

DISORDERS OF THE BREAST – Dated

BENIGN BREAST DISORDERS (Essential Surg 2nd Ed, pp 540)

FIBROADENOSIS

Other common names: mastitis, fibrocystic disease, cystic mammary dysplasia.

Fibroadenosis is the **distortion** and **overgrowth** of one or more components of the breast. The components of the breast are: **ducts**, **lobules** and **fibrous tissue** in between. The fibrous tissue (“fibro”) and epithelial layer (“adenosis”) of the duct become hyperplastic therefore the name: “fibroadenosis”. This occurs as an **abnormal physiological response** to the **circulating hormones**.

Fibroadenosis does not mean there is increased risk of developing breast cancer, there is no evidence to suggest this at all. A person with fibroadenosis may develop breast cancer but this is unrelated.

Clinical Presentation and Management of Fibroadenosis

Classic presentation is a **painful and tender lump**. The pain is usually **cyclical** with **menstruation**. Pain is often the presenting complaint, and no lumps are seen. Remember that the breast usually increases in size and lumpiness during the 2nd half of the menstrual cycle, fibroadenosis is an extreme variety of this. The lumpiness of the breast may be **diffuse** or **nodular**. The diagnosis of fibroadenosis is based on **excluding cancer**. **Mammography** or **ultrasonography** is performed (these are diagnostic for cancer in 95% of cases) and **if doubt remains**, perform a **simple needle aspiration** to confirm the diagnosis. Further treatment following diagnosis is often not necessary, but if pain is severe – surgical excision is warranted.

FIBROADENOMA

Fibroadenoma is a **benign neoplasm** of the breast which presents as a **solitary lump**. Examination of the tissue histologically reveals **proliferating epithelial cells** forming a **glandular structure**, and in between the glands you see **fibrous tissue proliferation**. The lesions have a **capsule**, and again there is **no association** with progression to **breast cancer**.

Clinical Presentation and Management of Fibroadenoma

Clinical presentation occurs in younger woman, usually **aged below 30**. Classical presentation is a **non-tender mobile lump**. The most important part of management is to exclude breast cancer. Again perform an **ultrasound/mammography** and do a **fine needle aspiration** to confirm the diagnosis.

DUCT PAPILOMA

Sometimes the **epithelial cells lining the ducts** of the breast **proliferate**. Therefore, duct papillomas are **benign hyperplastic lesions** of the ducts (i.e.: polyp like), and **NOT NEOPLASMS**. There is **no association** between duct papillomas and breast cancer (i.e.: not premalignant).

Clinical presentation and Management of duct papilloma

Clinically, they may present with **nipple bleeding**. Main management decision is to exclude cancer of the epithelial lining of the ducts (intraduct carcinoma) or infiltrating carcinoma (i.e.: infiltrating into the ducts from other areas of the breast). **Mammography** can be used to exclude carcinoma. **Ductography** may confirm the presence of a duct papilloma. **Treatment** is usually excision of the affected segment of the breast (**microdochectomy**).

FAT NECROSIS

The development of the breast occurs from glandular tissue to adipose tissue, as you get older. Adipose tissue normally receives **very little** blood supply. Therefore, simple trauma to the breast can compromise already diminished blood supply to the fat, causing **fat necrosis**. **Inflammation results** and **fibrous tissue** is laid down at the **margins** of the **inflamed area**.

Clinical presentation and management of fat necrosis

Clinically it presents with a **hard (fibrosis) irregular lump** of the breast. It may cause skin dimpling; therefore it can quite easily resemble a carcinoma. Diagnosis and management is based on **excision biopsy**. Fat necrosis is a rare condition of the breast.

INFECTIONS OF THE BREAST

Infections of the breast most often occur during **pregnancy** and **lactation**. This is because of the suckling effect, causing **openings** (cracks) in the skin surface of the nipple. The organism most likely to take advantage of this is *Staph aureus*. It enters the breast, and destroys it and **pus accumulation** develops → **abscess**.

