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Unilateral gynecomastia: The assessment of 23 patients

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ABSTRACT

Background: Gynecomastia is a benign enlargement of breast tissue that occurs especially during adolescence in males and generally requires treatment. Although most of cases are idiopathic and bilateral, there are instances that require special attention and be given unilateral status. In this study, the aim was to evaluate management of unilateral gynecomastia.

Methods: For this study, 23 male patients admitted to the authors' clinic between 2010 and2013 diagnosed with grade 2A and 2B unilateal gynecomastia were reviewed retrospectively. The patients' detailed medical history and physical examination notes, laboratory test results, history of medication use and photographs were examined. Mean follow-up time was 13.4 months.

Results: 11 patients were treated by strictly gland excision, four patients with only liposuction and eight patients with gland excision combined with liposuction. Gynecomastia was seen on the left side of the chest in 13 patients and on the right side in 10 patients. There were no complications. The specimens did not reveal any malignant causes.

Conclusion: Although most cases gynecomastia are idiopathic and bilateral, there are instances that require special attention and should be given unilateral status. Detailed evaluation including physical examination, history of drug use and concomitant medical disorders should be considered.

Key words: *Unilateral, gynecomastia, management, review*

Introduction

Gynecomastia is defined as benign breast enlargement in males as a consequence of hypertrophy of the breast glandular tissue. Up to 36% of males struggle with this condition. It can occur during different phases of a man's lifetime, whereas there are several peaks in terms of incidence defined as physiological [1,2]. Breast tissue has both estrogen and androgen receptors, and according to sexual differences, these hormones exhibit a precise balance. However, circulating levels of these hormones alternate, and gynecomastia is thought to result from imbalance, either pathological or physiological. Although the vast majority of cases are idiopathic, there are various etiologic factors defined in the literature, including endocrine abnormalities, tumor, drugs, alcoholism, systemic disorders and congenital [1-6]. Gynecomastia is likely seen bilateral, accounting for approximately 75% of cases, whereas in a number of circumstances, there is unilateralism. The main presenting symptom is palpable retro-areolar mass in the breast and this can be accompanied by tenderness, pain and swelling. Although the basic point of

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referral is usually associated with cosmetic concerns, especially for the adolescent population, it is important to rule out other pathological factors [1,2]. In particular, the primary concern is male breast cancer, amounting to 1% of all breast cancer cases. Thus, preoperative workup, including detailed medical history and physical examination, hormonal blood tests and imagining, may be performed [7,8]. True gynecomastia is defined histologically as proliferation of stromal and glandular tissue. Pseudogynecomastia is adipose proliferation without any glandular hypertrophy. In puberty, obesity is commonly associated with breast masses caused by fat deposition and, therefore, as a first line treatment, weight loss is significant. Essentially, gynecomastia that persists over two years has a very dramatically reduced chance of regression, so surgery has become the mainstay of treatment [1,2,6].

In the work presented here, the surgical approach to and clinical outcomes of patients that were diagnosed with unilateral gynecomastia and underwent surgical treatment are reported.

Patients and Methods

In this study, 23 male patients with a mean age of 24.9 years (17-73 years) who were admitted the authors' clinic between 2010 and 2013 and diagnosed with grade 2A and 2B unilateral gynecomastia were reviewed retrospectively. Patients' detailed medical history and physical examination notes, hormonal laboratory tests and ultrasonographic results, history of medication use and photographs were investigated (Figures 1,3). The clinical classification of gynecomastia was based on Simon's classification [1-3]. Excepting one patient who was diagnosed with Klinefelter's syndrome, no other patients had an association with any systemic disorder. Mean follow-up time was 13.4 months. Gynecomastia was seen on the left side of 13 patients and the right side in 10 patients.

