Gynecomastia in adult Sudanese patients

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Abstract

Objectives: To assess the magnitude of gynaecomastia and to investigate its presentations and the underlying causes in adult Sudanese patients who presented to Soba University hospital and Khartoum Teaching hospital during the period between April 2005 and August 2013

Patients and methods: This is a retro-prospective analytical hospital based study of all patients presenting with gynaecomastia during the period between April 2005 and August 2013.

Data from notes including presentation, examination, investigations and management was collected, and analysed**.**

Results: One hundred forty one adult patients with a mean age of 30 years were included in this study. The underlying causes of gynaecomastia in this study were hypogonadism in 14.6%, medications in 14.6%, chronic liver disease in 4.9% and testicular tumours in 2.4%. The commonest medications related to gynaecomastia were Cimetidine and Spirinolactone. Idiopathic gynaecomastia was diagnosed in 53.7% and it is strongly related to obesity, as more than 53.7% of patients were having a body mass index (BMI) above 25.

Surgery and liposuction were performed in 70.7% of cases and the rest of patients were either treated medically or reassured.

Conclusion: Careful history taking, physical examination and subsequent selective investigations are important in dealing with patients presenting with gynaecomastia. Causes are usually benign and surgery is indicated in 70% of patients including excision and liposuction.

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Background

Gynecomastia is defined as a benign proliferation of male breast glandular tissue [(1)]. The term comes from the Greek γυνή gyné (stem gynaik-)[(2)], meaning "woman" and μαστός mastós meaning "breast".It is usually caused by the altered ratio of estrogens to androgens or increased breast sensitivity to normal circulating Oestrogen levels resulting in ductal hyperplasia, elongation, and branching, along with fibroblast proliferation and increased vascularity[(3-6)]

The enlargement is frequently bilateral[(7)].Clinical classification of gynaecomastia is shown in Table 1.

The causes of gynaecomastia may also include decreased levels of testosterone such as in patients with gonadal failure, which can be primary such as in Klinefelter syndrome and mumps orchitis or it could be secondary due to hypothalamic or pituitary diseases. The balance between free testosterone and oestrogen is also affected by serum levels of sex hormone–binding globulin, which is responsible for gynaecomastia in certain conditions, like hyperthyroidism, chronic liver disease and some medications such as spironolactone[1]. Androgen receptors may be blocked by medications like Bicalutamide, used in the treatment of prostate cancer, may also lead to gynaecomastia[7].

Treatment of gynaecomastia includes withdrawal of causative medications or treatment of the underlying medical conditions. In idiopathic gynaecomastia reassurance and periodic follow-up are recommended[8]. Oestrogen receptor modifiers (e.g. Tamoxifen, Danazol) appear to be fairly safe and beneficial in treating gynaecomastia[9]. Surgery is the criterion standard treatment for gynaecomastia and subcutaneous mastectomy is the best and in some cases liposuction alone may be sufficient when the breast enlargement is purely due to excess fatty tissue[10,11].

Patients and methods:

This is a retro-prospective and prospective hospital based study of 141 adult patients with gynaecomastia who presented to Soba University hospital and Khartoum Teaching hospital in the period between April 2005 and August 2013. Breast cancer and inflammatory conditions of the breast were excluded. All 141 patients were evaluated by taking detailed history, reviewing the risk factors together with clinical examination searching for the causative factors. Breast examination was done to differentiate between benign and malignant conditions. Anthropometric measurements (body mass index), investigations including breast US, hormonal profile (Oestrogens, Testosterone, FSH, LH, Prolactin) were done in all patients and FNAC was performed in suitable cases. Data was collected, retrieved and analysed.

Results

One hundred and forty one adult patients with a mean age of 30 years were included in this study, 83% of them were from the Centre and North of Sudan and none from the South Sudan. Patients who presented with breast swelling alone were 92.7%, while patients who presented with painful swelling were 7.3%. Seventy eight percent of the patients presented with bilateral gynaecomastia, while the rest presented with one sided breast swelling (14.6% and 7.4%) left or right side respectively. Body mass index (BMI) of more than 25 was detected in 53.7% of the patients.

