

# Unilateral Painful Gynecomastia as the Initial Manifestation of Graves' Disease: Case Report

## Graves Hastalığının Başlangıç Semptomu Olarak Tek Taraflı Ağrılı Jinekomasti

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**ABSTRACT** Although gynecomastia may be seen in males with hyperthyroidism, unilateral painful gynecomastia is a rare complication in hyperthyroid patients. We report unilateral and painful gynecomastia in a 56-year-old male patient with thyrotoxicosis due to Graves' disease. Physical examination revealed tachycardia, grade 1b diffuse indolent enlargement in thyroid gland and unilateral painful gynecomastia. Hyperthyroidism was diagnosed with laboratory tests and imaging techniques. Treatment of hyperthyroidism resulted in resolution of the gynecomastia. In conclusion, unilateral and painful gynecomastia is an unusual presenting feature of thyrotoxicosis. Therefore thyroid hormones must be evaluated in patients with gynecomastia even when it is unilateral.

**Key Words:** Gynecomastia; hyperthyroidism

**ÖZET** Jinekomasti, hipertiroidili erkeklerde görülen bir bulgu olmakla birlikte, bu hastalarda tek taraflı ve ağrılı jinekomasti nadirdir. Biz tek taraflı ve ağrılı jinekomasti ile başvuran ve Graves hastalığına bağlı tirotoksikoz tanısı alan 56 yaşında bir erkek hasta sunuyoruz. Fizik muayenede taşikardi, ağrısız grade 1b diffüz büyümüş tiroid bezi, ve tek taraflı ağrılı jinekomasti saptandı. Laboratuvar ve görüntüleme yöntemleri ile hipertiroidi tanısı kondu. Hipertiroidinin tedavisiyle jinekomastide gerileme oldu. Sonuç olarak; tek taraflı ve ağrılı jinekomasti tirotoksikozun başlangıç özelliği olarak nadiren görülür. Bu nedenle tek taraflı olsa da jinekomastili hastalarda tiroid hormonu değerlendirilmelidir.

**Anahtar Kelimeler:** Jinekomasti; hipertiroidizm

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Gynecomastia is the case in which the male breasts grow like female breasts. The etiological factors are persistent pubertal gynecomastia in 25%, drugs in 10-25%, unidentified cause in 25%, cirrhosis and malnutrition in 8%, primary hypogonadism in 8%, secondary hypogonadism in 2%, testicular tumors in 3%, hyperthyroidism in 1.5%, chronic renal failure in 1% of patients with gynecomastia.<sup>1</sup>

Bilateral gynecomastia has been known to be associated with thyrotoxicosis but does not usually occur as a unilateral painful enlargement of glandular breast tissue or as the presenting feature of the condition.<sup>2-4</sup> Here, we report a patient who applied with painful unilateral gynecomastia and was diagnosed with hyperthyroidism due to Graves' disease.

## CASE REPORT

A 56 year-old male patient, consulted our clinic with a complaint of painful right-sided gynecomastia without galactorrhoea for 6 months. He was not using any drugs and alcohol. The patient noted a decrement in libido, sexual potency and loss of 9 kg of body weight within 6 months. In physical examination, tachycardia (pulse: 112/min), grade 1b diffuse indolent enlargement in thyroid gland and sensitive and enlarged right breast tissue were found. Laboratory examination revealed normal alanine aminotransferase, creatinine, alpha-feto-protein and human chorionic gonadotropin levels. Thyroid stimulating hormone was  $<0.02$  uIU/mL (normal values: 0.35 to 5.5), free triiodothyronine was 5.8 pg/mL (normal values: 2.3 to 4.2) and free thyroxine was 1.9 ng/dL (normal values: 0.86 to 1.89). Thyroid autoantibodies including thyroid receptor antibody were positive. Hyperprolactinemia was excluded by normal serum prolactin levels. Serum luteinizing hormone was increased to 31 mIU/mL (normal values: 1.7 to 8.6), follicle-stimulating hormone was 28 mIU/mL (normal values: 1.7 to 7.7), sex hormone binding globulin was 70 nmol/l (normal values: 10 to 62), free testosterone was 8.1 pg/mL (normal values: 8.9 to 42.5) and, total testosterone was 5.3 ng/dl (normal values: 1.98 to 5.4).

