary clearance: improves survival.
- Mammogram not possible in male.
- Elderly patient need no BCS.
- No need of marker clip insertion before Neo-adjuvant therapy.
- Menstruation – contraindication for breast surgery.
- No mammogram required prior surgery if US, FNAC shows cancer cells,
- Surgery is always the first line of Rx for carcinoma breast.
- Frozen section is a must for breast conservative surgery and SNB.

BREAST CANCER SCREENING

The sooner breast cancer is diagnosed, the more effective treatment is likely to be. Breast screening can pick up breast cancer before there are any signs or symptoms

Breast screening age: 47-73 years (in UK)
35 – 50 years (in Bangladesh, as by this age most of the Bangladeshi women would have children and breast feeding, breast tissues are less dense and easy to identify abnormalities in mammogram).
Frequency: Every 3 years internal (in UK as part of a National breast screening program)
Method: 2 view mammography of both breasts



Benefits of breast screening

- Finding breast cancer early (stage 0)
- Preventing deaths
- Curable
- Avoid chemotherapy

BREAST SCREENING SHOULD BE MAMMOGRAM BASED NOT USG OR CLINICAL BREAST EXAMINATION.

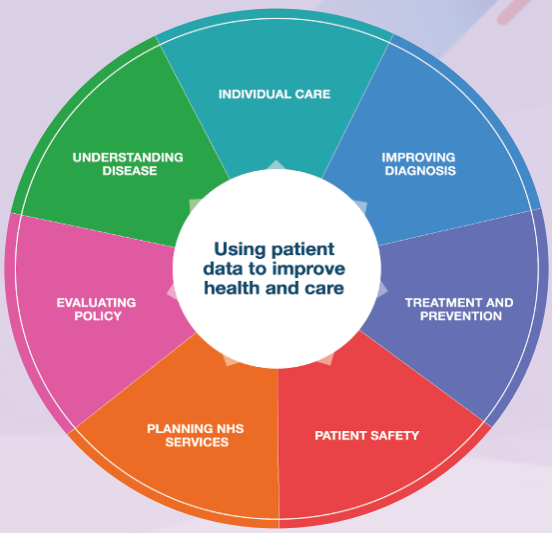
If any lesion detected → USG of both Breast & axilla with USG guided core biopsy.
If family history positive → genetic testing BRCA1, BRCA2, TP53
If genetic testing positive → Risk reducing surgery (eg: prophylactic skin sparing mastectomy with Immediate breast reconstruction with acellular dermal matrix or other options).

If patient do not agree for genetic testing → MRI of both breast annually starting from 5 years before the age of youngest relative's cancer.

Early detection and improvement of treatment have led to a 30% reduction in breast cancer mortality in UK in all age groups over the past 20 years.

Staying breast aware between mammograms
Having mammograms cannot prevent breast cancer, and it's possible for breast cancer to develop in the three years between each mammogram. That's why it's important to continue to be breast aware and report any changes to doctor even if a mammogram is recently done.

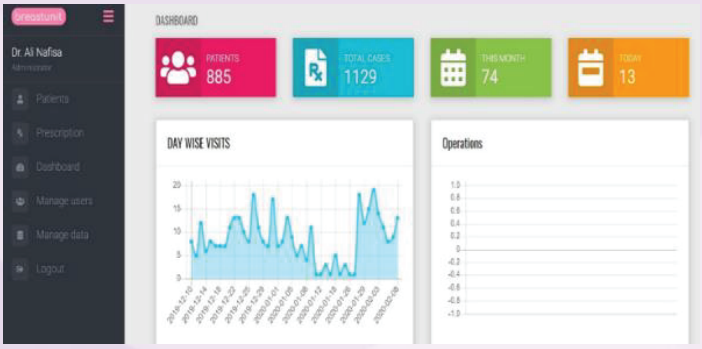
DATA COLLECTION FOR ANALYSIS



Importance of Data Collection

Data should be collected in a digital manner. The following app is developed for breast disease patient or a better version of it can be used to record all patient with breast disease history all around Bangladesh.

www.breastunitbd.com



PRIMARY BREAST CANCER

Types of primary breast cancer

- Non-invasive breast cancer- cancer has not yet developed the ability to spread, either within the breast or to another part of the body
    - Ductal carcinoma in situ (DCIS)
    - Lobular carcinoma in situ (LCIS). This is considered as B3 (indeterminate, Just a risk factor)
- Invasive ductal carcinoma

Other types of breast cancer

- ✓ Invasive lobular breast cancer
- ✓ Inflammatory breast cancer
- ✓ Paget's disease of the breast
- ✓ Tubular cancer
- ✓ Cribriform cancer
- ✓ Mucinous (also known as colloid) cancer
- ✓ Medullary breast cancer
- ✓ Papillary breast cancer
- ✓ Micropapillary breast cancer
- ✓ Malignant phyllodes
- ✓ Metaplastic breast cancer.

Grade, size and stage of the cancer

Grade

There are three grades of invasive breast cancer:

grade 1 – looks most like normal breast cells and is usually **slow**-growing
grade 2 – looks less like normal breast cells and is growing faster
grade 3 – looks different to normal breast cells and is usually **fast**-growing

Stage

TNM cancer staging system is commonly used. This is a scoring system used to describe:

- the size of the cancer
- the number of lymph nodes affected
- whether there's any spread of the cancer to other parts of the body

Grade and immunocytochemistry play role for decision of treatment

INVESTIGATIONS FOR A BREAST CANCER PATIENT:

- **Mammogram**
  > 35 years with or without any breast symptoms
  <35 years when USG shows indeterminate/suspicious lesion but core biopsy shows invasive cancer. This is for future comparison as well as looking at mammographic evidence of any further lesion on ipsilateral of contralateral breast.

- **USG of both breasts and axilla**

< 35 years with or without any breast symptoms

- **Core biopsy from suspicious lesion**,
  Palpable lump →ordinary Core biopsy
  Non-Palpable lesion →USG guided core biopsy

Scanning axilla is mandatory for staging.

Staging investigations may include:

- **Whole body Bone Scan** → If LN Positive
- **CT Scan (chest abdomen & pelvis)** → If Axillary LN Positive
- **MRI Scan** → young patients with carcinoma breast patient with positive genetic testing
- **PET scan for selective cases**

TREATMENT TEAM AND DISCUSSING TREATMENT OPTIONS

People with breast cancer are cared for by a team of healthcare professionals, each with their own expertise. This is known as the multidisciplinary team (MDT).The team will include:

- Surgeon
- Clinical Oncologist
- Medical Oncologist
- Pathologist
- Radiologist
- Breast Care Nurse
- MDT co-ordinator

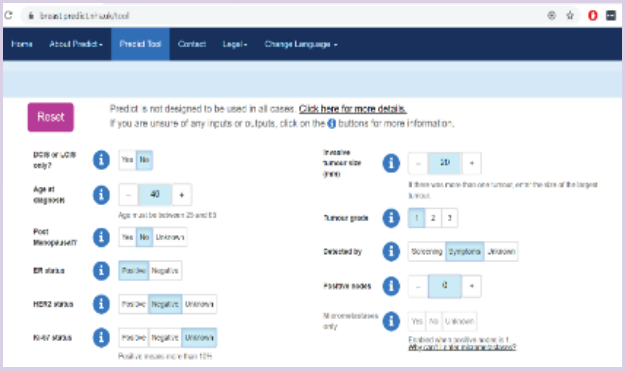
The following may help to make a decision.

1. Nottingham Prognostic Index (NPI)
   The Nottingham Prognostic Index (NPI) is a scoring system that is used with the TNM cancer staging system and the grade of the cancer. A score is given which is put into a prognosis category of good, moderate or poor.

2. PREDICT (predict.nhs.uk)

PREDICT is an online decision-making tool.

Estimates the survival benefits for chemotherapy, hormone therapy and targeted therapies after surgery.

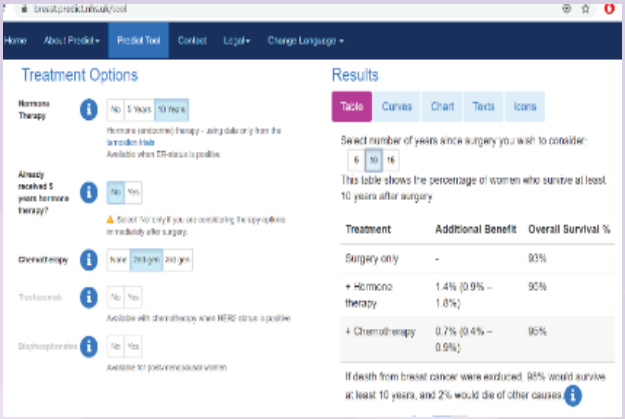


3. Oncotype DX

This test predicts how likely the cancer is to return and the likely benefit of having chemotherapy.

The result (recurrence score) is reported as a number between 0 and 100. The higher the score, the greater the risk of recurrence of an invasive breast cancer, and the more likely it is chemotherapy will be recommended.

Stage I or II cancer with ER positive, node negative, HER2 negative who may be offered chemotherapy can be candidate for the test to decide in favour or against chemotherapy based on recurrence score. It is available in Bangladesh.



4. The Prosigna Breast Cancer Prognostic Gene Signature Assay

This test predicts how likely the cancer is to spread within ten years. The result is reported as low, intermediate or high risk.

TREATMENT FOR PRIMARY BREAST CANCER

AIMS: The aim of treatment for primary breast cancer is to remove the cancer and reduce the risk of it returning in the breast or spreading to other parts of the body

Patient may have the following treatment options below:

- ✓ Surgery
- ✓ Chemotherapy
- ✓ Radiotherapy
- ✓ Hormone (Endocrine) Therapy
- ✓ Targeted (Biological) Therapy
- ✓ Bisphosphonates

SURGERY IN BREAST

Assessment of Breast

Surgery is the first treatment for most people with breast cancer. This is done to reduce the risk of the cancer coming back in the breast. The type of surgery recommended depends on the type and size of the cancer, where it is in the breast and whether more than one area of the breast is affected. It will also depend on the size of the breast volume to tumour ratio.

