

# Benign breast disorders

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## Abstract

Benign breast disorders (BBDs) account for over 90% of referrals to rapid access breast clinics. Many women experiencing breast symptoms fear they may have breast cancer, and GPs, because of the sensitivities around the diagnosis of breast cancer, and the fear of a 'delayed' diagnosis, have a low threshold for referral. It is also true that breast symptoms per se are poor discriminators between benign and malignant conditions, and clinical signs of breast cancer in the era of very high 'breast awareness' are subtle. The assessment of women with BBD consumes a substantial proportion of breast outpatient resources, yet most will only need a single multi-modality triple assessment. Although the exclusion of breast cancer is the primary concern of most women, they also seek an explanation of the aetiology of their breast symptoms and signs. A sound understanding of the anatomy, physiology and function of the breast is needed to manage this anxious cohort of women. In order to better understand BBD it is helpful to consider the following topics: congenital disorders; aberrations of normal development and Involution (ANDI); other miscellaneous problems. This article follows this format but in practice the majority of women with BBD fall within the ANDI framework.

**Keywords** ANDI; benign breast disorders; clinical resources; triple assessment

## Terminology

Benign breast disorders (BBDs) comprise an heterogeneous collection of non-malignant conditions that arise from the three main components of the breast: fat, supportive parenchyma and the epithelium of the duct–alveola lobule.

Although the term BBD is frequently also used as an abbreviation of benign breast disease this is a misnomer and instead the term 'disorder' rather than 'disease' should be used as most of the clinical entities seen in clinics are not pathological, but merely exaggerations of normal physiology.

## Incidence

The true incidence is difficult to define as many women will not seek referral, but it certainly accounts for between 90% and 95% of referrals to secondary care. Public awareness campaigns and heightened self-awareness, together with changes to NHS targets, explain the increase in referrals in recent years.

## Diagnosis

All breast referrals should now be seen in a rapid access breast clinic (RAC), staffed with breast surgeons or clinicians, radiologists, radiographers and, ideally, specialist nurses, to ensure as many women as possible are assessed in a single visit, and those

in whom a breast cancer diagnosis is excluded are confidently discharged. The need for further investigations or a follow-up appointment should be required in no more than 10% of referrals.

A careful breast history by an experienced clinician should point to the likely diagnosis in over 80% of women before any investigations.

Clinical examination should begin by observing the patient in the sitting position and asking her (him) to point to the site of the problem if it is localized. She (he) should then be asked to lie down with the head of the couch raised slightly for comfort. Then the breasts should be palpated gently, ideally starting with the 'normal' side. The examination can cover the breast in concentric circles from the periphery to the nipple or vice versa, or alternatively in a 'step ladder' motion from the lower inner aspect of the breast to the axillary tail. Whichever method is adopted it is important that all the breast tissue is examined rather than a cursory 'squeeze' in each quadrant.

Finally, each axilla should be palpated. It is helpful to learn to examine the left axilla with the right hand and the right with the left hand, in each case supporting the patient's arm with the opposite hand to relax the musculature around her shoulder.

If the symptom is unilateral non-cyclical pain it can be helpful to ask the patient to roll slightly to her side and place her hand on her hip then move her elbow forward to tense up the pectoralis major muscle. This can help distinguish pain of true breast origin from that of chest wall (pectoral tendinitis and fasciitis) origin.

After the patient has dressed she (he) should be given a probable explanation of the clinical findings and proposed course of action which usually involves some form of imaging.

## Breast imaging

The most useful imaging within the RAC are mammography and ultrasound.

Mammography is performed in all women 40 and over (some units chose 35 as the age cut-off for mammography but 40 is the age recommended by the Royal College of Radiologists Breast Group in the UK). With modern digital machines the dose of radiation is small and the resolution excellent. If clinically indicated, mammography in younger women with more dense breasts has an acceptable sensitivity and specificity compared with analogue (film) mammography.