Operative Technique

All patients were marked in the upright position and the arms were in a natural physiological posture. The surgical procedure was performed under general anesthesia. The surgical technique was planned with respect to gynecomastia grade and predominant tissue component. The breast tissue was infiltrated with a hypotonic solution and local anesthetic containing 1 ml of 1:1000 epinephrine and 20 ml 2% lidocaine before liposuction. Liposuction was performed via stab incision sites planned in the inframammarian fold and anterior axillar fold. A periareolar incision was made for excess gland excision. Through this incision, dissection continued in the subcutaneous plane and excess gland tissue was removed superiorly to the pectoral fascia and 0,5 cm of the disc of breast tissue was left undersurface the areola to avoid creating a saucer deformity. Drains were placed after surgical field hemorrhage control. Periareolar incisions were closed in layers. In all patients that underwent gland excision, specimens were sent for pathological assessment. After the procedures, all patients used a pressure garment for three months.

Figure 1. A grade 2B gynecomastia patient - preoperative view.

Figure 2. Postoperative view of patient with periareolar incision.

Results

11 patients were treated by only gland excision, four patients with just liposuction and eight patients by gland excision combined with liposuction (Figures 2, 4). Complications, such as haematoma, seroma, infection, nipple/aerola necrosis, persisting pain, recurrence and poor cosmesis, were not observed. Specimens did not reveal any malignant cause.

Discussion

Gynecomastia is the most common cause of male breast mass. To simply this condition, it is divided into three groups: 1) true gyencomastia, consisting of stro-

Figure 3. Another grade 2B gynecomastia patient - preoperative view.

Figure 4. Postoperative view of patient.

mal and glandular proliferation; 2) pseudogynecomastia, defined as fat deposition; and 3) the mixed type. Although various causes of gynecomastia have been described, idiopathic and physiological causes make up the largest part of etiology [1]. Among these causes, differential diagnosis should consider two conditions in particular, including pseudogynecomastia and male breast cancer [2,6,7]. Generally, gynecomastia is not a predisposition factor for breast cancer, except in the case of Klinefelter's syndrome. In a study based on measuring estrogen and progesterone receptors in gynecomastia patients, it was revealed that patients with Klinefelter syndrome were associated with elevated concentrations of estrogen and progesterone, therefore being linked with increasing risk for male breast cancer [6,7]. In the present study, one patient was diagnosed with Klinefelter's syndrome. Patients associated with special concomitant disorders should be informed about the additional risks to surgical correction.

Whereas gynecomastia is commonly seen bilaterally, roughly 25% of cases are unilateral. At the same time, in unilateral cases, gynecomastia tends to be occur in the left side [1,2,9]. Among patients included in this study, the dominant side was observed to be on the left. However, there were no marked differences between the left or right sides, 13 and 10 patients here, respectively.

Drug-associated gynecomastia is seen frequently, in up to 25%. In the literature, there is a wide range of medications that lead to gynecomastia, including isoniazid, use for treatment of tuberculosis, to imatinib, commonly prescribed in gastrointestinal tumors. Therefore, drug use should be questioned thoroughly [3,4,5]. The patients in this study have no history of drug use linked to gynecomastia.

Clinical presentation is key for diagnosis of gynecomastia. However, radiological studies, biochemical tests and, if necessary, biopses may be helpful for proper diagnosis [1,2,7,8]. In the authors' clinic, radiological testing, especially of the ultrasonography (US) form, biochemical tests and pathological workups are routinely utilized in unilateral presentation of gynecomastia. In a retrospective study carried out by Bowers et al., hormonal test were evaluated in terms of their cost-effectiveness benefits. They suggested that such testing should be performed in selected cases.

In the present study, specimens were subjected to pathological examination routinely. A review performed by Lapid et al. suggested pathological analysis for gynecomastia, especially in unilateral-type cases because of the higher risk for cancer. Several pathological findings are described in the literature, including pseudogynecomastia, pseudoangiomatous stromal hyperplasia, fibramatosis, liposarcoma and invasive carcinomas. Considering the incidence of male breast cancer has increased 26% over the last decades, assessment of specimens is beneficial for prescience of alternation in incidence that will serve to improve awareness about the importance of pre-treatment evaluation [1,7,8].