Mastectomy and axillary clearance: One size fitting all

There are two main types of breast surgery:

1. Conservative breast surgery
2. Mastectomy

1. BREAST CONSERVING SURGERY

Breast Conserving Surgery with adjuvant Radiotherapy have similar survival benefit as Mastectomy (Breast Conserving Surgery + Radiotherapy= Mastectomy).
RCT showed no survival benefit doing mastectomy (N Engl J Med 2002; 347(16):1233–41).

For Palpable lesions →wide Local Excision
For Impalpable lesion →wire guided wide local excision

- US skin mark (wire is now available in our country)
- *Digital X-ray of excised specimen* to check radiological margin.
- After operation 4 titanium clip at floor and margin placed for guidance to the radiation oncologist for *boost radiotherapy* in tumor bed. It is not practiced widely in our country although it is available in most theatre where clip used in laparoscopic procedure.
- After excision, *specimen orientation* (eg: superior short, lateral long, double deep sutures gives a three dimensional orientation) is a must which helps pathologist to provide information about margin whether clear or not.
- Margin around the cancer is involved or free of tumor is tested by *frozen section*. If there are cancer present at the edges of the margin, further margin surgery recommended to remove more tissue.

Contraindication of breast conserving surgery

- Core proven multifocal cancer.
- Large area of calcification with DCIS where ends are core biopsy proven.
- Recurrent cancer where BCS with adjuvant radiotherapy was previous given
- Inflammatory breast cancer
- Mantle radiotherapy for lymphoma in the past with breast cancer.
- Collagen vascular disease

What is Oncoplastic breast surgery?

This combines breast cancer surgery with plastic surgery techniques, and means oncological safety is achieved without any compromise to aesthetic aspects

2. MASTECTOMY

A surgeon recommending a mastectomy should explain why.

- ➢ It may be a personal preference to have a mastectomy, even if breast-conserving surgery is an option.
- ➢ It is important to let patients know that there is no survival benefit to mastectomy over BCS and also survival is dictated by index (First) cancer, not by recurrent cancer.

Absolute Indication

- ✓ Prior radiation therapy to the breast or chest wall.
- ✓ Radiation therapy contraindicated by pregnancy (except patients in the third trimester who can receive radiation postpartum).
- ✓ Inflammatory breast cancer.
- ✓ Diffuse suspicious or malignant-appearing microcalcifications.
- ✓ Widespread disease that is multicentric, located in more than one quadrant, and cannot be removed through a single incision with negative margins.
- ✓ A positive pathologic margin after repeat re-excision and suboptimal cosmetic outcome.

Relative indications for mastectomy

- ✓ Active connective tissue disease involving skin (eg, scleroderma, lupus)
- ✓ Tumors greater than 5 cm in diameter but not suitable for neoadjuvant chemotherapy.
- ✓ Focally positive margin/margins with a large cancer (needs completion mastectomy)

After a mastectomy, the option of having breast reconstruction must be given to suitable patients.

Histology on excised specimen after surgery must include clear information about:

- ✓ Type
- ✓ Size of cancer
- ✓ Margins
- ✓ Grade
- ✓ ER, PR, HER2 status (PR not routinely needed)
- ✓ LVI

❖ SURGERY IN AXILLA

Assessment of Axilla:

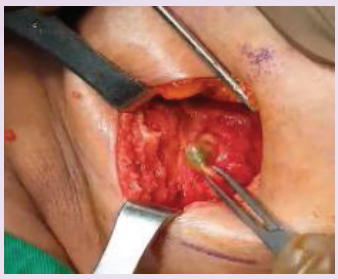
1. Ultrasound scan of the axilla is done before surgery to assess the lymph nodes.
2. FNAC/core biopsy from axilla lymph node, if there is cortical thickening.
   If the FNA/core biopsy shows cancer cells → axillary clearance
   If clinically and sonologicially negative axilla → sentinel lymph node biopsy

1. Sentinel lymph node biopsy

Sentinel lymph node biopsy is usually carried out at the same time as cancer surgery.
A small amount of radioactive material (radioisotope, 20mbq Tc99 nano-colloid) and a dye is injected deep to breast tissue into the area around the cancer to identify the sentinel lymph node. Once removed, it is sent for histopathology or *OSNA (One Step Nucleic acid Amplification)* for clinically and ultrasonically negative lymph node study if available.

Sentinel node negative → no surgery needed to axilla
Sentinel node positive → ►Further Surgery to remove some or all of the remaining nodes
►Radiotherapy to the Axilla
►No Further Treatment to the Axilla in some cases

If OSNA positive →No axillary clearance, only Radiotherapy to axilla
→Axillary clearance only for
►Neoadjuvant chemotherapy patients,
►T3/T4 cancers
►>3 SNB positive nodes.



Note:
If patient is having chemotherapy before surgery, patient may have a sentinel lymph node biopsy before starting chemotherapy. This can help with planning any further treatment to the axilla after chemotherapy. Post NAC axillary SNB is also practiced if indicated.

Caution: As the dye leaves body, patient may notice a bluish-green discoloration of urine and other body fluids for one or two days after the procedure. The skin around the biopsy site may also be stained a blue-green colour. Occasionally it can take longer for this discoloration to disappear. Urine discoloration may occur during post-operative period.

2. Level 2 axillary clearance

- Indication- Node positive axilla (on core biopsy/FNAC USG guided)
- 90%+ cases, at least 10 nodes should be present in clearance.

Clinically and sonologically negative axilla for invasive breast cancer patients should have only SNB, not axillary clearance which in modern era, may have medico-legal consequence for unnecessary over treatment and also complications like lymphedema.

CHEMOTHERAPY

In 2005 Oxford overview analysis has shown that combination chemotherapy reduces the proportional annual risk of recurrence by almost 25% and risk of death by around 17%.

They can be given in different ways and in different combinations depending on:

- The size of the breast cancer
- Whether the lymph nodes are affected
- The grade of the cancer
- The oestrogen receptor (ER) and HER2 status

Fib.Inserting a metal marker (hydro-mark) for pre-neo adjuvant chemotherapy. Sometimes a small metal clip (or marker) is placed in the center of the breast lesion so that the area can be found again if another biopsy or surgery in the form of wire guided wide local excision is needed.

Neo-adjuvant chemotherapy

Indication

- Grade 3
- Triple negative cancer (any size)
- Large size cancer (any grade to decrease the size)
- Inflammatory cancer
- BRCA mutation
- Intent to do to breast conserving surgery
- HER2 positive
- Node positive

Post Neoadjuvant chemotherapy (NAC): SNB/OSNA.
Post NAC Surgery depending on MRI to see chemo response.

Good response with size	→	BCS (with or without wire)
Not good response (size >4cm)	→	Mastectomy with radiotherapy Axillary clearance if post NAC SNB/OSNA positive

Adjuvant chemotherapy:

Indication

- Node positive axilla
- Grade 3 /2 cancer
- T3/T4 cancer
- ER negative ,
- HER2+ve
- Triple negative
- Premenopausal
- Oncotype dx score>25

WHEN CAN WE AVOID CHEMOTHERAPY?

- Invasive ductal carcinoma grade 2 or Grade 1
- ER, PR positive
- T <1 cm
- SNB negative
- Low recurrence score of Oncotype DX

RADIOTHERAPY

After breast-conserving surgery, radiotherapy is given to:

The remaining breast tissue on the affected side (whole breast radiation)
The area where the breast cancer was (partial breast radiation)
Supraclavicular fossa
Internal mammary lymph nodes

- Sometimes an *extra boost of radiotherapy* to the area where the invasive breast cancer was removed is recommended, even after whole-breast radiation
- Radiotherapy to the chest wall may be recommended after a mastectomy if node positive or T3/T4 cancer or close to chest wall.
- Radiotherapy is sometimes given to the lymph nodes in axilla instead of surgery, or after a sentinel lymph node biopsy.
- Research has shown that radiotherapy is just as effective in treating the lymph nodes in axilla as removing them surgically (AMAROS).

Adjuvant Radiotherapy Indication

- Post Wide local excision in most cases.
- Chest wall (if large/close to chest wall).
- Supra Clavicular Fossa, Internal mammary lymph node, if > 4+ve nodes in clearance.

Dose: 40Gy fractionated over 3-4 weeks +/- Boost radiotherapy

PRIME 2 Trial

Omission of WBRT (Whole Breast Radiotherapy) in women who are 65 years or above with pN0, ER positive breast cancer after BCS with endocrine therapy results in 4.1% IBTR in 5 years.
Excluding RT does not compromise overall survival.

When to avoid radiotherapy?

- Low grade cancers
- Small intermediate grade DCIS
- Age >65 with G1/G2 Invasive cancer which is less than 3 cm and Node and HER2 negative

→ Only Endocrine therapy is recommended for such case

HORMONE (ENDOCRINE) THERAPY

Immunocytochemistry is mandatory to have it available during core biopsy to decide appropriate treatment plans.

Types of hormone therapy (Steroidal and non-steroidal).

- Tamoxifen
- Anastrozole
- Letrozole
- Exemestane
- Goserelin

Neo-adjuvant hormone therapy

- Indications-
  ►When patient taking time for decision
  ►Delay for investigation prior definitive treatment.
  ►Patient delay for health issues (heart disease, thyroid problem)

Adjuvant hormone therapy

- Indication-
  ►Tumour size less than 2 cm with ER & PR positive and SNB negative breast cancer
- Dose
  ►Premenopausal: Tamoxifen 20 mg daily, 10 years
  ►Post-menopausal: Aromatse inhibitors 5-10years
- aTTom and ATLAS trial confirms 10 years of Tamoxifen with better outcome.

Primary hormone therapy

- Indication-
  ►Patient not suitable for surgery (Age, comorbidity)

TARGETED (BIOLOGICAL) THERAPIES

- Indication- **HER2 positive breast cancer.**
- Dose: 12 cycle Herceptin is given with 21 days interval.
- Drugs used: Pertuzumab and Trastuzumab combination: 30% more benefit

- **If HER2 equivocal → FISH/CISH test is recommended**

- HER2 negative will not be benefited from targeted therapy

TRIPLE NEGATIVE BREAST CANCER (ER PR HER2 negative)

- Hormone therapy and targeted therapy drugs will not be of any benefit.
- More aggressive and have a poorer prognosis
- It tends to be higher grade than other types of breast cancer.
- About 70% of breast cancers diagnosed in people with an inherited BRCA mutation, particularly BRCA1, are triple-negative.