While mammography is a useful screening investigation and is often employed to provide reassurance, in some women incidental benign and malignant lesions will be seen which will almost certainly require a diagnostic biopsy. Conversely, up to 5% of symptomatic breast cancers are not visible on mammography and are detected either on clinical assessment alone or by ultrasound of a symptomatic area.

In most units women with a palpable lump or a discrete mass seen on mammography will proceed to an ultrasound examination. This focused assessment aids the clinical and mammographic diagnosis, and enables symptomatic cysts to be drained under direct vision and solid lesions to be biopsied by wide bore needle (14 gauge).

If a mammographic abnormality is not seen on ultrasound a stereotactic core biopsy is necessary.

The use of breast MRI for the assessment of BBD is rarely needed other than in the assessment of suspected disruption of breast implants.

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If a benign lesion is to be managed conservatively (without surgical excision) it is essential that a tissue diagnosis is obtained with the possible exception of a solid lesion measuring less than 2 cm with the classical ultrasound appearance of a fibroadenoma in a woman under the age of 25.

The clinical (P), imaging (M or U) and (if performed) biopsy (B) findings are scored 1 to 5, with 1 representing normal, 2 benign, 3 equivocal (80% will prove to be benign), 4 suspicious (80% will prove to be malignant) and 5 malignant. All cases in which a biopsy is taken and those in which the clinical, imaging and/or biopsy results are significantly non-concordant should be discussed within a multidisciplinary meeting (MDM) before the patient can be safely discharged. The whole process is described as triple assessment and the results inform future management (Box 1).

### Congenital problems

These conditions are not common but can cause enormous anxiety and psychosocial morbidity especially in school age girls.

#### Assessment and management of common presentations of BBD

##### History and examination normal

<40 years (<35 in some units): reassure and discharge  
>40 years: screening mammogram (but warn of possibility of incidental findings)

##### Cyclical pain but normal examination

Lifestyle advice, e.g. smoking cessation, reducing caffeine intake, consider low-dose danazol in severe intractable cases  
<40 years: no imaging required  
>40 years: offer screening mammogram as above

##### Non-cyclical pain and normal examination

Examine for focal painful/tender areas  
<40 years: USS of focally tender or painful areas  
>40 years: Mammogram ± USS  
Reassure, consider topical NSAID gel, discharge if imaging normal

##### Discrete lump or nodularity

<40 years: USS  
>40 years: mammogram + USS  
For cyst: fine needle aspiration. Send sample for cytology if aspirate bloodstained, otherwise discard  
For solid masses: 14G core needle biopsy

##### Nipple discharge

Bilateral <40 years: USS ± serum prolactin  
>40 years: mammogram ± USS  
Unilateral <40 years, no other findings: USS and review 3 months  
>40 years, no other findings: mammogram + USS ± cytology  
If bloodstained at any age send sample for cytology

#### Box 1

### Accessory breast tissue and nipples

Accessory nipples are seen in about 1% of women and probably 0.5% of men. Most are single but they may be multiple. They can occur along the so called 'milk lines' anywhere from the axilla to the groin and if small are often labelled as a freckle or mole by the individual. The most common sites are in the anterior axillary line or a few centimetres below the infra-mammary crease.

The accessory nipple may be associated with some functional breast tissue which may enlarge with puberty and lactation.

Accessory axillary breast tissue can be present without an observable accessory nipple; this presents as a soft subcutaneous lump developing at puberty which can be sore and enlarge with the woman's normal menstrual cycle.

If symptomatic or embarrassing an accessory nipple with or without accessory breast tissue is easily removed under local anaesthetic, but the patient should be warned that scars, particularly in the axilla, can be painful and unsightly. Many clinical commissioning groups (CCGs) in the UK will not now fund these procedures.

