Aberrations of normal development and involution

Nomenclature

The nomenclature of benign breast disease is confusing. This is because over the last century a variety of clinicians and pathologists have chosen to describe a mixture of physiological changes and disease processes according to a variety of clinical, pathological and aetiological terminology. As well as leading to confusion, patients were often unduly alarmed or over treated by ascribing a pathological name to a variant of physiological development. To address this confusion, a concept (aberrations of normal development and involution (ANDI)) has been developed and described by the Cardiff Breast Clinic

Aetiology

…The breast is a dynamic structure that undergoes changes throughout a woman's reproductive life and, superimposed upon this, cyclical changes throughout the menstrual cycle.

…The pathogenesis of ANDI involves disturbances in the breast physiology extending from a perturbation of normality to well-defined disease processes.

…There is often little correlation between the histological appearance of the breast tissue and the symptoms.

Pathology

The disease consists essentially of four features that may vary in extent and degree in any one breast:

1 Cyst formation. Cysts are almost inevitable and very variable in size.

2 Fibrosis. Fat and elastic tissues disappear and are replaced with dense white fibrous trabeculae. The interstitial tissue is infiltrated with chronic inflammatory cells.

3 Hyperplasia of epithelium in the lining of the ducts and acini may occur, with or without atypia.

4 Papillomatosis. The epithelial hyperplasia may be so extensive that it results in papillomatous overgrowth within the ducts.

Clinical features

The symptoms of ANDI are many as the term is used to encompass a ***wide range of benign conditions***, but often include an area of ***lumpiness*** (seldom discrete) and/or breast pain (***mastalgia***).

- A benign discrete lump in the breast is commonly a cyst or fibroadenoma. True lipomas occur rarely.
- Lumpiness may be bilateral, commonly in the upper outer quadrant or, less commonly, confined to one quadrant of one breast. The changes may be cyclical, with an increase in both lumpiness and often tenderness before a menstrual period.

- Non-cyclical mastalgia is more common in perimenopausal than postmenopausal women.

It may be associated with ANDI or with periductal mastitis.

It should be distinguished from referred pain, for example a musculoskeletal disorder.

‘Breast’ pain in postmenopausal women not taking hormone replacement therapy (HRT) is usually derived from the chest wall, back or neck.

About 5 per cent of breast cancers exhibit pain at presentation, but rarely as the sole presenting feature.

Management of ANDI

…It depends on the symptom or the disease result from the disturbance in the breast physiology.

In case of lumpy breast and mastalgia, CA should be excluded

If the clinician is confident that he is not dealing with discrete abnormality (by mammogram & ultrasound), the female should initially reassured.

It is good to review the patient at different points in the menstrual cycle e.g. 6 weeks after the initial visit.

For cyclic mastalgia it is also important to exclude CA.

Mastalgia may be cyclical or non-cyclical.

For cyclic mastalgia

1) Reassure the patient that there is no associated CA.

2) Explain the etiology to the patient.

Advice the patient to avoid caffeine and to wear appropriate fitted and supportive bra throughout the day and soft bra thought-out the night.

3) If reassurance is not adequate, plan treatment as follow;

- Evening primrose oil which has better effect in female over 40 years. Given for 3 months.
- Danazole (antigonadotrophin) 100 mg /day then increase.
- For intractable pain, prolactine inhibitor e.g. boromcriptine.
- Very rarely an antiestrogen e.g. tamoxifen or LHRH agonist to deprive the breast epithelia of estrogen drive.

Table 53.1 Treatment of breast pain.

Exclude cancer	
Reassure	Use pain chart if unsure if cyclical or non-cyclical. Also allows time for reassurance to become active!
Adequate support	Firm bra during the day and a softer bra at night
Exclude caffeine	Works for some although not very efficacious in author's practice
Consider medication	
Evening primrose oil (GLA)	Better effect in women over 40 years old than in younger women
Danazol, 100 mg three times a day	Start at 100 mg per day and increase (seldom used these days)
Tamoxifen	Not licensed for this indication but occasionally very helpful

For non-cyclical mastalgia ***it is important to exclude extra mammary cause such as chest wall pain. Some time it is necessary to carry out a biopsy on a much localized area of tenderness that may harbor a sub clinical cancer.***