Management

- NICE recommends *Platinum based chemotherapy*
- *PARP inhibitors*, such as olaparib and talazoparib, have been approved to treat advanced-stage HER2-negative breast cancer in people with a BRCA1 or BRCA2 mutation.
- *The immunotherapy medicine* such as atezolizumab in combination with the chemotherapy albumin-bound paclitaxel or nab-paclitaxel is approved as a first treatment for unresectable locally advanced or metastatic triple-negative, PD-L1-positive breast cancer.
- Neoadjuvant chemotherapy for triple negative cancer has more chance of pathologic complete response, disease-free survival and overall survival are better.

FOLLOW-UP FOR BREAST CANCER

- Annual mammographic surveillance for 5 years or until age 50. Following that 2-3 yearly mammogram until age 74.
- There is no need to do annual staging like PET scans, MRI. Bone scan, various blood tests unless specific indication.

ANWER KHAN MODERN
BREAST CARE UNIT
& RESEARCH CENTRE

MALIGNANT BREAST DISEASES

DUCTAL CARCINOMA IN SITU (DCIS)

Introduction-

- Earliest forms of Breast cancer.
- Heterogeneous entity.
- May progress to Invasive cancer in 5-15 years if untreated.
- Some may be inadvertently over treated.
- 7000 new diagnosis of DCIS per year in UK.
- DCIS represented only 2–5% of symptomatic breast cancers before advent of Screening.
- 20% of newly diagnosed symptomatic cases in the present era and up to half of screen-detected breast cancer.
- The risk of death after any treatment for DCIS is less than 2% after 10 years.

Clinical Feature:

- Most DCIS are non-palpable.
- Incidental finding during screening
- Unilateral nipple discharge.

Diagnosis

- Breast examination (usually non-palpable, even 5 cm), (if palpable please note down, may few invasive foci present)
- Mammogram (to check micro- calcifications)
- USG of breasts (lump size maybe 0.5 cm-5cm, axillary LN usually normal)
- Core biopsy(USG guided or stereotactic)
    - If large area (>4cm) of micro calcification suspected of DCIS in mammogram: two ends should be biopsied
    - If multifocal micro calcification: at least 2 areas needs confirmation with cores biopsy.
- No need of axillary staging for DCIS with BCS.

Histopathology results described as:

1. low grade – the cancer cells look most like normal cells and are usually slow-growing
2. intermediate grade – the cancer cells look less like normal cells and are growing faster
3. high grade – the cancer cells look most changed and are usually fast-growing

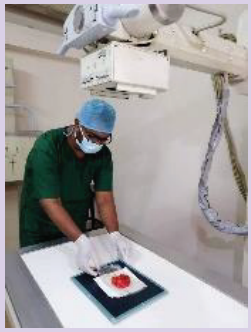
Can DCIS develop into invasive breast cancer?

- If DCIS is left untreated, may progress to invasive duct cell carcinoma which may take 5-15 years.
- In some cases, DCIS will never develop further or grows so slowly that it would never cause harm during that person's lifetime.
- High-grade DCIS is more likely to become an invasive breast cancer than low-grade DCIS and do so more quickly

How is DCIS treated?

The main goal of treatment of DCIS:

- Complete excision of the tumour with 1 mm clear margin and minimise local recurrence
- Minimise treatment-related morbidity
- Optimise cosmesis



Surgery for breast

Surgery is nearly always the first treatment for DCIS. This may be

1. Wire guided Wide local excision for non-palpable DCIS with a clear margin of normal breast tissue around it (1mm)

   Specimen X-ray is required during surgery for radiological clearance. Further margin resection needed if radiologically indicated.

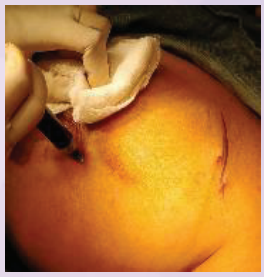
2. Nipple-sparing mastectomy with implant/ADM reconstruction/Simple mastectomy

   Patients with extensive (>40 mm) or multi-centric disease

Surgery for axillary-

Usually no need of axillary surgery (because the cancer cells haven't developed the ability to spread and therefore cannot have spread to the lymph nodes)

Sentinel lymph node biopsy in DCIS



- DCIS with a palpable mass pre biopsy, then SNB should perform as there is high risk of associated invasive cancer.
- Wide spread DCIS and plan for mastectomy (as there is 7-20% risk of associated invasive cancer with large area of DCIS)

Adjuvant (additional) treatments

- Radiotherapy to remaining breast if high grade/large area of intermediate grade DCIS with BCS
- Tamoxifen yielded 29% reduction in risk of recurrence and had a long term preventative effect on contra lateral breast.
- No additional benefit from concomitant tamoxifen for patient receiving RT.
- Those at lower risk can avoid adjuvant therapies such as radiotherapy and tamoxifen, which can impair quality of life and increase health-care costs.

Wire Localisation

As most cases of DCIS can't be felt non palpable (with wide spread area of micro calcification), by using a mammogram or an ultrasound as a guide, a fine wire is inserted into the area of concern under local anaesthesia with the help of sonologist. Once the wire is inserted in the correct place, it's secured with a padded dressing and left there until surgery when it is removed.

Per operative X-ray of excised specimen to see radiological clear margin

Wire for localisation

Pre-operative wire in situ

Factors with poor prognosis with DCIS

- Positive, close or unknown surgical margins.
- High grade tumour.
- Comedo necrosis histological subtype.
- Age<40 years at diagnosis.
- Symptomatic presentation.
- High Van Nuys prognostic index.

Recurrence

- DCIS surgery >4 cm on BCS higher recurrence rate(50% with invasive cancer)
- Patients with DCIS are less likely to have recurrent disease if they are postmenopausal or if their tumour is ER positive, according to research presented at the 11th European Breast Cancer Conference (EBCC-11).

Mastectomy in DCIS

- Mastectomy results in very low rates of recurrence, but it confers NO survival benefit.
- Represents as overtreatment for most patients with DCIS

Van Nuys prognostic index

	1 POINT	2 POINTS	3 POINTS
DCIS Size	≤ 15 mm	16 to 40 mm	> 40 mm
DCIS Grade	Grade 1 to 2	Grade 1 to 2 + necrosis	Grade 3
Excision Margin	≥ 10 mm	1 to 9 mm	< 1 mm
Patient Age	> 60 years	40 to 60 years	< 40 years

VNPI score of 4-6 → should be observed only after tumour excision.

VNPI score of 7-9 → Radiotherapy.

VNPI score of 10-12 → Considered for a mastectomy.

PAGET'S DISEASE OF THE BREAST

Introduction

An uncommon type of breast cancer that usually first shows as changes to the nipple.
With Paget's disease it's likely to be high-grade DCIS. If treated DCIS has a good prognosis

Clinical Features

- A red, scaly rash on the nipple and around skin
- The rash can feel itchy or burning.
- The nipple may be inverted.
- There may also be some discharge coming from the nipple.

Punch biopsy

Diagnosis

- Mammogram
- USG of breasts
- Biopsy (Punch/Core(if lump) biopsy of nipple- can be done in chamber)

Treatment for Paget's disease

Surgery- Surgery is usually the first treatment for Paget's disease. The type of surgery will depend on the area of the breast affected.

In breast → excision.	Excision of nipple areola and wide local excision/wide central
implant/Acellular	Simple Mastectomy or skin sparing mastectomy with dermal matrix reconstruction(or any other suitable option)
In axilla →	SNB if invasive cancer or skin sparing mastectomy planed Axillary clearance if preoperative USG FNAC proven metastatic deposit

Is Paget's disease always needs mastectomy and axillary clearance?

NO. Simple wide central excision with SNB (7-20 % associated foci of Invasive cancer)

Indication of mastectomy in Paget's disease

- When cancer affects a large area of the breast
- when a clear margin not possible in breast-conserving surgery
- More than one area of cancer in small breast.

Adjuvant (additional) treatments

- Chemotherapy (if invasive, >1 cm , ER/PR negative,G3, triple negative cancers)
- Radiotherapy (if high grade)
- hormone (endocrine) therapy (if ER PR positive)
- targeted (biological) therapy (if HER2 positive 3+)
- bisphosphonates

INVASIVE DUCTAL CARCINOMA

Presentation:

- Change in breast size or shape
- Skin dimpling or skin changes
- Nipple inversion or nipple abnormalities (ulceration, retraction)
- Nipple discharge (spontaneous bloody discharge)
- Axillary lump.

Diagnosis:

A non-operative breast cancer diagnosis should be achieved by triple assessment, Invasive breast cancers should have a non-operative pathological diagnosis. Mainly core biopsy (US or stereotactic guided).

- Mammogram → ►asymmetry, micro calcifications, a mass
  or ►architectural distortion
- USG of both breasts → ►size, site, character of lesion
  ►cortical thickening of axillary LNs
- Core biopsy (Mammography + Ultrasonography should be performed before a biopsy)
  → ►Type, Grade,
  ►ER, PR, HER2
  (Important for treatment plan, Surgery vs NAC)

Staging investigations may include:

- **Whole body Bone Scan** → If LN Positive
- **CT Scan (chest abdomen & pelvis)** → If Axillary LN Positive
- **MRI Scan** → young patients with carcinoma breast patient with positive genetic testing
- **PET scan for selective cases**

Management of IDC

Surgery to Breast→

1. **Breast conserving surgery** minimum *clear margin should be 1 mm*
   Breast Conserving Surgery with adjuvant Radiotherapy have similar survival benefit as Mastectomy (Breast Conserving Surgery + Radiotherapy= Mastectomy).
   RCT showed no survival benefit doing mastectomy (N Engl J Med 2002; 347(16):1233–41).

For Palpable lesions →wide Local Excision
For Impalpable lesion →wire guided wide local excision

- US skin mark (wire is now available in our country) for localizing non-palpable lesion
- *Digital X-ray of excised specimen* to check radiological margin.
- After operation 4 titanium clip at floor and margin placed for guidance to the radiation oncologist for *boost radiotherapy* in tumor bed. It is not practiced widely

in our country although it is available in most theatre where clip used in laparoscopic procedure.

