Gynecomastia in Pediatric and Adolescent Patients (The role of surgery)

Essay

By

Mohammed Talat Mohammed Essa

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Under the supervision of

Prof.Dr. Ayman Ahmed AlBaghdady

Professor of Pediatric Surgery
Faculty of Medicine , Ain Shams University

Prof. Dr. Ehab Abdelaziz El-Shafei

Assistant Professor of Pediatric Surgery
Faculty of Medicine, Ain Shams University

Dr. Wael Ahmed Rdwan Ghanim

Lecturer of Pediatric Surgery
Faculty of Medicine, Ain Shams University

Faculty of Medicine
Ain Shams University

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List of Abbreviations

AFP	**Alpha Feto-protien**
AIS	**Androgen Insensitivity Syndrome**
ARDS	**Acute Respiratory Distress Syndrome**
ßHCG	**Beta Hormono Chorionic Gonadotropine**
CAIS	**Complete Androgen Insensitivity Syndrome**
DVT	**Deep Venous Thrombosis**
IU	**International Unit**
LH	**Leutenizing Hormone**
MAIS	**Moderate Androgen Insensitivity Syndrome**
NAC	**Nipple-Areola Complex**
PAIS	**Partial Androgen Insensitivity Syndrome**
PE	**Pulmonary Embolism**
PTP	**Periareolar transareolar Perithelial Inscion**
SAL	**Suction assisted Lipoblasty**
SHBG	**Sex Hormone Binding Globuolin**
UAL	**Ultrasonic assisted Lipoblasty**

Introduction

Gynecomastia is derived from the Greek terms (gynec) which means feminine and (mastos) which means breast. The literal translation, male breasts, is related to any condition that results in excessive development of breast tissue in males **(Devalia & Layer, 2009)**.

Gynecomastia results in significant functional and psychological limitations. The physical deformity may also be exquisitely painful. After initial presentation, boys are frequently advised to ignore the Gynecomastia and are told that it will go away. Fortunately, in most instances, cases of minimal subareolar pubertal-onset Gynecomastia do regress as puberty progresses. Individuals with no regression or even progression of the deformity often receive little or no understanding about the shame and humiliation they experience. Awareness of Gynecomastia needs to progress in order to inform the men and boys with Gynecomastia and their physicians what can be done to improve the condition **(Morrone et al., 2008)**.

Gynecomastia can occur in persons of any age. During adolescence, males develop firmness around the breast as the breast bud enlarges due to the hormonal fluxes of puberty which, regresses with time. Breast tissue is typically present on a microscopic level in male patients; a small amount of breast tissue is normal. The visible appearance of breast tissue in a male is abnormal**(Williams, 1993)**.

The etiology of most cases of gynecomastia remains unknown. The number of breast malignancies does not appear to be increased in patients with idiopathic Gynecomastia. Patients who present with Gynecomastia and

have Klinefelter syndrome do exhibit an increased incidence of breast malignancies.

By contrast, patients with idiopathic Gynecomastia did not demonstrate an increased number of estrogen or progesterone receptors. Also, the binding affinity of the receptors in both groups was not affected. The absence of elevated progesterone or estrogen receptors in patients with idiopathic Gynecomastia helps to explain why these patients rarely manifest breast malignancy **(Parker S, 2003)**.

Gynecomastia can be classified based on etiology. Idiopathic gynecomastia accounts for over 85% of cases that require surgical intervention. Physiological gynecomastia occurs primarily in newborns and in adolescents at puberty. In the newborn, the neonatal breast results from the action of maternal estrogens, placental estrogens.It disappears in a few weeks. Adolescent gynecomastia, is initiated during puberty. Breasts are often asymmetrical, and tender. Adolescent gynecomastia usually regresses by the latter teen years.

Pathological Gynecomastia may be due to testosterone deficiency, increased estrogen production, or increased conversion of androgens to estrogens. The pathological conditions associated with Gynecomastia include congenital anorchia, Klinefelter syndrome, testicular feminization, hermaphroditism, adrenal tumors and malnutrition.

Many pharmacological agents have been linked to Gynecomastia. These drugs can act exactly like estrogens, enhance endogenous estrogen formation, inhibit testosterone synthesis and action or act by unknown mechanisms (e.g. isoniazid, methyldopa, captopril) **(Williams, 1993)**.