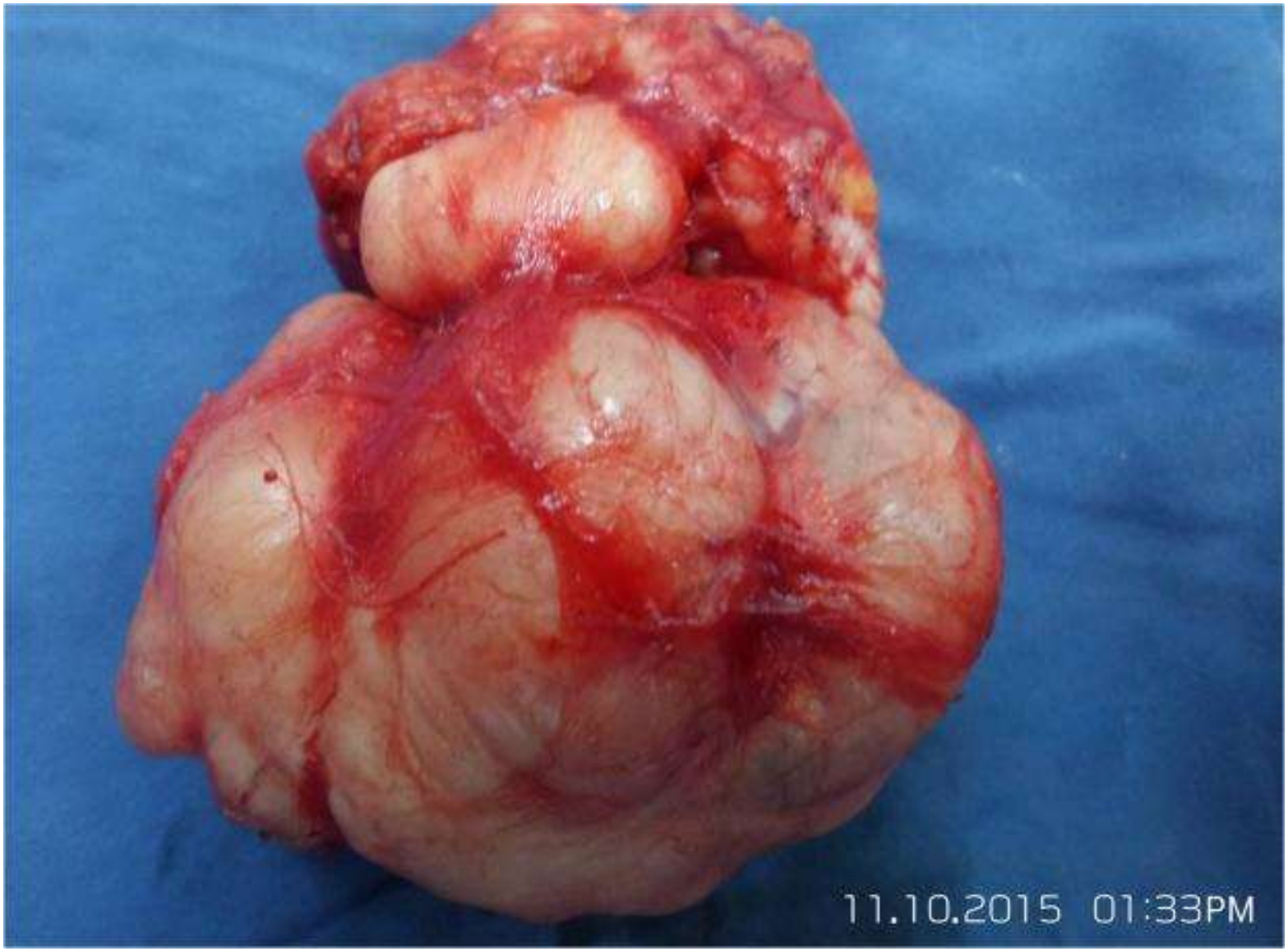
- ***For fibroadenoma when diagnosed by fine needle aspiration, it can be enucleated through a cosmetically appropriate incision.***
- In patient less than 30 years, do not require excision unless associated with suspicious cytology or if they become very large or if the patient wants the lump to be removed. Giant fibroadenoma can also be enucleated through sub mammary incision

Fibroadenoma

These usually arise in the fully developed breast between the ages of 15 and 25 years, although occasionally they occur in much older women. They arise from hyperplasia of a single lobule and usually grow up to 2–3 cm in size. They are surrounded by a well-marked capsule and can thus be enucleated through a cosmetically appropriate incision.

A fibroadenoma does not require excision unless associated with suspicious cytology, it becomes very large or the patient expressly desires the lump to be removed.

Giant fibroadenomas occasionally occur during puberty. They are over 5 cm in diameter and are often rapidly growing but, in other respects, are similar to smaller fibroadenomas and can be enucleated through a submammary incision. They are more common in the Afro-Caribbean population.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Summary box 53.2

Benign breast disorder classification

Congenital disorders

- Inverted nipple
- Supernumerary breasts/nipples
- Non-breast disorders
- Tietze's disease (costochondritis)
- Sebaceous cysts and other skin conditions

Injury

Inflammation/infection

- *ANDI* (aberations of normal differentiation and involution)
    - Cyclical nodularity and mastalgia
    - Cysts
    - Fibroadenoma
- Duct ectasia/periductal mastitis
- Pregnancy-related
    - Galactocoele
    - Puerperal abscess

Table 53.3 Relative risk of invasive breast carcinoma based on pathological examination of benign breast tissue (American College of Pathologists Consensus Statement)[a].

No increased risk	Adenosis, sclerosing or florid
	Apocrine metaplasia
	Cysts, macro and/or micro
	Duct ectasia
	Fibroadenoma
	Fibrosis
	Hyperplasia
	Mastitis (inflammation)
	Periductal mastitis
	Squamous metaplasia
Slightly increased risk (1.5–2 times)	Hyperplasia, moderate or florid, solid or papillary
	Papilloma with a fibrovascular core
Moderately increased risk (5 times)	Atypical hyperplasia (ductal or lobular)
Insufficient data to assign a risk	Solitary papilloma of lactiferous sinus
	Radial scar lesion

Table 17-3 ANDI Classification of Benign Breast Disorders

	Normal	Disorder	Disease
Early reproductive years (age 15–25 y)	Lobular development	Fibroadenoma	Giant fibroadenoma
	Stromal development	Adolescent hypertrophy	Gigantomastia
	Nipple eversion	Nipple inversion	Subareolar abscess
			Mammary duct fistula
Later reproductive years (age 25–40 y)	Cyclical changes of menstruation	Cyclical mastalgia	Incapacitating mastalgia
		Nodularity	
	Epithelial hyperplasia of pregnancy	Bloody nipple discharge	
Involution (age 35–55 y)	Lobular involution	Macrocysts	—
		Sclerosing lesions	
	Duct involution		
	Dilatation	Duct ectasia	Periductal mastitis
	Sclerosis	Nipple retraction	—
	Epithelial turnover	Epithelial hyperplasia	Epithelial hyperplasia with atypia