- After excision, *specimen orientation* (eg: superior short, lateral long, double deep sutures gives a three dimensional orientation) is a must which helps pathologist to provide information about margin whether clear or not.
- Margin around the cancer is involved or free of tumor is tested by *frozen section*. If there are cancer present at the edges of the margin, further margin surgery recommended to remove more tissue.

Contraindication of breast conserving surgery

- Core proven multifocal cancer.
- Recurrent cancer where BCS with adjuvant radiotherapy was previous given
- Inflammatory breast cancer
- Mantle radiotherapy for lymphoma in the past with breast cancer.
- Collagen vascular disease

2. **Simple Mastectomy or Skin sparing mastectomy with immediate/delayed implant/ADM reconstruction**

- A surgeon recommending a mastectomy should explain why.
- It may be a personal preference to have a mastectomy, even if breast-conserving surgery is an option.
- It is important to let patients know that there is no survival benefit to mastectomy over BCS and also survival is dictated by index (First) cancer, not by recurrent cancer.

Absolute Indication

- ✓ Prior radiation therapy to the breast or chest wall.
- ✓ Radiation therapy contraindicated by pregnancy (except patients in the third trimester who can receive radiation postpartum).
- ✓ Inflammatory breast cancer.
- ✓ Diffuse suspicious or malignant-appearing microcalcifications.
- ✓ Widespread disease that is multicentric, located in more than one quadrant, and cannot be removed through a single incision with negative margins.
- ✓ A positive pathologic margin after repeat re-excision and suboptimal cosmetic outcome.

Relative indications for mastectomy

- ✓ Active connective tissue disease involving skin (eg, scleroderma, lupus)
- ✓ Tumors greater than 5 cm in diameter but not suitable for neoadjuvant chemotherapy.
- ✓ Focally positive margin/margins with a large cancer (needs completion mastectomy)

Surgery to Axilla →

1. Sentinel lymph node biopsy

Sentinel node negative → no surgery needed to axilla

Sentinel node positive →►Further Surgery to remove some or all of the remaining nodes
►Radiotherapy to the Axilla
►No Further Treatment to the Axilla in some cases

If OSNA /Histology positive→ No axillary clearance, only Radiotherapy to axilla

→ Axillary clearance only for
►Neoadjuvant chemotherapy patients,
►T3/T4 cancers
►>3 SNB positive nodes.

Note: If patient is having chemotherapy before surgery, patient may have a sentinel lymph node biopsy before starting chemotherapy. This can help with planning any further treatment to the axilla after chemotherapy. Post NAC axillary SNB is also practiced if indicated

Caution: As the dye leaves body, patient may notice a bluish-green discoloration of urine and other body fluids for one or two days after the procedure. The skin around the biopsy site may also be stained a blue-green colour. Occasionally it can take longer for this discoloration to disappear. Urine discoloration may occur during post-operative period.

2. Level 2 axillary clearance

- Indication- Node positive axilla (on core biopsy/FNAC USG guided)
- 90%+ cases, at least 10 nodes should be present in clearance.

CHEMOTHERAPY

Neo-adjuvant chemotherapy

Indication

- Grade 3
- Triple negative cancer (any size)
- Large size cancer (any grade to decrease the size)
- Inflammatory cancer
- BRCA mutation
- Intent to do to breast conserving surgery
- HER2 positive
- Node positive

Post Neoadjuvant chemotherapy (NAC): SNB/OSNA.

Post NAC Surgery depending on MRI to see chemo response. I

Good response with size → BCS (with or without wire)

Not good response (size >4cm) → Mastectomy with radiotherapy
Axillary clearance if post NAC SNB/OSNA positive

Adjuvant chemotherapy:

Indication

- Node positive axilla
- Grade 3 /2 cancer
- T3/T4 cancer

- ER negative ,
- HER2+ve
- Triple negative
- Premenopausal
- Oncotype dx score>25

When can we avoid chemotherapy?

- Invasive ductal carcinoma grade 2 or Grade 1
- ER, PR positive
- T <1 cm
- SNB negative
- Low recurrence score of Oncotype DX

RADIOTHERAPY

Indication

Post wide local excision in most cases.
Chest wall (if large/close to chest wall).
To axilla (If SNB positive)
Supra Clavicular Fossa, Internal mammary lymph node, if > 4+ve nodes in clearance.

Dose: 40Gy fractionated over 3-4 weeks +/- Boost radiotherapy

PRIME 2 Trial

Omission of WBRT (Whole Breast Radiotherapy) in women who are 65 years or less with pN0, ER positive breast cancer after BCS with endocrine therapy results in 4.1% IBTR in 5 years.
Excluding RT does not compromise overall survival.

When to avoid radiotherapy?

Low grade cancers
Small intermediate grade DCIS
Age >65 with G1/G2 Invasive cancer which is less than 3 cm and Node and HER2 negative

→ Only Endocrine therapy is recommended for such case

HORMONE (ENDOCRINE) THERAPY

Immunocytochemistry is mandatory to have it available during core biopsy to decide appropriate treatment plans.

Neo-adjuvant hormone therapy

- Indications-
  ►When patient taking time for decision
  ►Delay for investigation
  ►Patient delay for health issues (heart disease, thyroid problem)

Adjuvant hormone therapy

- Indication-
  ►Tumour size less than 2 cm with ER & PR positive and SNB negative breast cancer

- Dose
  ►Premenopausal: Tamoxifen 20 mg daily, 10 years
  ►Post-menopausal: Aromatse inhibitors 5-10years
- aTTom and ATLAS trial confirms 10 years of Tamoxifen with better outcome.

Primary hormone therapy

- Indication-
  ►Patient not suitable for surgery (Age, comorbidity)

TARGETED (BIOLOGICAL) THERAPIES

- Indication — **HER2 positive breast cancer.**
- Dose: — 12 cycle Herceptin is given with 21 days interval.
- Drugs used: benefit — Pertuzumab and Trastuzumab combination: 30% more

- **If HER2 equivocal → FISH/CISH test is recommended**
- HER2 negative will not be benefited from targeted therapy

TRIPLE NEGATIVE BREAST CANCER (ER PR HER2 negative)

- NICE recommends Platinum *based chemotherapy*
- *PARP inhibitors*, such as olaparib and talazoparib.
- *The immunotherapy medicine* such as atezolizumab in combination with the chemotherapy albumin-bound paclitaxel or nab-paclitaxel is approved as a first treatment for unresectable locally advanced or metastatic triple-negative, PD-L1-positive breast cancer.

Neoadjuvant chemotherapy for triple negative cancer has more chance of pathologic complete response, disease-free survival and overall survival are better.

FOLLOW-UP FOR BREAST CANCER

- Annual mammographic surveillance for 5 years or until age 50. Following that 2-3 yearly mammogram until age 74.
- There is no need to do annual staging like PET scans, MRI. Bone scan, various blood tests unless specific indication.

INVASIVE LOBULAR BREAST CANCER

Introduction

Invasive lobular breast cancer accounts for up to 15% of all breast cancers. It can occur at any age but is most common in pre-menopausal women.

Clinical features

- Thick or harder area than the rest of the breast, rather than a definite lump.
- Puckering or dimpling (like the skin of an orange)
- Nipple becoming pulled in.

Diagnosis

- A mammogram (often difficult to identify and its extent)
- An ultrasound scan
- A core biopsy
- type, grade, ER, PR, HER2 - important for treatment plan, Surgery vs NAC
- Magnetic resonance imaging (MRI) scan to see multifocality and contrlaterality.

NOTE: Sometimes more than one area of invasive lobular cancer is found in the same breast.

Management

Surgery to breast→

1. Breast-conserving surgery wide local excision with a clear margin of 1mm all around.
2. Mastectomy (if more than one area in the breast, depending on the position of the areas affected and the size of breast)

Surgery to axilla →

Sentinel Lymph Node Biopsy

Sentinel node negative → no surgery needed to axilla

Sentinel node positive →►Further Surgery to remove some or all of the remaining nodes

►Radiotherapy to the Axilla

►No Further Treatment to the Axilla in some cases

Adjuvant (additional) treatments

1. Radiotherapy →

►Post wide local excision in most cases.

►Chest wall (if large/close to chest wall).

►To axilla (If SNB positive)

►Supraclavicular Fossa, Internal mammary lymph node, if > 4+ve nodes in clearance.

2. Hormone (endocrine) therapy → ER+ / PR+ breast cancer

3. Chemotherapy – Neo adjuvant chemotherapy has little role in invasive lobular cell carcinoma.

4. Targeted therapy - For HER2 positive patient→ trastuzumab.
Most invasive lobular breast cancers are HER2 negative.

Follow-up after treatment

Regular follow up with annual mammography for 5 years or until age 50 years of age

INFLAMMATORY BREAST CANCER

Inflammatory breast cancer is a rare, fast-growing type of breast cancer. It is called inflammatory because the skin of the breast looks red and inflamed. This is caused by the breast cancer cells blocking the tiny lymph channels in the breast and the skin.

Clinical features

- Redness, warmth or swelling of the breast
- The skin of the breast changing colour or looking bruised
- Dimpling or ridges appearing on the skin, or the breast looking pitted
- Like the skin of an orange (known as Peau d'orange)
- An increase in breast size
- Pain or tenderness in the breast
- Persistent itching of the breast
- An inverted (pulled-in) nipple
- Swelling or lumps in the armpit

Diagnosis

- Mammogram
- Ultrasound scan
- Core biopsy (if any lump USG guided)
- Punch biopsy (3 or more sites from skin)
- MRI (magnetic resonance imaging) scan
- CT chest, abdomen, pelvis scan
- Bone scan

NOTE: Inflammatory breast cancer is sometimes difficult to diagnose. This is because the symptoms can be similar to some benign conditions such as mastitis (breast infection) and a breast abscess, which are usually treated with antibiotics.

Management of inflammatory breast cancer

Because inflammatory breast cancer can develop quite quickly, treatment is usually started as soon as possible.