### Under-developed and mal-development of the breast

These problems often do not become clinically relevant until the menarche when these young women become increasingly distressed by asymmetric or abnormally shaped breasts. In the majority there is no clear explanation for the problem. Typically, the girl will develop a hypoplastic or under developed pubertal type breast and a contra lateral larger ptotic 'pointed' breast with a disproportionate sized nipple–areola complex. Another abnormality is the so-called tuberous breast where the glandular tissue has an abnormally narrow base and the nipple–areola complex is again disproportionately large (Figure 1).

Such patients often request early surgery but should be counselled that surgery performed before reaching breast maturity may lead to additional problems. Most will require more than one operation, one to obtain a size match and the second to achieve shape symmetry. The attending surgeon must be trained in the full range of reduction, augmentation, mastopexy and mammoplasty techniques. Increasingly lipomodelling techniques are being employed for volume augmentation rather than the use of implants.

Poland's syndrome is a specific condition in which breast asymmetry occurs in combination with under development or



Figure 1 Developmental asymmetry.

absence of the pectoralis major muscle. There is a spectrum of clinical presentations from no pectoral muscle and amastia and even hypoplasia of the arm through to subtle and non clinical asymmetry.

### Aberrations of normal breast development and involution

This classification of benign breast physiology was compiled and popularized by the Cardiff Breast Unit. It provides an easily understood framework in order to reassure the patient that although she may be experiencing unpleasant symptoms, that this is a disorder and not a disease.<sup>1</sup> Treatment for most of these disorders is ideally conservative.

Throughout the woman's life the breast passes through three phases: development and maturation, cyclical and reproductive, and finally involution.

In each of these phases the breast parenchyma and duct–alveola components are subject to a varying hormonal environment. For most women most of the time the changes that occur in the breast at menarche, during the monthly menstrual cycle, during pregnancy and lactation, and later during and after the menopause follow a pattern. For some women, at each of these phases the normal physiology can become exaggerated and it is then that it may be described as a disorder (Table 1).

In clinical practice, however, women don't present with diagnoses but rather with a set of symptoms and signs, most commonly a breast lump, breast pain and less commonly a nipple discharge.

### Benign breast lumps

Fibroadenomas typically present in women under 25 as a single well-defined mobile ovoid and discrete lump. Occasionally they can be multiple and they may be tender. Small fibroadenomas (<1 cm) may remain static and are best managed conservatively. Larger lesions (>2 cm) may continue to enlarge and excision is often requested, although it is important to discuss the 'trade off' between a harmless lump and an operation that will leave a permanent scar, however carefully sited.

If the lump has both the clinical and ultrasound characteristics typical of a fibroadenoma and the woman is <25, recent evidence suggests that tissue diagnosis is not necessary.<sup>2</sup> For women >25 an US-guided core biopsy confirming the typical

histological features of a fibroadenoma must be obtained. Even with reassurance, up to 20% of women who initially opt to leave their fibroadenoma in situ return within 6 months requesting removal (Figure 3).

Fibroadenomas, as the name suggests, comprise mainly parenchymal/stromal tissue and minimal breast epithelial cellularity. These lesions, however, do lie on a pathological spectrum in which the ratio of stroma and cellularity can vary and if reversed become known as a phyllodes tumour.

Typically, phyllodes tumours present in women 35 years and older, usually as a rapidly growing well-defined lump; not infrequently they are over 5 cm at presentation. While most are benign, they can de-differentiate through a histological continuum of borderline lesions into a frankly malignant sarcoma. Phyllodes tumours often have a lobulated surface and they have a propensity to recur locally (20%) if not adequately excised. Benign examples should be excised with histologically clear margins, although wide margins are probably unnecessary. Particular care should be taken with borderline lesions and clinical follow up in these cases is recommended. Malignant phyllodes tumours are rare. They can very rarely metastasize to the lungs and it is important to exclude this before surgery with a plain chest radiograph or CT scan. Treatment is by mastectomy but lymph node staging is not necessary and immediate