Thyroid ultrasonography showed diffusely enlarged heterogenous thyroid gland with increased blood flow. Ultrasonographically, there was gynecomastia in the right breast and bilaterally normal testis. Diffuse hyperactivity was seen in thyroid scintigraphy (Technetium-99m Perchnetate). He was treated with methimazole using a dose-titration regime. Thyroid function tests, luteinizing hormone, sex hormone binding globulin, free testosterone and total testosterone returned to normal after 3 months treatment and remained in the normal range. The painful gynecomastia showed gradual improvement after 3 months' treatment with methimazole.

## DISCUSSION

Gynaecomastia represents the benign enlargement of the glandular breast tissue in the male. The most

common complaints are pain, swelling and tension. The patient is concerned about the possibility of breast cancer as well as the cosmetic appearance of the chest. Clinical examination is generally sufficient to diagnose gynecomastia, although mammography or ultrasonography may be required to exclude a mass or malignancy.

The major etiological factors of patients with gynecomastia are persistent pubertal gynecomastia, drugs, cirrhosis, malnutrition, hypogonadism, testicular tumors and chronic renal failure.<sup>1</sup> Gynecomastia is a well recognized but rare feature of hyperthyroidism and accounts for up to 2% of all cases of adult gynecomastia.<sup>5</sup> Although the real prevalence is below 10% in one study, gynecomastia in men who were hyperthyroid due to Graves' disease was reported in 25- 40% of the patients in other investigations.<sup>2,6,7</sup> This difference may be related to ethnic variations and the criteria that were used to identify the presence of gynecomastia.

Gynecomastia can be identified in men during the course of observation of hyperthyroidism and mostly Graves' disease.<sup>3,4,8</sup> Gynecomastia is usually bilateral and there is tenderness in patients with hyperthyroidism. Unilateral gynecomastia as the presenting feature of the condition is very rare in primary hyperthyroidism.<sup>3,4,8,9</sup> Our patient had Graves' disease as the cause of hyperthyroidism. However, his gynecomastia was not bilateral as commonly reported in the literature, but it was unilateral. In addition, this was the presenting symptom in the patient. It is recognized that even with clinically unilateral gynecomastia, bilateral gynecomastia may be present on histology.<sup>1</sup>

It is reported that gynecomastia appears as a result of an imbalance between stimulative effect of estrogen and the inhibitory effects of androgens (increase in the free estrogen/androgen ratio) in breast epithelial cells. Although progesterone may have an additive effect, prolactin does not usually have a direct effect on the development of gynecomastia. In thyrotoxicosis, the changes in sex hormones in male are raised total testosterone, dihydrotestosterone, sex hormone binding globulin, estradiol and luteinizing hormone. While the

increase in sex hormone binding globulin leads to a reduction in free testosterone, increased peripheral conversion of androgen to oestrogen appears to contribute to high estradiol concentration in hyperthyroidism.<sup>8,10</sup> Similarly in our patient, the gynaecomastia resolves after control of thyrotoxicosis, with reversion of histological changes.<sup>8</sup>

Here, we report a patient who presented with painful unilateral gynaecomastia associated with hyperthyroidism due to Graves' disease, a rare combination. He had a typical "thyrotoxic" sex

hormone profile with increased luteinizing hormone, sex hormone binding globulin and total testosterone and decreased free testosterone at the time of presentation. The biochemical abnormalities and the gynaecomastia reverted to normal with the reversal of thyrotoxicosis.

It should be kept in mind that although rare, unilateral and painful gynaecomastia may be the presenting feature of thyrotoxicosis and thyroid hormones must be evaluated in patients with gynaecomastia even when it is unilateral.

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