1. Neo adjuvant Chemotherapy

- First line treatment recommended
- To treat and reduce the size of the cancer in the breast
- To destroy any cancer cells that may have spread elsewhere in the body

2. **Surgery**→ Mastectomy with axillary clearance
3. **Radiotherapy after chemotherapy and surgery**
4. **Targeted (biological) therapy** for HER2 positive patient→ Trastuzumab
5. **Hormone (endocrine) therapy for** ER+ / PR+ breast cancer
6. **Bisphosphonates**

BREAST CANCER DURING PREGNANCY

Introduction

- Breast cancer during pregnancy is rare.
- Challenging condition requires MDT management.
- Breast cancer is reported in 1 in every 3,000 pregnancies.
- Most women are between 32 and 38 years old at diagnosis.
- Most are able to carry on with their pregnancy.

Diagnosis

- Ultrasound.
- Mammography: With fetal shielding
- Core biopsy (if any lump USG guided) for Histology: Grade, ER, PR, and HER2 status.
- If US axilla shows abnormal nodes: US core to look for metastasis.
- MRI with gadolinium need recommended but can be done if needed.
- Bone involvement: a plain film of the relevant area and/or magnetic resonance imaging to minimize radiation exposure to the fetus.
- US Liver, CXR can be done for staging if needed.

Investigations not recommended

- CA15-3, CEA and CA125:
- Whole body bone scanning,
- Pelvic X-ray,
- Computed tomography:

Reason: possible effect of irradiation on the fetus.

Prognosis

Pregnancy itself does not appear to worsen the prognosis for women diagnosed in pregnancy compared with non-pregnant controls matched for age and stage
Improving, with 5-year survival around 80% for the under 50s age group.
Low prognosis for younger women –

a) Higher risk of metastases.
b) High-grade tumours.
c) ER negative tumours.

Treatment

Aim of treatment
To balance treatment for cancer and keeping both mother and baby safe and well.

MDT
Treatment of pregnancy-associated cancer should be in a multidisciplinary team with the woman and her partner according to standard UK guidelines with inclusion of the obstetric team as core members, breast surgeons, fertility specialists and midwives as well as oncologists and breast care nurses.

1. Surgery
Loco-regional clearance can be undertaken in all trimesters at any time during pregnancy
Surgery to breast→

1. Breast-conserving surgery wide local excision with a clear margin of 1mm all around.
2. Mastectomy for selected patients

Surgery to Axilla→
SNB can be done with isotope

2. Chemotherapy→

- Avoid during first trimester as it may affect the development of an unborn baby or cause miscarriage
- Usually chemotherapy during the second and third trimesters is safe. Most women treated during this time go on to have healthy babies, although there's some evidence to suggest a small increase in the risk of low Birth weight and early delivery.
- Patient may delay chemotherapy ¾ week due date to avoid complications like infection during or after the birth.
- Chemotherapy can be continued after baby is born

3. Radiotherapy → not usually recommended at any stage of pregnancy, as even a very low dose may carry a risk to the baby.

4. Hormone (endocrine) therapy → not given during pregnancy even if ER positive

5. Targeted cancer therapies →Targeted therapies are not usually given during pregnancy.

Continuing pregnancy

Terminating the pregnancy isn't usually recommended when breast cancer is diagnosed.
The decision to terminate a pregnancy is a very personal one.
There's no evidence to suggest a termination will improve the outcome for women diagnosed with breast cancer during pregnancy.

Giving birth

Many women diagnosed during pregnancy go on to complete the full term of their pregnancy and don't experience any problems during childbirth because of their treatment for breast cancer.

Breastfeeding

- Breastfeeding may be possible for some women after surgery if they don't need chemotherapy, radiotherapy, hormone therapy or targeted therapy.
- Should be avoided while having chemotherapy as some drugs are passed through the blood stream into the breast milk.
- Not recommended while having trastuzumab or for at least seven months after the last dose

Counseling

Need well-informed discussions on:

a) Fertility
b) Pregnancy
c) Lactation
d) After breast cancer and the availability of fertility preservation procedures.

TUBULAR BREAST CANCER

Tubular breast cancer is a type of invasive breast cancer.
Excellent prognosis.

Diagnosis

- Mammogram
- An ultrasound scan
- A core biopsy

Treatment

Surgery to breast →

1. Breast-conserving surgery→ wide local excision with a clear margin of 1mm all around.
2. Mastectomy (if more than one area in the breast, depending on the position of the areas affected and the size of your breast)

Surgery to axilla- Tubular breast cancer is less likely to spread to the lymph nodes in axilla

Sentinel lymph node biopsy → clinically and sonologically negative axilla
Axillary clearance → FNAC/core biopsy from axilla LN shows cancer cells

Adjuvant (additional) treatments

- Radiotherapy
- Hormone therapy
- Chemotherapy
- Targeted (biological) therapy
- Bisphosphonates

BREAST RECONSTRUCTION

Introduction

Breast reconstruction is the creation of a new breast shape, or mound, using surgery. Usually done by a general breast surgeon or an oncoplastic breast surgeon (a breast surgeon trained in plastic surgery techniques and breast reconstruction) after removal of cancer.

Breast reconstruction types

Immediate → done at the same time as the mastectomy
Delayed → preferably after 12 months after completion of radiotherapy

Reconstruction Techniques

1. ***Reconstruction using only a breast implant***
   - Silicon implant.
     - Silicone breast implants are expected to last at least 10 to 15 years, and are unlikely to need replacing.

   - A mesh or an acellular dermal matrix (ADM)
     - They are attached to the chest muscle to create a pocket that holds the implant in place, like an internal bra. Mostly suitable for women with small or medium sized breasts
   - Dermal sling
     - For women with larger breasts, their own tissue (from the lower half of the breast) can be used to support the implant.
   - Tissue Expander
     - A permanent or temporary tissue expander is first placed behind the chest muscle, usually through the mastectomy scar. Several weeks later, when the scars have healed, it is gradually inflated with saline through a small port.

2. ***Reconstruction by tissue flap***

Pedicle flap → remains attached at one end to its blood vessels
Free flap → the flap is completely detached from the body along with its blood vessels

Flaps taken from-
- LD (latissimus dorsi) flap
- DIEP (deep inferior epigastric perforator) flap

- TRAM (transverse rectus abdominis muscle) flap
- SIEA (super inferior epigastric artery flap)
- SGAP (super gluteal artery perforator) flap and IGAP (inferior
- gluteal artery perforator) flap
- TMG (transverse myocutaneus gracilis) flap or TUG (transverse upper gracilis)

3. Reconstruction using a combination of tissue and an implant

Therapeutic mammoplasty

Surgery to other (healthy) breast to reduce its volume and restore symmetry in order to match with the affected breast.

- Breast reduction

  Removal of breast tissue and skin from the natural breast in order to make it smaller and more in balance with the reconstructed breast.

Breast enlargement (augmentatıon)

Sometimes the reconstructed breast is larger than the natural breast, an implant is placed either under the breast tissue or behind the chest wall muscle of the natural breast to make both breasts more balanced.

Breast uplift (mastopexy)

Breast uplift is an operation to raise, reshape and firm the breast, which reduces any natural drooping and improves the position of the nipple and areola.

A nipple skin-sparing mastectomy with implant/ADM reconstruction

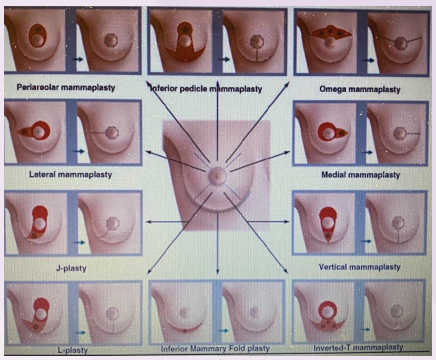
Removal of the breast without removing much of the overlying skin of the breast and nipple.

Indication

- Widespread DCIS
- BRCA mutation
- Patient choice after mastectomy for early breast carcinoma

Radiotherapy after reconstruction

Radiotherapy can increase the risk of hard scar tissue forming around an implant. This is known as capsular contracture. Capsular contracture can also affect a reconstruction that uses own tissue, making the breast feel firmer, reducing its size and possibly altering its shape. Because of this, if radiotherapy is a likely treatment delay reconstruction for up to 12 months.



HIGH RISK BREAST CANCER

Introduction

Around 5% of women with breast cancer are gene carriers.

The most common inherited altered genes that increase the risk of breast cancer developing BRCA1 (BReast Cancer 1) → Breast cancer 60–90% lifetime risk (up to 80 years)
BRCA2 (BReast Cancer 2) → 45–85% lifetime risk (up to 80 years)
TP53 (tumour protein p53) → lifetime risk up to 70% for men and >90% for women

Children have a 50% chance of being a gene carrier

Genetic Testing-

The test involves taking a blood sample and sending it to a laboratory where the DNA is tested for the known altered genes. The results from this test are usually available within 2-3 months.

Treatment to reduce the risk of breast cancer: Chemoprevention.

Drug → Tamoxifen, anastrozole
Dose → 5 years can help reduce the risk in women at moderate or high risk.

Risk-reducing surgery

- A bilateral mastectomy can significantly reduce the risk of developing breast cancer by 90–95%
- Bilateral salpingo-oophorectomy for pre-menopausal women who are BRCA gene carriers, has been shown to reduce the risk of ovarian cancer by up to 90–95%.

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BENIGN BREAST DISEASES

MASTALGIA

Introduction

- Breast pain/mastalgia is a common symptom in the breast without underlying pathology.
- 70% women suffer from breast pain in their life time or attend in a breast clinic.
- >50% needs treatment.
- 20% suffers with severe pain.
- 5 to 20% cancer patients present with breast pain.

It can be

1. Cyclical breast pain,
2. Non-cyclical breast pain or
3. Chest wall pain.

The two most common concerns are:

- The fear of breast cancer and
- Affects a woman's quality of life.

Diagnosis

History

►Proper history pain (type, how often it occurs, duration, severity)
►Association to menstrual cycle
► Nipple discharge

Clinical examination

- Breast including nipple areola, ducts
- Axilla
- Musculoskeletal

Imaging (to exclude malignancy or other cause of breast pain like duct Ectasia, mastitis, etc.).

The American College of Radiology recommend

- Cyclical or bilateral non focal breast pain → No imaging
- Non-cyclical, unilateral, or focal breast
  Women <30 year → ultrasound
  Women 30 - 39 year → ultrasound + mammography.
  Women > 40 year → mammography + ultrasound.