Webster classified Gynecomastia into 3 types; The first is glandular: Patients with a glandular component require surgical removal of the gland. The second is fatty glandular: With the fatty glandular form **(Webster, 1944)**.

Another classification described by Simon was according to the size of the Gynecomastia Group 1 is minor but visible breast enlargement without skin redundancy. Group 2A is moderate breast enlargement without skin redundancy. Group 2B is moderate breast enlargement with minor skin redundancy. Group 3 is gross breast enlargement with skin redundancy that simulates a pendulous female breast **(Simon et al., 1973)**.

Treating the underlying cause of the gynecomastia may lead to improvement in the condition. Patients should talk with their doctor about revising any medications that are found to be causing gynecomastia. Often, an alternative medication can be found that avoids gynecomastia as a side-effect. The breast tissue tends to remain and harden, leaving surgery (either liposuction, gland excision, skin sculpture, reduction mammoplasty, or a combination of these surgical techniques) as the only treatment option. Compression garments can camouflage chest deformity and stabilize bouncing tissue bringing emotional relief to some. There are also many who choose to not treat the condition **(Wilson JD et al 1998).**

Aim of The Work

To study Gynecomastia in pediatrics and adolescent through discussing the following points:

- The problem.
- Epidemiology.
- Etiology.
- Relevant anatomy.
- Pathophysiology.
- Classification.
- Presentation.
- Related conditions and differential diagnosis.
- Indications& Contraindications of surgery
- Different and new modalities of surgical treatment.

The problem

Gynecomastia results is an increase in breast tissue in males that, when problematic, is readily detectable by other individuals. The increased tissue may be breast glandular tissue, adipose (fatty) in nature, or a combination of the two. This results in significant functional and psychological limitations. The physical deformation may also be exquisitely painful. As a general rule, the glandular tissue is significantly more painful than the fatty tissue. Situations like gym class may require children or adolescents to remove their shirts in the presence of other students. This can put a boy with gynecomastia in danger not only of embarrassment but also of physical harm.

Most patients have never heard of this condition until the family physician identifies it. The physician may be unaware of the possible causes of the condition and its psychological impact. After initial presentation, boys are frequently advised to ignore the gynecomastia and are told that it will go away. Fortunately, in most instances, cases of minimal subareolar pubertal-onset gynecomastia do regress as puberty progresses **(Devalia & Layer, 2009)**.

Epidemiology

Gynecomastia can occur in persons of any age. During adolescence, males develop firmness around the breast as the breast bud enlarges due to the hormonal fluxes of puberty. The subareolar firmness which normally develops regresses with time. Breast tissue is typically present on a microscopic level in male patients; a small amount of breast tissue is normal. The visible appearance of breast tissue in a male is abnormal.Also 65% of boys "may have the problem" but cautioned that it typically resolves. **(Nydick et al, 1961)**.

Webster, noted the incidence of gynecomastia to be around 8% in a series of naval patients, while ***Williams***, noted that 40% of men examined in his series of autopsies had gynecomastia to some degree.

Approximately 40% of healthy men and up to 70% of hospitalized men have palpable if not visible breast tissue. The incidence of some degree of palpable breast tissue in males increases to more than 60% in those in the seventh decade of life in one series **(Williams, 1993)**.

Etiology

1. Primary (physiological) gynecomastia:

Gynecomastia, a benign enlargement of the male breast resulting from proliferation of the glandular component of the breast, it can occur normally during three phases of life **(Santen, 2001)**.

a- Neonatal gynecomastia:

Occurs shortly after birth in both males and females. This is caused by the high levels of estradiol and progesterone produced by the mother during pregnancy, which stimulates newborn breast tissue. It can persist for several weeks after birth and can cause mild breast discharge called "witch's milk" ***(Santen, 2001)***.

b- Pubertal gynecomastia:

Up to 60% of boys at the age of 14, have detectable gynecomastia. Although it is mostly bilateral, it can occur unilaterally, and usually resolves within 3 years of onset ***(Santen, 2001)***.

In early puberty, the pituitary gland releases gonadotropins in order to stimulate testicular production of testosterone mostly