Histologically, gynecomastia is comprised of three phases. The Florid type is defined as proliferation in residual ductal units and is combined with proliferation of the periductal stroma. Intraductal epithelial hyperplasia is commonly seen. With respect to clinical features, this phase usually improves after nearly one year from the time of symptoms onset. Afterwards, there is progression to the fibrous type. These are associated with less epithelial hyperplasia and more hyalinized periductal stroma. Clinicaly, more solid mass is present with palpation. The third phase is known as intermediate type, containing both of the aforementioned phases. The histological features and their association with duration

of symptoms are a directive for treatment options. The chances of regression chance in gynecomastia that persists past one year decreases markedly, and so accordingly, surgical treatment should be advocated [1,2].

Imaging options includes mammography and ultrasound. Basically, three patterns are defined with mammography; nodular, dendritic and diffuse. Moreover, these are correlated with the histological features as described above. Nodular images correspond to the florid phase and dendritic images are consistent with the fibrose phase. At ultrasound, imaging typically reveals a hypoechoic echotexture. Ultrasound seems to be more suitable for males, and moreover provides beneficial advantages in the form of differential diagnosis between gynecomastia and cancer [1,2,7,8]. The authors routinely perform ultrasound imaging on patients before surgery, and if there is any suspicious features found during examination, cancer imagining may be recommended.

Several medical treatment options were applied to patients based on pathophysiology, including; antiestrogenic agents, androgens for protection of balance or aromatase inhibitors, drugs that block the enzyme that converts peripheral reverse androgens to estrogen. Further agents found in the literature include tamoxifen, danazol, and as an aromatase inhibitor, anastrazole. Nowadays, medical treatment generates less of a proportion of treatment modalities [1,2,4,5]. Only one patient had a history of tamoxifen treatment at another clinic. They visited the authors' clinic for persistent left side gynecomastia and expressed that they had no success from medical treatment.

Currently, surgery is the most important component of gynecomastia treatment. Especially when gynecomastia does not resolve spontaneously after two years, surgery should be selected [10-12].

Since the first surgical gynecomastia treatments were introduced by Paulus Aegineta (B.C 690-635), a number of surgical procedures were defined over the previous decades. In 1946, Webster described a model in which a semicircular incision was made in the border of the pigmented areola. Improvements in surgical techniques arose from seeking ideal healing and minimal scar formation with a robust breast contour. Based on this aim, in 1982, suction-assisted lipolysis and then ultrasound-assisted liposuction were introduced [10-11].

Ridha et al. showed that among these three different operative techniques, there was no difference in overall satisfaction rates. However, the surgical approach depended on the gynecomastia grade, dominance of glandular tissue, as well as association with skin excess and the patient's general expectations. Therefore, preassessment has a critical role in management [10-12]. In this study, technique selection was based of these factors. In terms of less evident scar formation, a periareolar incision was used for gland excision. In selected cases, conventional liposuction was performed to provide a proper chest wall contour. Patients did not disclose any significant complaints during follow-up visits.

Patients included in this study were classified based on Simon classification, all being defined as grade 2a or 2b. For these reasons, no additional surgical procedures were performed for excess skin redundancy that was strongly associated with more scar formation and less patient satisfaction [11,12].

Liposuction has limited benefits when removing excess glandular and fibrous proliferation, while less scar formation and satisfactory chest wall contours are achieved. Liposuction was conducted on only four patients with grade 2a gynecomastia, satisfactory results being obtained and no need for gland excision during the surgery [11,12]. There are techniques described for gland excision. One of them is the "pull trough" technique, introduced by Morselli, that has some disadvantages, like small amounts of tissue resectioning needed each time it is used. Yet, every technique has its own advantages and disadvantages and there is no standard surgical plan. Patient features and the surgeon's experience are important determinants for technique selection [10-12].

Conclusion

Gynecomastia is a benign enlargement of breast tissue in males, especially in adolescence. Although most cases are idiopathic and bilateral, there are situations that require special attention be given unilateral status. Detailed evaluation that includes physical examination, history of drug use and concomitant medical disorders should be considered. While there is no consensus on routine blood testing and imaging studies, it is suggested to perform these supportive assessments routinely

in unilateral cases. Though general medical treatment may be attempted, currently, surgical approaches are the cornerstone option. Consequently, gynecomastia evaluation and treatment should be individualized.

Conflict of interest statement

The authors have no conflicts of interest to declare.

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