Histopathology results in all patients did not show evidence of malignancy. Associated conditions were hypogonadism and medications (14.6% each), chronic liver disease in 4.9% and testicular tumors in 2.4%. The commonest medications related to gynaecomastia in this study were Cimetidine, Ranitidine, Omeprazole and Spirononolactone. Low testosterone levels were found in 14.6% and oestrogen was found to be normal in all patients. Eventually idiopathic gynaecomastia was diagnosed in 53.7% of cases (Table3).

Twelve percent of the patients were reassured or referred to other disciplines (liver disease, teticular tumours and varicocele) , medical treatment or alterations of medications were used in 19.5% of cases while surgical intervention in the form of excision or liposuction were performed in 69.4% of cases. Liposuction alone was performed in 48%, subcutaneous mastectomy in 38% and reduction of the skin and subcutaneous mastectomy in 14%.

Discussion

The mean age of patients in this study was 30 years, at this age the psychological effect on patient`s life represented the major reason for seeking medical advice while those who presented at an older age were significantly worried about malignancy, all patients who had unilateral gynaecomastia complained of painful swelling.

In this study, the majority of patients presented with bilateral gynaecomastia. More than eighty percent of cases were from the centre of Sudan and none was from the South Sudan, this could be due to under estimation of gynaecomastia or due to poor primary care facilities. This point needs further research.

The aetiology of gynaecomastia in this study is comparable to that reported in the litrature[12,13] (Tables 2, 3). However, idiopathic gynaecomastia constituted 53.7% of the cases.

This could be related to obesity as the majority of patients had BMI of more than 25kg/m2. The imbalance b etween oestrogen actions relative to androgen at the breast tissue level together with extragonadal conversion of androgens to oestrogens

by tissue aromatase which occurs in obesity appear to be the explanation of gynecomastia[13-15].

Other factors that contributed to gynaecomastia in this study were primary hypogonadisim (9.8%), medications (14.6%) and testicular tumours (2.4%). This is comparable to literature reports[12, 13, 15].

Secondary hypogonadisim (4.9%), Chronic liver diseases (4.9%), hyperprolactinaemia (4.9%) and varicocele (4.8%), were other aetiological factors related to gynaecomastia (Table 3).These were also reported as causes of gynaecomastia[12, 14].

Testosterone was found to be low in 14.6% of cases in this study. On the other hand, oestrogen was normal in all patients. This could be explained by the theory of increased oestrogen receptors sensitivity to normal oestrogen levels[1].

Surgery and liposuction were performed in 69.4% of cases. Out of this liposuction alone was performed in 48%, subcutaneous mastectomy in 38% and reduction of the skin and subcutaneous mastectomy in 14%.

These techniques were reported as suitable surgical options[17]. In our series nearly 48% of patients had liposuction alone, this had limited the length of the scar in patients who were already concerned about the shape and size of their breasts.

Reassurance and periodic follow up was satisfactory in 19.5% of cases. In the rest of patients, withdrawal of medications and treatment of the underlying medical conditions (e.g. liver disease) was prescribed. Most cases of pubertal gynaecomastia resolved spontaneously[16]. The commonly used treatment procedure was liposuction, followed by subcutaneous mastectomy. Reduction mammoplasty was preserved for those with redundant breast tissue.

Table 1. Clinical classification of Gynaecomastia[17]

Grade I	Mild breast enlargement without skin redundancy
Grade Iia	Moderate breast enlargement without skin redundancy
Grade Iib	Moderate breast enlargement with skin redundancy
Grade III	Marked breast enlargement with skin redundancy and ptosis.

Table 2. Aetiology of gynaecomastia (published data[12,13])

Idiopathic gynaecomastia	25%
Pubertal gynaecomastia	25%
Secondary to medication	10–20%
Cirrhosis or malnutrition	8%
Primary hypogonadism	8%
Testicular tumors	3%
Secondary hypogonadism	2%
Hyperthyroidism	1.5%
Chronic renal disease	1%

Table 3 Aetiology of gynaecomastia (n= 141)

Cause	**Percentage**
Idiopathic gynaecomastia	53.7%
Primary hypogonadism	9.8%
Medications	14.6%
chronic liver disease	4.9
testicular tumours	2.4%
Secondary hypogonadism	4.9%
Hyperprolactinaemia	4.9%
Varicocele	4.8%

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