Management

First-line Therapy →

- ►Education and reassurance
- ►Well-fitting bra
- ►Relaxation and complementary therapies
- ►HRT
- ►Topical NSAIDs

Second-line Therapy →

Indications-

- At One month visit, Check Pain Chart → If pain score >3
- Duration → > 1 week
- Pain interfering with activities of daily life

Drugs

- Tamoxifen 10 mg OD
- Danazol 100-300 mg OD
- Bromocriptine 1.25-5 mg OD

Duration → Drug therapy given for 3 months to 6 month

FIBROADENOMA

Symptoms-

- A painless lump in the breast which is smooth and moves easily under the skin,

Types

1. Simple fibroadenoma → 1–3 cm in size,
2. Complex fibroadenoma
3. Giant or juvenile → more than 5cm.

Diagnosis

1. Mammogram (if age >35 years)
2. Ultrasound scan
3. Core-Biopsy (if > 24 years/if needed)

Treatment and follow-up

Most fibroadenomas stay the same size. Some get smaller and some eventually disappear over time.

- If age <35 years, size > 3 cm → surgical excision
- If age <35 years, size < 3 cm → Follow-up with USG in 6 months interval
- If age >35 years, any size → Excision

For most women, having a fibroadenoma does not increase the risk of developing breast cancer should confirm by core-biopsy by expert pathologist

DUCT ECTASIA

Symptoms

- Discharge from the nipple
- Breast pain, although this is not common
- A lump felt behind the nipple
- An inverted nipple - this could be because the ducts have shortened

Diagnosis

- Cytology of Nipple discharge (for exclusion of malignancy)
  - if unilateral single duct discharge spontaneous bloody/serous discharge
- A mammogram (if age >35 years)
- An ultrasound scan
- A core biopsy (if needed)

Treatment

Conservative management- Most cases only follow-up as it's a normal part of ageing

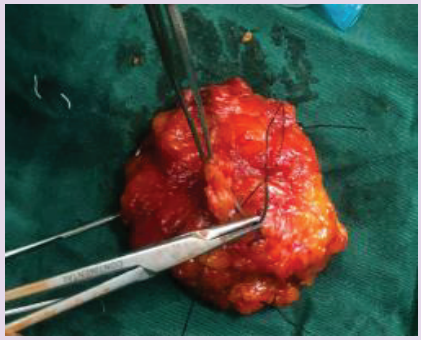
- Analgesia.
- Antibiotics rarely required

Surgery → ►if spontaneous discharge from the nipple is continued
►Atypical cell on cytology or
►Single duct serous/bloody nipple discharge persists

Surgery should be done

- Microdochectomy →
  - only affected duct or ducts removed
  - patient below 50 years
- Major duct excision/Hadfield procedure/Macrodochectomy →
  - removal of all the major ducts
  - Patients above 50 years.

Specimen should be oriented as rarely cancer can be identified and requires further margin and other surgery.



SS- short for superior
LL- long for lateral
DD – double for deep

INTRADUCTAL PAPILLOMA

Symptoms

- Patient may feel a small lump
- Single duct, spontaneous discharge of clear or blood-stained fluid from the nipple.
- Usually not painful, but some women do have discomfort or pain around the area

Diagnosis

- Mammogram
- USG of both breasts
- Core Biopsy-if any suspicious lump
- Cytology of nipple discharge-
- *Note: no need of ductography*

Treatment

- Surgery to remove an intraductal papilloma/Vacuum assisted excision
  - <30 years Microdochectomy
  - >30 years macrodochectomy
  - Excision biopsy

Note: Intraductal papilloma may pose small risk of developing breast cancer.

PERIDUCTAL MASTITIS

Symptoms:

- a tender, hot or reddened area of breast
- discharge from the nipple that is either bloody or non-bloody
- a lump that can be felt behind the nipple
- the nipple becomes pulled in
- occasionally, a collection of pus or fistula
- Commonly associated with smoking

Diagnosis:

- USG of breasts → to exclude malignancy, duct papilloma
- Cytology of nipple discharge
- Mammogram → to exclude malignancy (if < 35 years)

Treatment

Conservative Treatment→

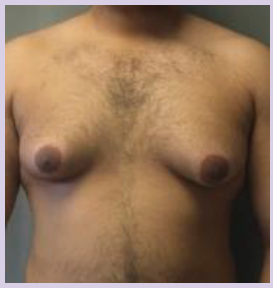
- Antibiotics.
- Analgesics

Surgery → If periductal mastitis doesn't get better after taking antibiotics, or if it comes back

- Microdochectomy
- Major duct excision/Hadfield procedure/Macrodochectomy

GYNAECOMASTIA

Introduction



It's a common, benign (not cancer) condition that mainly affects teenage boys and older men, but it can affect men at any age. Even though gynaecomastia is common, it's not talked about much because some people, particularly boys, find it embarrassing.

Symptoms-

- Firm enlargement of breast tissue, more female-looking breast.
- The area can be tender to touch or painful.

Diagnosis

- Mammogram → to exclude malignancy
- USG of both breasts → to asses disc of breast
- Hormone assessment → Testosterone, Estrogen, LH, FSH, LDH, Prolactin, AFP, LFTs

Treatment and follow-up

Drug treatment

- Tamoxifen: long term trail over 15 years with over 150 patients have shown to be 90% response, assessment is down by follow up USG of breasts.

Surgery

- If gynaecomastia hasn't improved with lifestyle changes or drug treatments
- If patient had it for a long time and its affecting quality of life.
- Liposuction
- Excision of gynaecomastia.

HYPERPLASIA AND ATYPICAL HYPERPLASIA

Diagnosis

- Usually Asymptomatic
- Incidental finding when breast tissue that has been removed during a biopsy or breast surgery

Treatment and follow-up

Usual ductal hyperplasia	→	does not usually need any treatment or follow-up
Atypical ductal/lobular hyperplasia	→	Excisional biopsy. Vacuum assisted biopsy

NOTE: Having usual ductal hyperplasia doesn't increase risk of developing breast cancer. However, it's still important to be breast aware.

SCLEROSING LESIONS OF THE BREAST

Introduction

A sclerosing lesion of the breast is a benign area of hardened breast tissue.
The most common types of sclerosing lesion of the breast are:

- Sclerosing adenosis:
- Radial scar/complex sclerosing lesion (usually larger and have features similar to a breast cancer when seen on a mammogram).

Symptoms

- Mostly asymptomatic
- Often only diagnosed during a routine mammogram or following tests for a different breast problem. Occasionally some people may notice a small lump or pain.

Diagnosis maybe confirmed by

- Core biopsy
- Stereotactic core biopsy
- Vacuum assisted biopsy
- Excision biopsy

Treatment

Sclerosing adenosis	→	no further treatment is needed
Radial scar/complex sclerosing lesion	→	Excision biopsy
	→	Vacuum assisted biopsy

PHYLLODES TUMOR

Phyllodes tumours are grouped into three types:

1. Benign
2. Borderline (these have most of the same features as a benign phyllodes tumour but also have some abnormal characteristics)
3. Malignant

Symptoms

- A smooth, hard lump, sometimes seen as a smooth bulge under the skin

Diagnosis

- a mammogram- if >35 year
- an ultrasound scan
- a core biopsy

NOTE: Phyllodes tumours are often difficult to diagnose because they can be confused with other breast problems, particularly a benign breast condition called a fibroadenoma

Treatment

Surgery in breast-

- Wide local excision with 1 mm clear margin to reduce the risk local recurrence.
- A mastectomy→ when very large

Surgery in axilla-

No need of axillary surgery → Malignant Phyllodes tumours rarely spread to the lymph nodes.

Adjuvant treatments after surgery

No adjuvant treatment even malignant phyllodes tumour.

Follow up

Annual mammogram for 5 years

FAT NECROSIS

Symptoms

- A firm, round lump (or lumps)
- Usually painless, may feel tender or even painful.
- The skin around the lump may look red, bruised or occasionally dimpled.
- Sometimes fat necrosis can cause the nipple to be pulled in.

Diagnosis

- Mammogram → for exclusion of malignancy if patient >35 years
- USG of breasts → may evaluate mastitis or abscess
- Core biopsy to confirm

Treatment

Antibiotics

Surgery → excision biopsy

Indication-

- the biopsy hasn't given enough information to confirm a diagnosis of fat necrosis
- the fat necrosis is uncomfortable or tender
- the lump or lumpy area doesn't go away by itself, or gets bigger

NOTE: Having fat necrosis does not increase risk of developing breast cancer. Some people think the fat necrosis might 'turn into' breast cancer, but there's no evidence to support this. ***Fat necrosis is harmless.***

FERTILITY AND BREAST CANCER TREATMENT

Introduction

Some breast cancer treatments can affect the ability to become pregnant in the future.
If patient wants to discuss ways of trying to preserve fertility, they should talk to oncologist and fertility specialist team before breast cancer treatment begins

Pregnancy after breast cancer treatment

- Many specialists advise women to *wait for at least two years* before becoming pregnant. This is because the possibility of the cancer coming back can lessen over time, and may be at greatest risk in the first two years after diagnosis.
- If patient thinking about getting pregnant before this two-year period is up, talk to specialist. They can help to make an informed choice.
- If patient offered hormone therapy, it's usually taken for five to ten years, by which time may be facing a natural menopause. Therefore, some women choose to take a break from hormone treatment if they want to try to get pregnant.

Pregnancy after Chemotherapy

Generally women are not recommended to get pregnant for at least 4-6 months after chemotherapy
Chemotherapy can cause infertility in women who are pre-menopausal

Contraception during and after treatment

The contraceptive pill is less commonly advised after a diagnosis of breast cancer. Hormones in the contraceptive pill could possibly stimulate any remaining breast cancer cells. Patient should use reliable contraception before and throughout treatment.

Options for preserving fertility before and during cancer treatment

- waiting to see if fertility returns after treatment
- Fertility preservation procedures – freezing embryos, eggs or ovarian tissue – before starting treatment
- Protecting the ovaries during chemotherapy.

Checking Fertility after treatment

It's difficult to predict exactly how fertility will be affected by breast cancer treatment. After treatment has finished, there's no totally reliable way of checking fertility.
Hormonal assays such as

- FSH (follicle stimulating hormone)
- AMH (anti-mullerian hormone)
- An ultrasound scan of the ovaries may also be helpful

EXERCISES AFTER BREAST CANCER SURGERY

Why exercises needed after breast surgery?