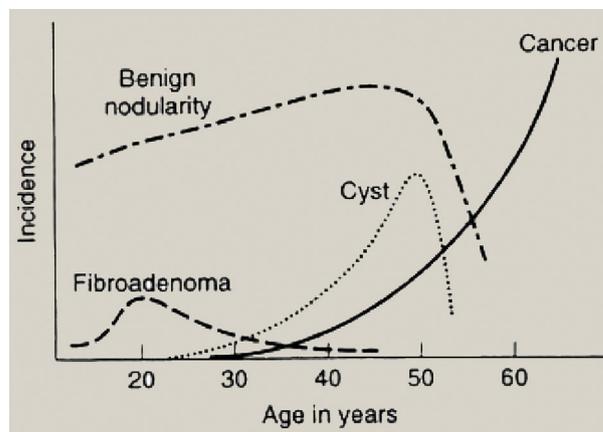


Figure 2 Distribution with age of clinical conditions presenting as a breast lump.

### The ANDI framework: aberrations of normal development and involution of the breast

Age (years)	Normal features	Aberrations
<25	<i>Breast development</i>	
	Breast parenchyma	Juvenile hypertrophy
	Duct–aleola lobule	Fibroadenoma
25–40	<i>Cyclical activity</i>	Cyclical mastalgia/nodularity
40–50+	<i>Involution</i>	
	Parenchyma	Sclerosing lesions
	Duct–alveolar lobule	Macrocysts Duct ectasia

See also Figure 2.

Table 1



Figure 3 Fibroadenoma being removed through a peri-areola incision.

reconstruction can be offered as there is no evidence in support of post-mastectomy radiotherapy.

### Breast cysts

Symptomatic palpable macrocysts are the most common cause of discrete breast lumps in women in their 40s. They may be single or multiple, unilateral or bilateral, often tender and if tense can feel firm like a malignant lump, although they are usually round and mobile. When they are not so tense they may be ballotable between two examining fingers. A well-defined mass lesion on mammography and a cystic lesion on ultrasound with needle aspiration to dryness is the usual diagnostic and therapeutic course of action. The aspirate is discarded unless frankly bloodstained. If after aspiration, re-examination with USS demonstrates a persistent mass lesion needle core biopsy should be performed to exclude papillary or malignant lesions.

After the menopause cystic changes quickly subside as it is an oestrogen-dependent phenomena, but women going onto and continuing with unopposed oestrogen hormone replacement therapy (HRT) remain at increased risk of recurrent symptomatic macrocysts requiring frequent clinic visits. They may find the anxiety of repeated breast clinic visits together with uncertainty each time that the lump will prove to be benign sufficient to reconsider their decision, but if they do decide to continue with HRT they should be encouraged not to ignore future lumps, assuming them to be further cysts because while cysts are common, so too is breast cancer and the two may occur in the same breast. Women with recurrent cysts, however, can be reassured they are not at increased risk of developing breast cancer as there is no causative link.

Microcysts contribute to the clinical entity of general cyclical nodularity. They are most frequently encountered in core biopsies taken from areas of non-specific nodularity in women with M3 and U3 assessments and represent what has previously been labelled benign breast change clinically or fibrocystic change or fibro-adenosis on histology. Following triple assessment and exclusion of cancer. These women are safely discharged from follow-up with an explanation that the nodularity will undergo cyclical change and may persist for varying amounts of time depending on the hormonal environment. Normal periods, either physiological or induced by use of the combined oral contraceptive pill (COCP) will tend to improve symptoms, whereas irregular periods tend to aggravate symptoms. Cessation of periods either by ovarian manipulation or following the menopause will relieve the symptoms of benign breast change.

