

Breast Cancer

Registrar Tutorial

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Trauma Registrar



Case

- 49 yr old ♀
- Lump in left breast
- Noticed after minor trauma
- Mother died of breast cancer

Case

- History:
 - lump(s)
 - symptoms (e.g. pain)
 - other changes in breast (e.g. nipple retraction)
 - nipple discharge (esp. blood-stained)
 - constitutional features (e.g. weight loss)
 - risk factors
 - social

Case

- Risk factors for breast cancer:
 - ↑ age
 - female
 - previous breast cancer
 - family history
 - early menarche
 - late menopause
 - nulliparity
 - HRT
 - (OCP)

Case

- Examination:
 - lump(s)
 - breasts
 - nipple discharge
 - axillae
 - supraclavicular fossae
 - systemic

Case

- Differential diagnosis:
 - breast cancer
 - fat necrosis
 - cyst
 - nodularity
 - fibroadenoma
 - mammary duct ectasia
 - sclerotic/fibrotic lesion
 - lipoma
 - abscess

Case

Fibroadenoma



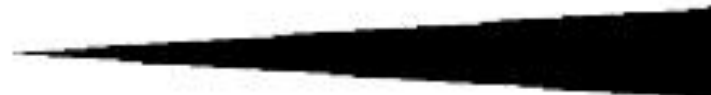
Benign Breast
Changes



Cysts



Cancer



Age

15

20

25

30

35

40

45

50

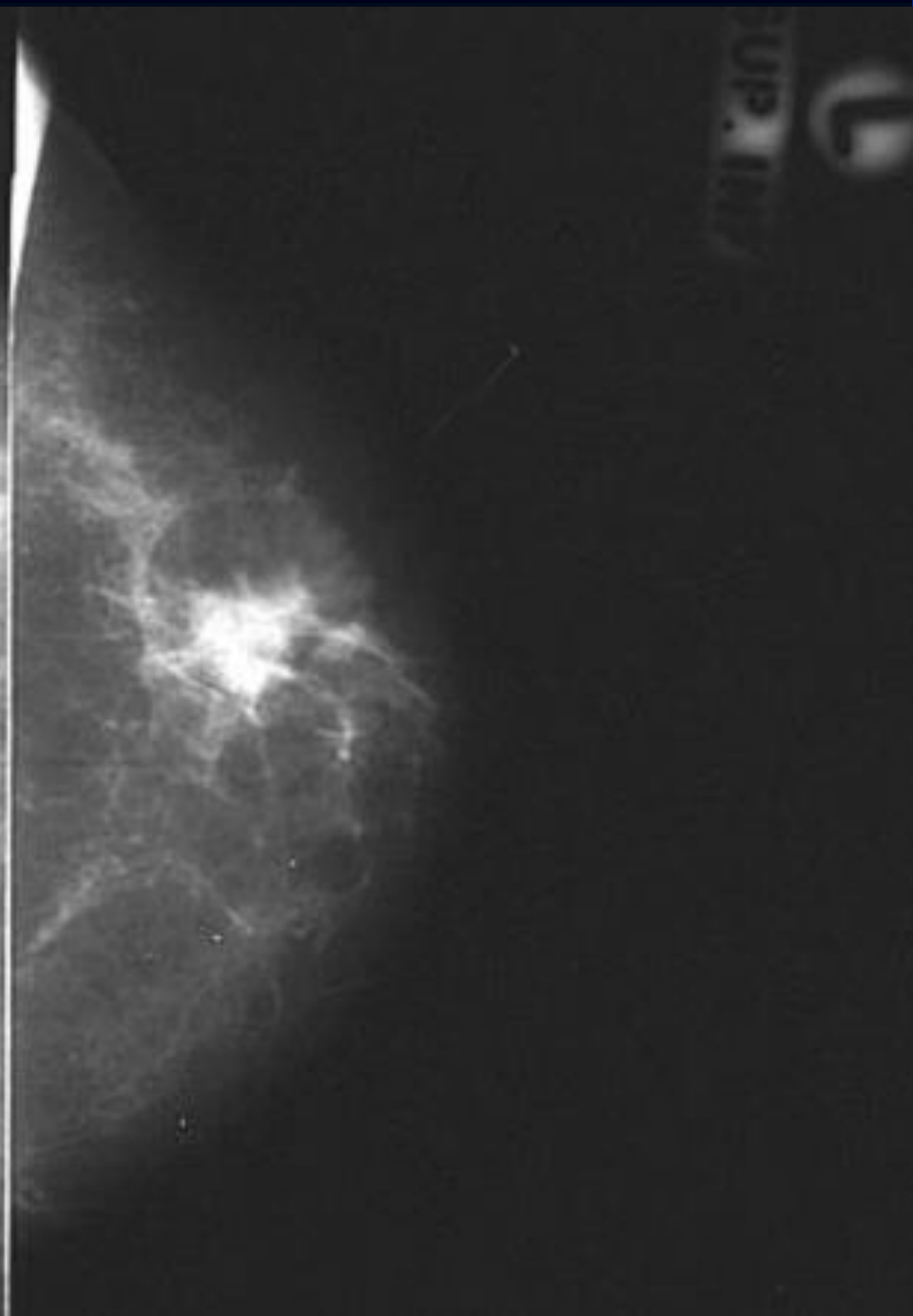
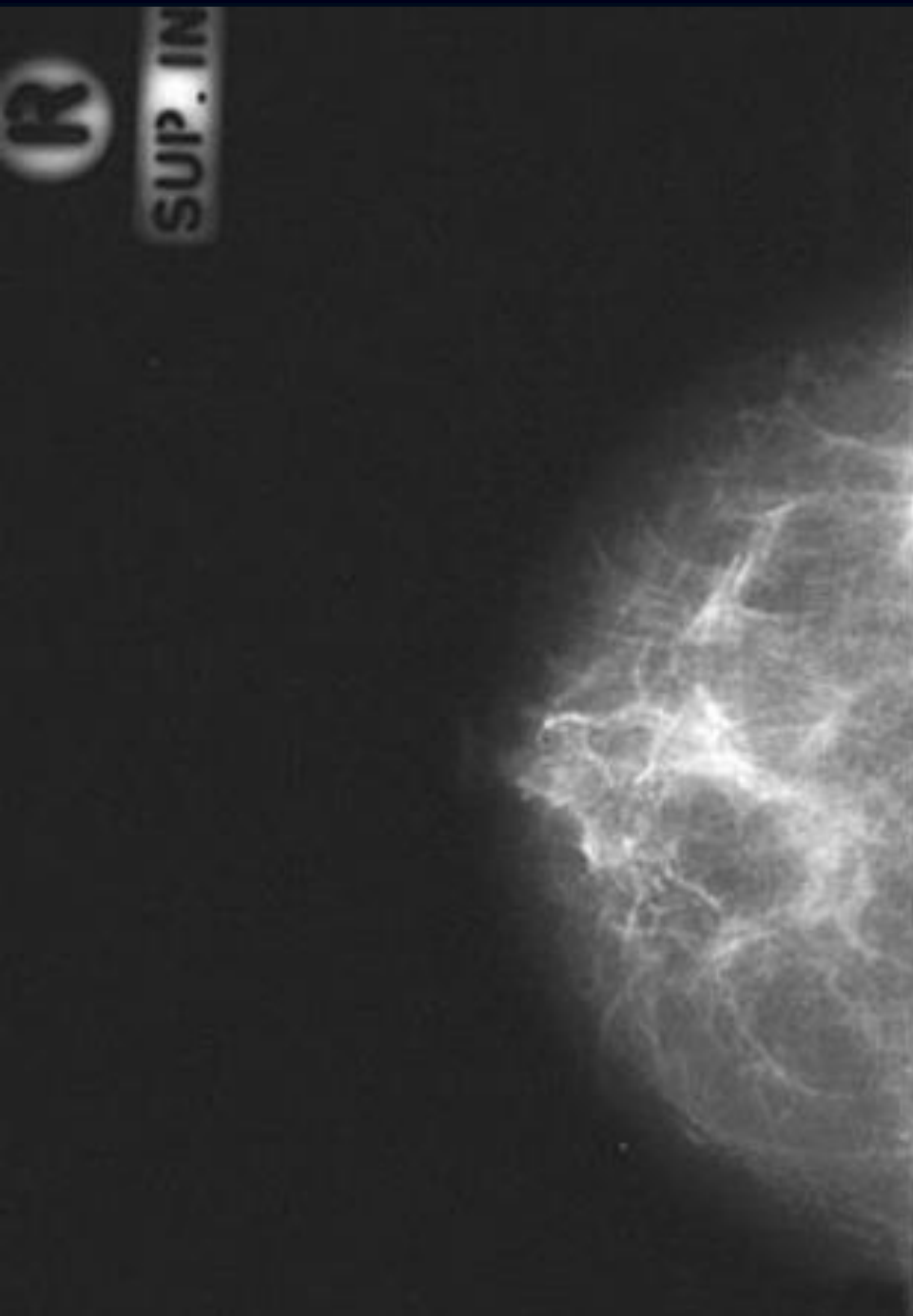
55

