

MORE ABOUT... BREAST DISEASE

Gynaecomastia

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Definition

The male breast is a vestigial organ. In patients with gynaecomastia there is hypertrophy of the breast tissue (Fig. 1). The term gynaecomastia is derived from the Greek *gyne*, which means woman, and *mastos*, which means breast. Gynaecomastia is a common, benign condition and occurs in up to 60% of pubertal boys. It may be divided into two distinct groups, i.e. pubertal gynaecomastia, which is the most common, occurs between the ages of 13 and 17 years, and is mainly bilateral but may be unilateral; and senescent gynaecomastia, which occurs after the age of 50 years and is mainly unilateral.



Fig. 1. A 19-year-old man with gynaecomastia.

The histology of gynaecomastia shows ductal hyperplasia with increased subareolar fat in the early stages, but periductal fibrous replacement and stromal hyalinisation in chronic cases (Fig. 2).

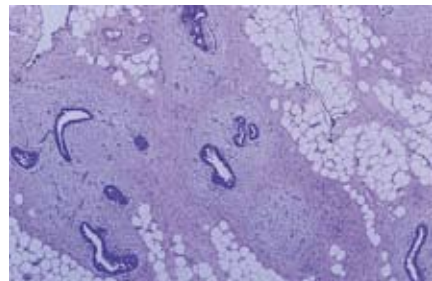


Fig. 2. Histology of gynaecomastia at an early stage, showing duct hypertrophy and plasma cell and lymphocyte infiltration.

Causes

Frequently there is no obvious identifiable cause. Whatever the aetiology, the ultimate mechanism is an increase in the ratio of circulating oestrogen to androgen. In men, sources of oestrogen are the testes, the

adrenal glands and the peripheral tissues (mainly fat), where there is conversion of testosterone to oestrogen by aromatisation.

Table I gives a comprehensive list of possible causes of gynaecomastia and Table II lists the drugs that have been associated with the condition.

Table I. A comprehensive list of possible causes of gynaecomastia

Physiological
Puberty
Senescence
Pseudo-gynaecomastia
Drugs
Metabolic
Liver disease (cirrhosis, alcoholism without cirrhosis)
Hyperthyroidism
Renal disease (especially renal failure)
Hypogonadism (primary and secondary)
Testicular tumours
Teratoma
Leydig's cell
Other malignancies
Bronchial carcinoma
Pancreatic carcinoma
Adrenal carcinoma
Gastric carcinoma
Chronic illness
HIV
Diet

Table II. Drugs associated with gynaecomastia

Cimetidine
Spirolactone
Digoxin
Androgens
Anabolic steroids (body builders)
Calcium channel blockers
Methyldopa
Ketoconazole
Tricyclic antidepressants
Chemotherapeutic drugs
Antiretroviral drugs
Recreational drugs
Heroin
Marijuana
Herbal ('natural') medication
Environmental/industrial oestrogens

The physiological group is by far the most common. Most adolescents who present with the condition have physiological pubertal gynaecomastia. It normally settles within 6 months. Some causes, such as hypogonadism, with resultant decreased testosterone production, are extremely rare. Examples include Klinefelter's syndrome, which may cause gynaecomastia in adolescents and young adults.

Gynaecomastia may also be caused by drug-, diet- or lifestyle-induced hormonal shifts. A careful review of all medication is important, as some over-the-counter drugs such as herbal products may be associated with the condition. Recreational drugs such as alcohol, cannabis and opioids may also cause gynaecomastia.

Evaluation

A careful history and an examination are mandatory. Pseudogynaecomastia has to be ruled out. It is characterised by excess subareolar fat without true breast tissue enlargement. Breast cancer also needs to be ruled out. It tends to present as a unilateral hard or firm mass associated with skin changes (dimpling, ulceration, oedema) and nipple changes (retraction, destruction, discharge). Male breast cancer accounts for about 1% of all breast cancers and tends to occur after the age of 60.

If breast cancer cannot be ruled out clinically, mammography, ultrasonography and fine-needle aspiration biopsy for cytology should be performed.

Laboratory tests to determine the cause of the gynaecomastia are rarely indicated when the clinical assessment is normal. The extent of such evaluation is debatable and includes serum human chorionic gonadotropin (hCG), luteinising hormone, testosterone, oestradiol, thyroid function and liver function tests. Further evaluation that may be indicated includes chest X-rays and ultrasound scans of the testes.

Treatment

The mainstay of treatment of gynaecomastia is reassurance. The breast enlargement will resolve in time, which can take up to 2 years. Therefore, a follow-up examination 6 months after the initial assessment should suffice. In some cases the acute proliferative phase is associated with pain; symptomatic therapy is therefore necessary in addition to reassurance.

If a specific cause can be identified, the underlying condition should be treated with appropriate therapy. If it is drug related, discontinuation of the causative drug or changing to another drug may suffice. Unfortunately, this does not guarantee resolution of the gynaecomastia if it has been present for a long time.