### Sclerosing lesions

Radial scars or complex sclerosing lesions (CSL) are usually incidental, asymptomatic, screen detected, asymmetric densities requiring needle core diagnosis with either surgical excision or preferably wide bore vacuum-assisted needle core biopsy (7G VAB) for complete histological assessment. Up to 20% of radial scars or CSLs are associated with malignancy, usually DCIS and these should be excised surgically. Smaller lesions showing no malignant features after initial core needle and resampling with 7G VAB can be followed by annual mammography for 3–5 years. The aetiology of CSLs is unclear but in some the stellate

appearance on mammography may represent the outcome of the conflict between host (repair) and low grade tumour (damage).

### Nipple discharge

Up to 95% of women presenting with nipple discharge will have an underlying benign aetiology. The history and clinical examination should establish whether it is unilateral or bilateral and single or multi-duct. It should be ascertained if the discharge is frankly bloodstained, if the volume is profuse and whether the discharge occurs spontaneously or only when expressed. Other associated symptoms such as pain, a lump or nipple inversion should be recorded. Regardless of the colour of the discharge, if it is associated with a lump this should be assessed first.

Bilateral discharges are usually physiological and tend to be low volume, multi-coloured and associated with normal breast examination and imaging. These women can be reassured and advised to avoid unnecessary nipple stimulation.

If the discharge is excessive, more milky and outside of pregnancy consider galactorrhoea due to a raised circulating prolactin level. If the prolactin is raised, referral to an endocrinologist for consideration of a brain MRI is advised.

In the case of single duct, non-bloodstained discharge when clinical and imaging assessment reveals no other finding, and in >40 year old also has normal (acellular or benign C2) cytology, 50% or more will resolve within 3 months so it is entirely reasonable to adopt an initial conservative approach. The woman can be asked to keep a daily diary and if the symptom persists on review it is advisable to proceed to either a microdoectomy (single duct excision) if <40 years of age or a central duct excision if >40 years. Most of the pathologies that produce nipple discharge lie within 2 cm of the nipple projection so the aim should be to remove this amount of duct tissue at the time of surgery. A peri-areola incision should be used to give a neat scar and a holding stitch to avoid the nipple dropping back into the breast following approximation of the breast parenchyma. The most common findings on histology following ductal surgery for discharge are duct ectasia, cystic change and duct papillomas. Far less common are DCIS and invasive carcinomas.

### Breast pain (mastalgia)

Breast pain is extremely common, probably accounting for over half of all referrals to rapid access breast clinics. Almost all women will experience this symptom at some point in their reproductive years. It is important to establish whether it is cyclical or non-cyclical, although many women find this distinction difficult to differentiate.

If **cyclical** and usually bilateral it is both the cause and the intensity of the symptom that the woman is seeking advice about. The severity of pain and its response to any treatment can be objectively recorded using pain charts, but often simple reassurance that this is not a symptom of breast cancer is all that the woman is seeking and continued follow-up is mostly unnecessary.

Why there is such a spectrum of intensity of cyclical pain between women is not understood; theories include high oestradiol levels, insufficient progesterone and enhanced receptor sensitivity to otherwise normal circulating hormones.

Treatment options include:

- simple analgesia
- appropriate breast support
- reassurance
- normalization of irregular periods
- low-dose Danol (100–200 mg daily) for up to 3 months. At this reduced dose it is not acting through the anti-gonadotrophin pathway but directly on the breast tissue<sup>3</sup>
- tamoxifen, (10 mg daily) is unlicensed for use in breast pain but has been shown to be effective.<sup>4</sup>

**Non-cyclical** pain is usually unilateral and its cause may originate from the breast or from the chest wall. In practice, the woman usually assumes the pain to be coming from the breast and fears there is a sinister cause. If clinically there is nothing to feel and appropriate imaging (Table 1) is normal, revisiting the history and enquiring specifically about lifestyle, family activities, sport, history of trauma, other musculoskeletal disorders and re-examining focusing on the pectoral muscle or the costochondral junctions usually identifies the trigger activity producing the pain. Since the pectoral muscle lies deep to the breast, pectoral tendinitis or fasciitis will cause lateral chest wall tenderness or pains behind the nipple. Chest wall pain is frequently the underlying problem in the post menopausal woman complaining of unilateral breast pain.