60

65+

Case

- Investigations:
 - mammography
 - ultrasound
 - core biopsy
 - FBE, UEC, LFTs
 - CXR
 - bone scan
 - CT chest/abdomen
 - liver US





This is a longitudinal B-mode ultrasound image of a breast. A hypoechoic, elongated mass is visible, oriented vertically. The mass is marked with a '+' at its superior end and an 'x' at its inferior end. To the right of the mass, there are four small arrows pointing towards it. The text '1 OCLOCK 2 CM FROM NIPPLE' is printed in the lower-left corner. In the bottom right corner, there are two small circular markers, one of which contains a horizontal line.

1 OCLOCK 2 CM FROM NIPPLE

Case

- Mammographic signs of carcinoma:
 - mass lesion
 - spiculated margins
 - asymmetric density
 - architecture disturbance
 - malignant microcalcifications

Breast Cancer

- Increasing incidence
- Incidence increases with age
- Affects approximately 1 in 9 women
- Mortality 25-27 per 100,000 woman-years
- Survival at 5 years best in women aged in 40s
- Worst 5 year survival in women >80 or <30
- Screening two-yearly between 50 & 75
- Screening 30% ↓ mortality in women 50-69

Case

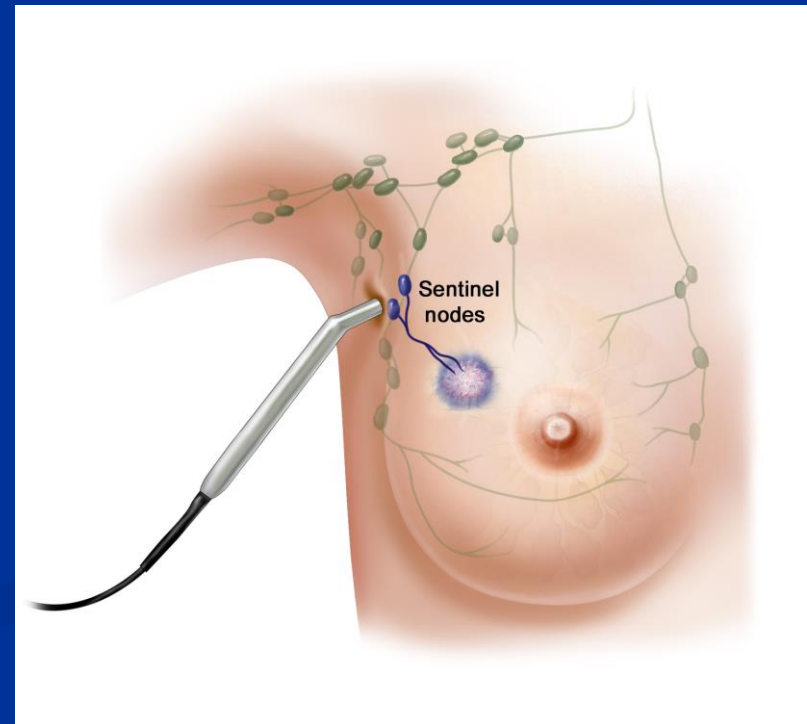
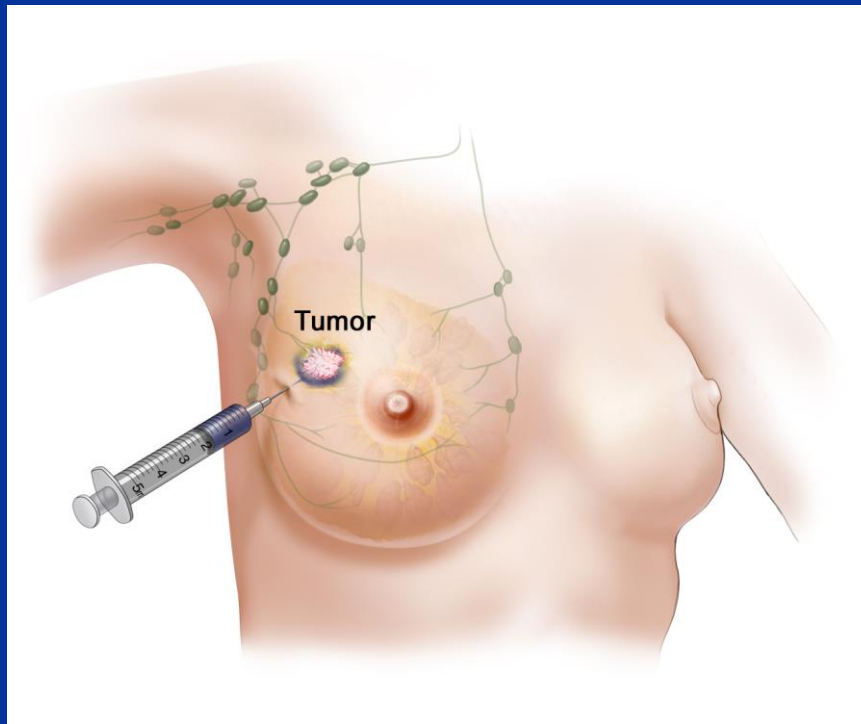
- Mastectomy vs breast conservation
- Equivalent in outcome
 - risk of death
 - local recurrence
- Breast conservation
 - acceptable cosmesis in majority
 - lower psychological morbidity