Clinical presentation and management of breast infections/abscesses

If abscess has not formed, you will see **cellulitis** of the skin of the affected area. Prompt antibiotic therapy to cure this is most effective. Antibiotic of choice is **Flucoxacin** (Brand Name: Staphlex). Systemic factors such as **pyrexia** and **tachycardia** will be present. If an abscess develops, then it is **fluctuant** and **very tender** with surrounding **erythema of the skin**. Management of this requires **surgical drainage** by making an incision in the most fluctuant area, and “breaking” the abscess. Antibiotics can be prescribed if there is residual cellulitis post-op.

MAMMARY DUCT ECTASIA

This is a **dilatation** of the **larger breast ducts**. These ducts usually contain **green fluid** and **sterile pus**. If dilatation is uncontrolled, then the duct **may rupture** causing an **inflammatory response**. This condition is most **common** in the **ages surrounding onset of menopause**.

Clinical presentation and management of mammary duct ectasia

Clinically, patients present with a **hard lump** (due to inflammation) and **green nipple discharge**. The ducts involved can be more than 1 and the breasts involved can be both or just 1. Management is usually with **mammography** to **exclude carcinoma**, and then

with **antibiotics**. If abscesses develop, then surgical drainage may be required. NEVER SURGICALLY DRAIN AN INFECTION (i.e.: no abscess present) BECAUSE IT CAN CAUSE DUCTAL FISTULA FORMATION.

SUMMARY OF NIPPLE DISCHARGE AND ASSOCIATED CONDITIONS

<i>Discharge characteristic</i>	<i>Multiduct / Uni duct</i>	<i>Bilateral / Unilateral</i>
Milky (prolactinoma)	M	B
Green (mammary duct ectasia)	Could be both	Could be both
Black / blood stained (duct papilloma)	Always Uni duct	Always Uni lateral
Clear (mucoïd) (breast cancer)	Always Uni duct	Always Uni lateral

- these are classical presentations and may vary from situations.

BREAST CANCER - AN INSIGHT

Epidemiology and Risk Factors

Breast cancer incidence in Australia is currently about 1/8-1/12. The prognosis of breast cancer generally is better than some other neoplasms such as lung cancer. Risk factors for breast cancer include: previous history, family history, long exposure to oestrogen (HRT, early menarche, late menopause, HRT), ovarian cancer, prostate cancer (males), late pregnancy, contraceptive pill. Breast cancer in males account for 1% of total incidence.

Investigations of Breast disorders

Mammography/Ultrasonography is a good screening test for breast cancer, as they can generally pick up most carcinomas (95% diagnostic accuracy for palpable lumps). A palpable lump should be sampled by fine needle aspiration cytology (FNA). FNA has largely replaced open biopsy, and has a good sensitivity rating. Mammography is less effective in woman < 40 years old, but that does not mean it shouldn't be done. Radiological features of a carcinoma are a dense area of calcification, and surrounding distortion of the breast tissue.

Should mammography/ultrasound be done before fine needle aspiration cytology? Yes, because this test can distort the tissue present, therefore not giving a definite diagnosis on radiological examination. It is important to realise that negative findings, although statistically rare, on each of these investigations DOES NOT RULE OUT CARCINOMA.

Pathology

There are two types of adenocarcinomas (all are such types) in the breast. Ductal (75%) and Lobular (15%). There are miscellaneous groups of breast cancer which all have a better prognosis compared to the above two mentioned, these are: tubular, adenoid cystic, medullary, papillary carcinomas. Lobular carcinomas have a higher chance of

bilateralism. Furthermore, lobular carcinomas are more likely to have oestrogen receptors therefore being more responsive to anti-oestrogen therapy (Tamoxifen etc). Ductal carcinoma often presents with skin dimpling, ulcerations in and around the nipple → and this is known as Paget's disease of the nipple.