- These exercises can help you regain arm and shoulder movement after surgery
- Improve symptoms that may be caused by tight scars and cording,
- Prevent long-term problems with arm and shoulder movement, posture and stiffness
- Reduce the risk of lymphoedema

The exercises are suitable for people who have had:

- breast surgery
- lymph node removal
- radiotherapy

When to start the exercises

Ideally, start the exercises the day after surgery. .

When to stop

- A seroma
- Wound infection or healing problems
- Pain that gets worse during these exercise.

How long should continue doing the exercises?

If patient had just surgery, keep doing the exercises until got back the range of movement had before operation. Continue doing the exercises if patient going to have radiotherapy as they will help shoulder flexibility

Basic exercises

You can do these exercises sitting down or standing up.

During the first week after surgery, do not raise your arms above shoulder level (90 degrees) when doing these exercises.

3 Bent arm forwards

- Bend your elbows and rest your hands lightly on your shoulders.
- Raise both your arms forward so they are at right angles to your body.
- Lower your elbows slowly.

4 Bent arm sideways

- Rest your hands on your shoulders, but this time raise your elbows out to the sides.
- Lower your elbows slowly.

5 Back scratching

- Hold your arms out to the sides and bend your arms from the elbow.
- Slowly reach up behind your back to just under your shoulder blades.
- Slowly lower your arms back down to your sides

6 Winging it

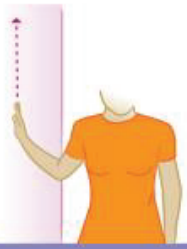
- Place your hands behind your head with your elbows pointing forwards.
- Bring your elbows back so they're pointing out to the sides, then return to the starting position.

More advanced exercises

7 Wall climbing

Step one

- With your feet apart, stand close to and facing a wall. Put both hands on the wall at shoulder level.
- Looking straight ahead, gradually work your hands up the wall – sliding them or using your fingers to climb. Get as far as you can, to feel a stretch but not pain.
- Hold here and count to 10.
- Slide your hands back to shoulder level before repeating the exercise.
- Try to get higher each time.



Step 2

- Stand sideways with your affected side nearest the wall.
- Put your hand on the wall, keeping your elbow bent and your shoulders relaxed.
- Look straight ahead and gradually creep your hand up the wall as far as you can, allowing your elbow to straighten.
- Hold here and count to 10, then lower your hand back down.

8 Arm lifts

- Lie on the bed or floor with a cushion or pillow to support your head.
- Take three or four really deep breaths and concentrate on relaxing your shoulders so they are not hunched up towards your ears.
- Clasp your hands together or hold onto a stick or broom handle. Keep your elbows straight and lift your arms up and over your head as far as you feel comfortable.
- Hold them here and count to 10, then lower your arms slowly. You may find it useful to put a pillow behind you to support your arms until you're able to get them further back.

Alternative
If you have difficulty lying down – for example because of breathlessness – you can do this exercise in a sitting position, leaning back in your chair.

9 Elbow push

- Lie on your back with your hands behind your head and your elbows out to the sides.
- Gently push your elbows downwards into the bed or floor as far as is comfortable.
- Hold and count to 10, then relax.

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ABSTRACT

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ONCOPLASTIC BREAST SURGERY -BASIC AND ADVANCED APPROACHES

Oncoplastic breast surgery is a relatively new concept. Oncological safety is paramount before considering the 'plastic' part of oncoplastic breast surgery. The basic and advanced approaches of oncoplastic breast surgery require proper training and practice and I will discuss oncoplastic surgical methods and techniques of breast surgery in my presentation.

THE LATEST CONCEPTS OF AXILLA MANAGEMENT FOR BREAST CANCER PATIENTS

Breast cancer surgery is always associated with the assessment of axillae of patients. The traditional approach of axillary clearance for all cancer patients has been challenged and found to be unnecessary and harmful for the majority of cases. With minimal approach to axillae a better outcome can be seen after careful assessment of all breast cancer patients. I will discuss the latest approaches and techniques in my presentation.

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MANAGEMENT OF WOMEN WITH A HEREDITARY PRE-DISPOSITION FOR BREAST CANCER

Pathogenic mutations in the BRCA 1, BRCA 2, PTEN, P53, STK11, CDH1, and PALB2 genes may dramatically increase a woman's risk of developing breast cancer.

Women with such a hereditary breast cancer predisposition may consider three management options: screening, chemoprevention (risk-reducing medication) and risk-reducing surgery. However, no randomized trials have addressed the effect of these strategies in mutation carriers. In the general population, randomized trials failed to demonstrate a benefit for screening in premenopausal women. Moreover, although chemoprevention reduces breast cancer incidence in high-risk populations, this benefit is potentially confined to estrogen receptor-positive tumors. Finally, observational studies suggest that prophylactic mastectomy and even prophylactic salpingo-ophorectomy reduces breast cancer risk in BRCA mutation carriers, but there are systematic biases associated with such studies. These observational studies suggest that, in BRCA mutation carriers, bilateral prophylactic mastectomy may reduce breast cancer risk by up to 90% and the combination of bilateral prophylactic mastectomy and bilateral salpingo-ophorectomy (in pre-menopausal women) may reduce breast cancer risk by up to 95%. Women with a hereditary predisposition for breast cancer should be informed of these three risk-reducing strategies, but they should also be informed that the benefits of these risk-reducing strategies are not fully understood.

SURGICAL MANAGEMENT OF PALPABLE BREAST CANCER

In western countries, women with primary breast cancer often consider three surgical options: breast-conserving surgery (BCS), mastectomy (MT), and mastectomy with contralateral prophylactic mastectomy (MT + CPM). In each case, the ipsilateral axilla (if clinically node-negative) is generally managed with a sentinel node biopsy and possibly an axillary lymph node dissection. For clinically node-positive patients, we generally proceed directly to axillary lymph node dissection. BCS generally requires breast radiotherapy, except in older women having tumors with a favorable prognosis who will receive endocrine therapy. In contrast, women treated with MT generally do not require radiotherapy, except for those with large tumors or metastases to the axillary nodes. Moreover, MT and MT + CPM are usually undertaken with breast reconstruction. Today, most patients are suitable candidates for BCS, with a few relative contraindications. Thus, early pregnancy, previous radiotherapy to the breasts, active collagen vascular disease, multi-centric breast cancer, large tumors (although neo- adjuvant systemic therapy can often reduce tumor size), and the presence of the BRCA mutation are all relative contraindications to BCS. BRCA mutation carriers should consider MT + CPM because their risk of contralateral breast cancer is greatly increased. In the U.S., the use of MT for the treatment of primary breast cancer has declined in recent years, while MT + CPM rates have increased, and BCS rates have remained relatively stable. In my opinion, CPM is rarely justifiable, and the reasons for the underlying trends are not fully understood. Local therapy options should be discussed with each patient in considerable detail.

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Breast Unit, Wycombe hospital
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Visiting consultant & advisor of
Anwer khan modern Breast care unit & Research Centre

MANAGEMENT OF NON PALPABLE BREAST CANCER:

Breast cancer is the most common cancer and the second leading cause of death amongst women in Europe and the leading cause of death in women in forties. With the introduction of breast screening, high quality digital mammography, increase public awareness; has seen an increase in diagnosis of non palpable, smaller breast cancers. Accurate localisation of small, nonpalpable breast lesions is mandatory for accurate surgical management. Breast cancer screening has brought a shift towards earlier detection of non-palpable breast lumps. In Bangladesh, although most breast cancer presented at advanced stage but due to increase awareness, early and nonpalpable breast cancers are diagnosed at increasing rate. The incidence of malignancy among these non-palpable lesions varies between 20-30%.

Wire guided wide local excision : Gold standard for the last three decades and the reliability is 99–100%. . Other options are Intra Operative Ultrasonogram (IOUS), Radioguided Occult Lesion Localization Technique(ROLL), Radioguided Seed Localization Technique: RSL, Radiofrequency seed : Latest method of tumor localization with more advantage.

BCS is oncologically safe without compromising aesthetics which has significant positive impact on quality of life. Adjuvant treatment with RT, Hormones are deemed sufficient without using chemotherapy depending on histology with immunocytochemistry. Widespread DCIS can still be nonpalpable and may require mastectomy and SNB with or without immediate reconstruction, subject to patient suitability.

Conservative treatment of breast cancer is oncologically safe & involves Team Work. Specimen should be oriented, not cut opened. 1 mm clear margin histologically is deemed safe. Good Information to the patient about local recurrence, survival, therapeutic alternatives and Experience, Logistical support, and Multidisciplinary approach is key to success. Optimization of patient selection for breast conservation, improvements in preoperative assessment of the extent of disease, advances in percutaneous biopsy technology to minimize histologic underestimation, and improved use of sentinel lymph node biopsy may allow more women to achieve therapeutic results in one operation.

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BREAST CANCER IN PREGNANCY

Breast cancer remains the most common cancer in women, with a lifetime risk of 11% in the World. Overall increase in the incidence of breast cancer but in the UK mortality has fallen by over 30% in the last decade. Breast cancer during pregnancy is rare and requires MDT management.

Breast cancer is reported in 1 in every 3,000 pregnancies. Age 32-38 at diagnosis. Most are able to carry on with their pregnancy (1). The aim is to balance treatment for cancer and keeping both mother and baby safe and well. Usually diagnosed with a US guided core. a mammogram with shield protecting baby from radiation will give baseline mammographic findings for future comparison. 5-year survival is around 80% for the under 50s age group; lower in very young women (3).

Pregnancy-associated breast cancer in Younger population will have higher risk of metastases, High-grade, ER-ve tumours,: inferior prognosis.(5)

Treatment of pregnancy-associated cancer should be multidisciplinary team (4) with inclusion of the obstetric team as core members, Breast surgeons, fertility specialists and midwives as well as oncologists and breast care nurses. There is no level 1 evidence on pregnancy and breast cancer. There are some well-designed observational studies. Recommendations for practice are limited (2) Young women presenting with breast cancer often have fertility-related concerns(7–9)

Need well-informed discussions on : Fertility, Pregnancy and Lactation after breast cancer and the availability of fertility preservation procedures.