Hormonal therapy using tamoxifen or similar oestrogen-receptor modulators (e.g. raloxifene) is disappointing. Tamoxifen may be administered for a trial period of three months, but it has not been universally approved for the treatment of gynaecomastia. Tamoxifen has been used for the prophylaxis of gynaecomastia in patients receiving high doses of bicalutamide for prostate cancer, but the results are not convincing. Other drugs

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used in the treatment of gynaecomastia include danazol, testosterone and aromatase inhibitors, such as letrozole (Femara).

Subcutaneous mastectomy is indicated when there has not been regression of the gynaecomastia or when the condition is cosmetically embarrassing (Figs 3 and 4). The aim is to leave the nipple and areola in the correct position and attain symmetry with the opposite side, with minimal scarring. Subcutaneous mastectomy is performed via a circumareolar inferior margin incision. Very rarely, in cases of extreme gynaecomastia, excess skin has to be removed. Liposuction is another surgical option which, unfortunately, only removes fat and not the breast tissue – therefore it cannot be considered a total cure. It is an excellent option for pseudogynaecomastia.



Fig. 3. Before subcutaneous mastectomy for gynaecomastia.



Fig. 4. After subcutaneous mastectomy for gynaecomastia.

Further reading available at www.cmej.org.za

Nipple discharge

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A nipple discharge is only significant if it is spontaneous. Most women who have been pregnant can elicit a discharge if the nipple is constantly squeezed. Some women do this

as part of their breast self-examination and should be discouraged from doing so.

Investigation of a nipple discharge includes a good history, breast examination and investigations.

Good history

This should include the age of the patient, past medical and gynaecological history, family history of breast cancer and information on concomitant medication. The patient should be asked for how long and how often the discharge has been present. Is it from multiple ducts or from a single duct, milky, serous, purulent or bloodstained?

From the history it is often easy to ascertain that the discharge is caused by physiological factors, i.e. pregnancy or other states causing raised prolactin levels such as pituitary secreting adenomas, thyroid disorders, renal or liver disorders or a result of side-effects of concomitant medication, e.g. some antidepressants, antihypertensives, H₂ antagonists, oral contraceptives or marijuana.

Benign causes

Duct papilloma or epitheliosis/papillomatosis. These are non-cancerous growths in the ducts of the breast. They are the most common reason women experience abnormal nipple discharge and may result in a nipple discharge that contains blood or is sticky in texture. The discharge is often from a single duct.

Mammary duct ectasia. This is the second most common cause of abnormal nipple discharge. It is typically seen in women who are approaching menopause. This condition results in inflammation and possible blockage of ducts located underneath the nipple. When this occurs, an infection may develop which results in thick, greenish nipple discharge.

Fibrocystic changes in the breast. These can, at times, cause secretion of clear, white, yellow, or green nipple discharge.

Infection or abscess, when the discharge contains pus, indicating an infection.

Possible non-benign causes

Duct carcinoma *in situ* (DCIS) – single duct and copious nipple discharge. There may be mammographic changes such as microcalcifications indicative of DCIS. However, the mammogram may be normal.

Invasive carcinoma when the discharge is bloodstained and usually copious and there is associated breast or mammogram change.

Breast examination

First note whether there is any associated breast lump, skin dimpling, nipple retraction or associated axillary or supraclavicular

lymphadenopathy, which would immediately raise suspicion of a non-benign lesion. Careful examination of the discharge must be made noting whether one or multiple ducts are involved and the appearance of the discharge.

Occasionally the discharge cannot be elicited even after careful pressing around the areola, and then it is reasonable to ask the patient to elicit the discharge for you.

Investigations

Nipple cytology is often non-contributory, but may pick up inflammatory cells or benign duct cells or even abnormal duct cells and will reassure the patient if nothing is found.

Ultrasound of the breasts may reveal dilated subareolar ducts denoting mammary duct ectasia and in some cases can pick up the papilloma.

Mammography is mandatory if the patient is over 40 years of age or if there is a single duct bloody discharge.

If local breast disease is not thought to be the cause then serum prolactin, TSH, liver function and serum creatinine and urea and electrolytes should be checked.

Treatment

This depends on the cause of the discharge. Most nipple discharges are benign, especially if present from mult ducts and/or both breasts. If the patient is well and on no medication she can be reassured.

If the discharge is problematic or persistent then the only cure is surgery to remove the subareolar duct system.

Purulent discharges will settle with a course of antibiotics. As infection in ectatic duct systems most often occurs in smokers, advice to stop smoking will help decrease the recurrence rate.

Bloody nipple discharges always need to be taken seriously. If after careful examination, nipple cytology and mammography no carcinoma is found then a likely diagnosis is a duct papilloma. However, these patients must still be referred for a surgical opinion for a microdochectomy of the duct containing the papilloma.

Red flags for dipple discharge

- Nipple discharge in a male.
- Spontaneous persistent single duct discharge.
- Bloody nipple discharge.
- Discharge associated with a breast mass or clinical indication of a breast abnormality.

Further reading available at www.cmej.org.za