Natural History of Breast Cancer

Clinical detection means the tumour is already at least 1cm in diameter. Tumour growth initiates an inflammatory response and resultant fibrosis occurs in the surrounding breast tissue. It is this which represents most of the palpable nature of the lump. Tumour cells then enter the lymphatics and spread to regional lymph nodes (axillary or internal mammary). In tumours > 1cm in diameter, axillary metastases represents about 25% of the cases – rising significantly with increased diameter. If nodes are not palpable clinically, that doesn't mean there are no metastases – micrometastases may have already occurred. Eventually, tumour cells breach the capsule of the nodes and invade the surrounding tissues, and eventually into the systemic blood stream. 5 year survival rate for untreated patients is about 20%.

Staging of breast cancer

The purpose of staging the cancer is for prognosis. Staging is based on clinical establishment of the extent of the disease, so one limitation of this is – micrometastasis are not taken into account. The TNM system is the internationally accepted method of staging. The stages range from 0-IV → useful for management.

Stage	Meaning
0	Cancer in situ – i.e.: confined by basement membrane of the epithelium
1	T ₁ with no nodal involvement
2	T ₁₋₂ , N ₂ or T ₂ , N ₀
3	T ₁₋₄ , N ₂₋₃
4	M ₁

- Browse has clear cut definitions for TNM

Principles of Management of Breast Cancer

There are four universal principles of management of breast cancer. These are:

1. Establish the diagnosis
 - a. Mammography & Ultrasounds
 - b. Fine needle aspiration cytology – gives indication of type of cells present
 - c. Excision biopsy – if clinical suspicion exists even after above steps
2. Control disease in the affected breast
 - a. Lumpectomy + salvaging some surrounding has proven 40% recurrence rate in the same breast. Furthermore, micrometastases may have already occurred. So lumpectomy with radiotherapy to remove residual tumour cells is preferred. This is called breast conservation surgery.
 - b. Removal of the whole breast is an option too → Mastectomy

3. Prevent/Treat local and regional disease in breast cancer
 - a. Micrometastasis or regional metastasis (lymph node involvement) may have already occurred. How can we manage the possibility of axillary node involvement?
 - i. Expectant policy: only remove lymph nodes when they are clinically palpable. Rarely used philosophy nowadays.
 - ii. Radical radiotherapy: give radiotherapy to the lymph nodes as well after lumpectomy
 - iii. Selective radiotherapy: After cancer has been diagnosed, do a lymph node biopsy or during lumpectomy, and then give radiotherapy based on the results of the biopsy.
 - iv. Surgical removal of axillary lymph nodes: More and more surgeons are using this philosophy. Diagnosed breast cancer requires removal of the lump via lumpectomy or mastectomy, and also removal of some axillary lymph nodes (at least 10, to avoid missing skip metastasis). Current procedure is to use a **Level II dissection**. Radiotherapy is not given after axillary node removal because it gives post-op lymphoedema of the arm.
 - b. Adjuvant chemotherapy: After surgical removal, chemotherapy seems to improve the survival rate by killing off residual cells. Used in pre-menopausal women with axillary node spread but not distant metastasis. Drugs used are: cyclophosphamide & 5-fluorouracil.
 - c. Adjuvant hormonal therapy: Tamoxifen (oestrogen receptor blocker) taken orally has proven benefits when taken for 2-5 years.
4. Control advanced and disseminated disease
 - a. Local palliation: In stage III carcinoma, immediate surgical intervention is not possible. Chemotherapy to make surgical intervention possible, followed by radical radiotherapy (see above) and adjuvant chemotherapy or tamoxifen.
 - b. Hormonal manipulation: Tamoxifen, oophorectomy, corticosteroids.

DIFFERENTIAL DIAGNOSIS OF BREAST LUMP

Differentials can be given based on the history and examination. Examination findings such as: surface, margin, consistency are very important. Below are the differential diagnosis based on these factors:

Tender, erythematous, regular, fluctuant lump → breast infection / abscess

Irregular surface, indistinct, hard lump → Carcinoma, Fat necrosis, Fibroadenoma

Irregular, indistinct, rubbery lump → Fibroadenosis, Carcinoma

Well defined, smooth, hard lump → Cyst, Carcinoma

Well defined, smooth, rubbery lump → Fibroadenoma, Carcinoma