Women presenting with a breast lump during pregnancy should be referred to a breast specialist team

Ultrasound: if suspicious, Mammography: with fetal shielding Tissue diagnosis is with ultrasound-guided core biopsy for histology (Grade, ER,PR, HER2 status).

If US axilla shows abnormal nodes: US core

MRI with gadolinium can be done if needed. US Liver, CXR for staging if needed.

Whole body bone scanning, Pelvic X-ray, Computed tomography: Not recommended due to possible effect of irradiation on the fetus.

Bone involvement: a plain film of the relevant area and/or magnetic resonance imaging to minimize radiation exposure to the fetus. CA15-3,CEA and CA125 : NOT recommended

Consideration of termination of pregnancy based on careful discussion (on Cancer prognosis, Treatment and Future fertility) with the woman and her partner and multidisciplinary team.

Surgical treatment in all trimesters. BCS , MXt depending on size, extensity, SNB can be done with isotope.

Breast cancer in pregnancy is a complex problem and should be treated by a multidisciplinary approach

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Outcome Data : Anwer Khan Modern Breast Care Unit & Research Centre

Introduction : Our focus should be on providing right care, right place, right time, first time and everything we do should be aimed at delivering high-quality care.

Our Mission: Integrated breast screening. Comprehensive multidisciplinary approach . We follow evidence-based guideline for the treatment of breast cancer & the days of one size fits all (mastectomy and axillary clearance) is a thing of the past.

WE ARE DOING MODERN ONCOPLASTIC SURGERIES AND TREATMENT ACCORDING TO UK NICE GUIDELINES UNDER DIRECT SUPERVISION OF DR. SK FARID AHMED.

Starting: Memorandum of understanding (MoU) was signed on 2nd March 2019 between Dr. Anwer Hossain Khan MP, Managing Director of AKMMCH and Dr.SK Farid Ahmed, Oncoplastic breast surgeon, Breast Unit, Wycombe Hospital, Buckinghamshire Healthcare NHS Trust, UK.

Logistical Development : Introduction of

Hydro-mark in Bangladesh for pre-neo adjuvant chemotherapy, Wire guide in Bangladesh for non-palpable breast lesion, Acellular Dermal Matrix, Gamma probe for SNB

Following **NICE & ABS**guide line with modification based on local needs. Predict tool (https://breast.predict.nhs.uk/tool)

We use software for data collection

Skill development: 12 surgeons so far, 2 radiologists, 2 breast screening medical officers & one breast care nurse .

Data entry by personal software: developed by only breast unit and only for breast cancer.

Total patients– 1694. Nipple discharge 218 (12.868%), palpable Breast Lump 429 (25.324%), Screening 65 (3.837%), Mastalgia 577 (34.061%), Non-palpable lesion 97 (5.72%),

Carcinoma 171 (10.094%), Mastitis 70 (4.132%), Axillary tail 55 (3.24%), Teitz's syndrome 5 (.29%), Others, eg sebaceous cyst(7 (0.41%),

Total breast diseases: Benign diseases 1523 (89.9%), Malignant 171 (10.09%)

Mastitis: 70 cases Tubercular Granulomatous mastitis 34(operated), Idiopathic Granulomatous mastitis 1(operated), Peri-ductal mastitis 25, Lactational 10,

Total breast cancer patient attended in Clinic : 171 , We operated only 65 cases, rest 106 patients are went elsewhere.

Core biopsy histopathology: IDC- 126 (73.7%), DCIS- 37 (21.6%), ILC- 5 (2.9%), Malignant Phyllodes- 3 (1.7%)

Total cancer patients operated : 65 , palpable: 41, nonpalpable 24.

Surgery in Breast : Mastectomy- 7(10.77%) & Breast conserving surgery- 58(89.23%).

Breast conserving surgery for cancer : 58, Macrodochectomy/ Hadfield- 10, WLE: 34, US marked WLE:4, WG WLE-10

Mastectomy -7

Surgery in Axilla: Axillary Clearance: 24 (36.9%), (SNB positive-3, node positive-21), SNB: 27 (41.5%), No axillary surgery : 17 (26.15%)

Total SNB: 27. (Reactive: 10, Negative:14 & Positive:3)

We use **predict tool** for assessment adjuvant treatment.

Hadfield/ Major duct excision/ macrodochectomy: 21, (DCIS- 10 & Fibrocystic- 11).

Chemotherapy : Neoadjuvant- 5 (grade 1, size 6cm), (grade 2, size 5cm), (grade 2, 3cm, TNBC), (grade 3, 3.4 cm, TNBC), (Grade 2, 3.2 cm , TNBC).

No chemotherapy needed- 18,(DCIS- 3 Malignant phylloides- 1 IDC-1),

Adjuvant chemotherapy- 38

Total Hydro mark given : 5 (patient received chemotherapy)

Nipple Skin sparing mastectomy with immediate implant reconstruction: High grade DCIS- two site cancer each 2 cm. initial operation was unplanned ,margin was not oriented. Cavity shaving was no possible due to breast size small

Genetic testing- BRCA1 BRCA2 & P53: Advised - 31,Done-5 ,Positive-4(all P53),Negative -1,

Risk reducing / prophylactic mastectomy : 1(cancer one side with P53 gene pathogenic mutation)

Neoadjuvant -5, Adjuvant -55, Primary -1, Her 2 -+ve: 4

Level 1 Oncoplastic Surgery: Total 56, WG WLE 10, Macrodochectomy/ Hadfield- 10, WLE-32 US marked WLE 4.

Level 2 Oncoplastic Surgery: Reconstruction surgery – 1, Therapeutic mammoplasty-2

Wire guided wide local excision : 12(Benign -2, NAC -4, DCIS - 2, IDC - 4).

Risk reducing surgery:1 (Due to p53 pathogenic mutation).

Benign Operation : 8. WLE- 21, WGWLE- 2, Hadfield -11, Simple lumpectomy- 31, Incision drainage for abscess -8, axillary tail-5, sebaceous cyst 3

Vision for Future: Initiating Breast screening programme. Wider Public awareness. Fellowship on Onco-plastic breast surgery. Further development to embrace modern way of managing breast cancer, a. Surgical approach, b. Oncological Rx, c. Quality pathology report. Less is more.

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ROLE OF INTERVENTIONAL RADIOLOGY IN BREAST CANCER MANAGEMENT

In the past two decades, new and improved imaging technologies and the use of breast cancer screening have led to the detection of smaller and earlier-stage breast cancers. The practice of breast interventions has come a long way since the first imaging-guided needle localization procedures were reported1,2,3. New modalities lead to the requirement of new interventions. With improvements in ultrasound came the advent of ultrasound-guided breast biopsy4,5. With the development of stereotactic imaging came stereotactic-guided intervention6,7. For palpable lesions, clinical guidance may be sufficient but radiological control allows more precise targeting. For subclinical lesions, radiological guidance is essential, and several different criteria affect the choice of type of imaging used which are rapidity, cost, irradiation, better visualization of the abnormality, availability of the technique, the team's experience. These enables surgeon to remove impalpable lesion with accuracy and with good cosmetics without compromising oncologically safety. The two main guidance methods are Mammography and Ultrasound. Other methods include MRI and CT.

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ROLE OF ENDOCRINE THERAPY IN BREAST CANCER.

Breast cancer is the leading cancer for women in Bangladesh. Endocrine treatment is one of the major therapeutic option for patients with estrogen-receptor positive breast tumors. Selective estrogen-receptor modulators (SERMs), such as Tamoxifen, Aromatase inhibitors and GnRH agonists are the drugs of choice. Tamoxifen, a partial nonsteroidal estrogen agonist, is a type II competitive inhibitor of estradiol receptor and the prototype of SERMs. Aromatase inhibitors significantly lower serum estradiol concentration in postmenopausal patients, having no detectable effects on adrenocortical steroids formation and GnRH agonists suppress ovarian function. Endocrine therapy has a potential role in DCIS, LCIS ,Early, Locally advanced and in metastatic stage. It is also used as chemoprevention to reduce the risk of cancer development. Endocrine treatment is usually considered a standard choice for patients with estrogen-receptor positive cancers and in advanced disease without visceral crisis or for older patients unfit for aggressive chemotherapy regimens.

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Title: Neo-adjuvant chemotherapy when to initiate and when to avoid?

Neoadjuvant chemotherapy (NACT) in breast cancer is an established modality for locally advanced and triple negative breast cancer patients. This offers increase percentage of number of breast conservation against mastectomy. In the process of treatment with NACT a significant percentage of patients achieve complete pathological response. This complete pathological response is considered as surrogate of good prognosis. Addition of targeted therapy like Trastuzumab and Pertuzumab in Her2Neu positive cases offers additional percentage of complete pathological response. In case of poor response to NACT cases this modality offers opportunity for the application of modified regime of chemotherapy. Appropriate selection of patients and chemotherapy protocol is critical to achieve the optimum outcome of NACT in breast cancer patients. Meta-analysis by Laura M. Spring et.al of 52 publications covering totaling 27,895 patients concluded that pCR after neoadjuvant chemotherapy is associated with significantly better EFS and overall survival.

Title:Axilla radio-therapy in breast cancer- for whom, Why and How?

Axilla radiotherapy (RT) plays an important role in breast cancer treatment. After mastectomy and breast conservation surgery axilla radiation therapy is indicated in node positive and high-risk group patients.In EBCTCG meta-analysis showed that RT offers local control (LC) and overall survival (OS) benefit in node positive breast cancer patients after mastectomy. Significant percentage of axillary failure was observed in Danish 82b and 82c Trials. Similar outcome of LC is observed in case of breast conservation surgery for node positive breast cancer patients in MA 20 trial.

In land mark trial ACOSOG Z0011 trial and AMAROS trial axilla RT was proved non inferior to surgery in Sentinel node positive cases with less morbidity. This made axilla RT as standard treatment in this group of patients against surgery. Adequate target coverage in axilla RT is critical and appropriate technique is required to ensure this adequate coverage. In retrospective analysis of landmark trial ACOSOG Z0011 Treatment of axilla is important when it is indicated. But use of appropriate technique to ensure adequate coverage of the target and avoid unnecessary toxicity is important.