Costochondritis (Tietze's syndrome) is particularly painful and most commonly is felt over the junction(s) between rib and cartilage 1–2 cm lateral to the sternum.

Musculoskeletal pain is usually self-limiting once the trigger activity is identified and avoided; a short period of continuous anti-inflammatories may help if very sore at presentation and if it does not resolve injection with local anaesthetic and steroid to the point of maximal tenderness can be useful.

Non-cyclical pain arising in the breast itself is probably less common and may be caused by local trauma, infection or abscess, a tense cyst, inflammatory breast cancer or inflammatory conditions such as chronic granulomatous mastitis.

### Breast infections

These are best subdivided into lactational and non-lactational.

#### Lactational

During breast feeding the nipples are traumatized and prone to cracking allowing bacteria, usually *Staphylococcus aureus* into the warm protein-rich culture medium of breast milk. Infection can spread rapidly and the woman may experience severe pain, tenderness and swelling of the whole breast with systemic symptoms of rigors and flu-like symptoms. Early admission to hospital with intravenous administration of appropriate antibiotics allows quick resolution. Some women will have a more localized infection that will either resolve on oral antibiotics or form an abscess. If the overlying skin is viable these lactational breast abscesses are best aspirated under USS control which is repeated every 48 hours until resolved. Antibiotics are usually continued for 7–10 days and it is advisable for the woman to continue to breast feed or express to avoid the breast becoming engorged.

#### Non-lactational

These occur most commonly in the peri- and retro-areola area and are associated with periductal mastitis. The majority of cases are heavy smokers or diabetic patients. Smoking cessation advice is an important part of the management in these women. The strong association with smoking is unclear but several factors have been postulated<sup>5,6</sup> including:

- local microvascular damage
- build up of toxic metabolites
- overgrowth of anaerobic and Gram negative bacteria.

Many of these women will continue to experience recurrent abscesses despite multiple courses of antibiotics and in the long term develop mammary fistulae. The abscesses frequently need aspiration and the fistula laying open under general anaesthetic.

If a woman repeatedly returns with inflammatory/infected breast abscesses, particularly if they occur away from the peri-areola area, a core biopsy should be obtained to exclude cancer and also to diagnose rarer causes such as chronic granulomatous mastitis, tuberculosis and actinomycosis.

Many women are also referred to breast clinics with inflammatory or infected skin conditions such as sebaceous cysts in the cleavage area, the inframammary folds and the hair-bearing skin of the axilla and conditions such as hidradenitis suppurativa. Usually these discharge spontaneously or can be incised and drained in outpatients and the underlying skin cyst dealt with surgically if there is any residual lump after the acute phase has settled.

### Other benign breast disorders

#### Fat necrosis

Trauma to fat results in an inflammatory response, followed by fibrosis and in the long term, dystrophic calcification. Women most commonly present with a lump noted after an episode of trauma, often with visible breast bruising at the time. The bruising resolves but the lump does not. This is seen commonly due to seat belt trauma following road traffic accidents.

Provided she is not too tender, standard imaging with mammography and USS is performed and as fat necrosis has a characteristic echogenicity it may not always be necessary to take a core biopsy if the history of trauma followed by visible bruising then the appearance of a characteristic subcutaneous lump is clear. In most cases, however, a biopsy is taken to confirm the diagnosis and give the woman confidence that the lump is harmless and will usually get smaller with time although it may not resolve completely.

Areas of fat necrosis are also often seen after breast reduction surgery or after fat transfer procedures and requires assessment as this benign condition can mimic a cancer.

#### Superficial thrombophlebitis

This usually presents as a tender, superficial linear 'cord' extending along a straight course. It is presumed to follow breast trauma and is a straightforward diagnosis requiring only reassurance that it is benign, self-limiting and at most requires just a short course of anti-inflammatory drugs for symptom control.