Case

- Mastectomy
 - large cancer relative to breast
 - T4 cancer
 - multifocal disease
 - extensive DCIS
 - prior breast irradiation
 - strong family history or BRCA1/2
 - patient preference

Sentinel Node Biopsy

- Lymphoscintigraphy & dye (e.g. patent blue)
- Mean number of sentinel nodes 2–2.5



Sentinel Node Biopsy

- Positive SN → axillary clearance
- Sentinel node only involved node in 50–70%
- Less arm swelling
- Less axillary pain & numbness
- Better arm mobility

Sentinel Node Biopsy

- Non-identification of SN 2–11 %
 - non-visualisation at preop lymphoscintigraphy
 - surgical inexperience
 - high BMI
 - patient age >60 yrs
- Skip metastases <5%

Sentinel Node Biopsy

- False negative rate 2–22 %
- More common in multifocal disease
- Negative predictive value $>95\%$
- Await long-term follow-up data

Risk Categories

- Node-negative breast cancer

Factors	Low Risk (all factors)	Medium Risk	High Risk (≥ 1 factor)
Tumour size	≤ 1 cm	1.1 – 2 cm	> 2 cm
ER/PR status	Positive	Positive	Negative
Grade	Grade 1	Grade 2	Grade 3
Age	≥ 35 years	≥ 35 years	< 35 years

Systemic Adjuvant Therapy

- Node-negative breast cancer

Patient Group	Low Risk	Medium Risk	High Risk
Pre-menopausal ER or PR +ve	Nil or Tamoxifen	Tamoxifen \pm Chemo Ovarian Ablation	Chemo + Tamoxifen Ovarian Ablation
Pre-menopausal ER & PR -ve	N/A	N/A	Chemotherapy
Post-menopausal ER or PR +ve	Nil or Tamoxifen	Tamoxifen \pm Chemotherapy	Tamoxifen \pm Chemotherapy
Post-menopausal ER & PR -ve	N/A	N/A	Chemotherapy
Elderly	Nil or Tamoxifen	Tamoxifen \pm Chemotherapy	Tamoxifen \pm Chemotherapy

Systemic Adjuvant Therapy

- Node-positive breast cancer

Patient Group	
Pre-menopausal ER or PR +ve	Chemotherapy + Tamoxifen Ovarian Ablation \pm Tamoxifen
Pre-menopausal ER & PR -ve	Chemotherapy
Post-menopausal ER or PR +ve	Tamoxifen \pm Chemotherapy
Post-menopausal ER & PR -ve	Chemotherapy
Elderly	\pm Tamoxifen \pm Chemotherapy

Tamoxifen

- Effect on outcome:

Duration	Recurrence-free Survival		Overall Survival	
	RRR	ARR (10 yrs)	RRR	ARR (10 yrs)
Node Negative				
~ 1 year	17%	4.7%	13%	3.4%
~ 5 years	49%	14.9%	25%	5.5%
Node Positive				
~ 1 year	21%	7.5%	12%	4.5%
~ 5 years	43%	15.2%	28%	10.9%

Chemotherapy

- Effect on outcome:

	Age	RRR	Nodal Status	ARR (10 yrs)
Recurrence-free Survival	All	24%		
	<50 yrs	35%	Node negative	10.4%
			Node positive	15.4%
	50–69 yrs	20%	Node negative	5.7%
			Node positive	5.4%
Overall Survival	All	15%		
	<50 yrs	27%	Node negative	5.7%
			Node positive	12.4%
	50–69 yrs	11%	Node negative	6.4%
			Node positive	2.3%

Radiotherapy

- Post-mastectomy
 - tumour >5 cm
 - axillary involvement >3 nodes
 - positive tumour margins
 - lymphovascular invasion
 - high grade (grade 3)
- High risk of local or regional relapse

DCIS

- Preinvasive breast cancer
- Comprises 25% of screen-detected tumours
- Microcalcification on mammography
- Only 10% symptomatic
 - palpable lump
 - nipple discharge
 - Paget's disease

DCIS

- Natural history poorly understood
- High grade distinct from low/intermediate
- Microinvasion uncommon finding
- Low risk of lymph node metastasis $\sim 2\%$

DCIS

- Mammography (+ magnification views)
- Often pathologically larger than on x-ray
- Stereotactic core biopsy but underdiagnosis

DCIS

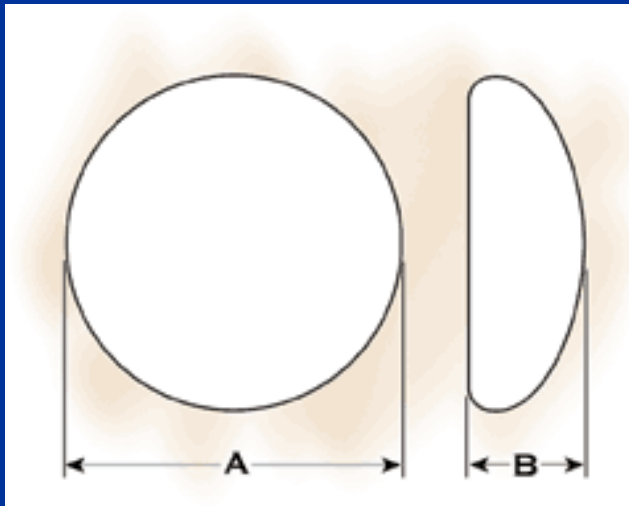
- Mastectomy
 - large area of DCIS (>4 cm)
 - multicentric disease
 - radiotherapy contraindicated
- Breast-conserving surgery \pm radiotherapy
- No radiotherapy if:
 - tumour size <2 cm
 - excision margin >10 mm
 - low or intermediate grade

Complications

- Mastectomy
 - wound infection/abscess
 - breast haematoma
 - seroma of skin flap
 - necrosis of skin flap
 - paraesthesia of chest wall
 - phantom breast syndrome
 - postsurgical pain syndrome
 - lymphoedema
 - psychological effects
- Axillary dissection
 - seroma of axilla
 - injury/thrombosis of axillary vein
 - lymphoedema (~10%)
 - ↓ shoulder movement (~10%)
 - division of intercostobrachial nerve
- Radiotherapy
 - necrosis of breast tissue
 - lymphoedema
 - symptomatic pneumonitis (3-6%)
 - ↓ shoulder movement (1-3%)
 - brachial plexopathy (1-3%)

Breast Reconstruction

- Immediate vs delayed
- Implant vs autologous tissue
- Implants (silicone or saline)
 - capsular contracture (33%)
 - skin necrosis (8.5%)
 - leakage (6%)



Breast Reconstruction

- Pedicled or free TRAM flap
- Pedicled latissimus dorsi flap
- Free DIEP flap
- Free superior gluteal artery perforator flap