## Male benign breast disorders

Unlike the female breast, the male breast comprises just ductal tissue and supporting fatty tissue but no functional alveolar lobular units. Men can, nonetheless, experience several benign breast conditions, although in clinical practice these are far less common than in women at least in part because male breast tissue is not exposed to years of cyclical oestrogen/progesterone stimulation. In practice, men really only complain when their breasts are tender and/or too big (gynaecomastia) which frequently results in embarrassment. This happens when the male breast tissue is stimulated by changes in the hormonal balance between the tiny quantities of female estrogens/progesterins they have to the male androgens.

Gynaecomastia is best considered as either:

- true gynaecomastia caused by hypertrophy and hyperplasia of the glandular and parenchymal breast tissue or
- pseudo-gynaecomastia, which is more to do with the deposition of fat around the chest wall consequent to weight gain. There may be an element of associated true gynaecomastia due to paracrine hormonal factors.

True gynaecomastia is a normal transient phase of male puberty and at the other age extreme of testicular failure. Drug-induced breast enlargement is common (endocrine therapies for benign and malignant prostatic disease, spironolactone, proton-pump inhibitors such as omeprazole, tricyclic antidepressants and increasingly nowadays to recreational drugs such as cannabis and anabolic steroids). Rarely, gynaecomastia can be the presenting complaint in men with androgen secreting tumours or more commonly conditions that reduce circulating androgens or increase circulating oestrogens such as chronic liver disease, renal failure and hyperprolactinomas.

Assessment is by a careful history and examination. In most cases the cause is readily apparent and examination of the testicles and serum hormonal blood test are rarely required or appropriate. Exclusion of a male breast cancer is rarely difficult as this presents with a unilateral obvious firm lump behind the nipple–areola complex often with associated distortion or skin involvement, sometimes with palpable axillary nodes. The diagnosis is confirmed by triple assessment with USS  $\pm$  mammography and core needle biopsy. USS is the most useful imaging modality in true gynaecomastia which has characteristic appearances obviating the need for biopsy in most cases.

Treatment options include dealing with the cause if it is remedial, i.e. stopping or switching drug medication if this is possible but this should not be done without the knowledge or advice of the original prescriber.

In users of recreational drugs, appropriate advice should be offered and recorded in correspondence to the referring practitioner. Body builders will often request tamoxifen to suppress the gynaecomastia, but although this has been shown to be helpful it is an unlicensed indication in the UK. Suppression of androgenic effects with anti-oestrogen therapy (low-dose tamoxifen or danazol) should probably be only advocated in cases caused by treatment of prostatic disease which cannot be discontinued.

Surgical removal of the unwanted excess breast tissue is difficult and care needs to be taken not to excise too much tissue resulting in dimpling of the nipple postoperatively, which can be a far more distressing cosmetic problem. Peri-areola incisions are the norm but occasionally a full Wise pattern breast reduction may be necessary. Liposuction is not effective in true gynaecomastia as this breast enlargement has a high fibrous component but may be very useful in managing pseudo gynaecomastia as the percentage of fat is much higher. It should be noted, however, that most CCGs no longer fund these procedures for UK NHS patients.

## Summary

Benign breast disorders account for the majority of outpatient breast clinic referrals but for less than 5% of breast surgical theatre time or caseload since nowadays the investigation and management of these conditions is largely non-operative. As recently as 15 years ago removal of fibroadenomas was routine and women frequently had surgery for ‘fibro-cystic’ change. In the modern breast clinic close multidisciplinary working with accurate triple assessment comprising high-quality digital mammography and high-frequency USS together with image-guided 14G needle core biopsy has allowed the exclusion of a malignant aetiology in the majority with benign breast conditions. Most women are either happy to live with this reassurance and an explanation of their symptoms and use non-surgical remedies. Fortunately, many benign breast disorders are self-limiting. For the clinician a clear understanding of these conditions makes their management as rewarding as that of breast cancer. ◆

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