Gynaecomastia as a sole manifestation of Asymptomatic Hyperthyroidism

Introduction: Gynaecomastia is a well recognized feature of hyperthyroidism, we describe a 62 years old man presenting with bilateral enlargement of breasts to a surgeon in a breast clinic who was able to avoid mastectomy after having been treated for asymptomatic hyperthyroidism.

Case report: A 62 years old Caucasian male presented to a surgeon complaining of gradual enlargement of breasts for about six months with no obvious cause. The patient main concern was cosmetic as he felt embarrassed in his swimming sessions; as a result the surgeon had planned bilateral mastectomies to relieve patient's anxiety. But blood tests arranged by the surgeon discovered asymptomatic hyperthyroidism and referred to Endocrinology clinic. In the endocrine clinic patient did not report any other symptoms other than gynaecomastia He denied any problems with libido, normal hair distribution and normal external genitalias. The blood results were: FT4 58.3 pmo/L (8-20), FT3 24.3 pmo/L (2.5-6), TSH 0.010mU (0.2-4.0), Testosterone 37.6 nmol/L (8-27), SHBG > 180 nmol/L (15-55), FSH 19.9 IU/L (1-10), LH 21.9 IU/L (1-10), Oestadiol 374 pmo/L (<130), Prolactin 152mU/L (50-700), PSA 0.4, HCG 0 IU/L (<3), Cortisol 522nmol/L (184-623), normal FBC, LFTs, U&E's. The mammogram confirmed presence of bilateral gynaecomastia more on the left breast. Ultrasound of testes and CT scan of adrenal gland was normal. The patient treated with Carbimazole 40 mg daily. After 2 months his blood results revealed euthyroid picture with FT4 16.9 pmo/L, FT3 4.9 pmo/L and TSH of 0.04 however his gonadotrophins and sex steroid though decreased were still raised LH 11.6 IU/L, FSH 15.7 IU/L, Oestradiol 155 pmo/L and testosterone 20.4 nmol/L (normal). The patient has significant decrease in size of his breasts and this confirmed by repeat mammogram. We expect his breasts to regain their normal size in due course.

Discussion: The gynaecomastia has been mentioned as one of the manifestation of hyperthyroidism in 2-44 % of male patients. However it has been rarely reported as the only presentation of undiagnosed hyperthyroidism. It is possible that the patient did not appreciate the symptoms of hyperthyroidism. The gynaecomastia in hyperthyroidism caused by increased in the oestrogen to androgen ratio which has multiple explanations though the exact pathogenesis is not totally clear. Firstly elevated thyroxine levels stimulate the liver to increase SHBG, as testosterone has a 2- to -5 fold affinity for SHBG than oestradiol, it leads to low levels of active testosterone (free and albumin bound), which in turn stimulate high levels of LH and FSH which stimulate Leydig cells, which increase production of Testosterone and Oestradiol, until the bioavailability of Testosterone restored to normal and this raises oestrogen/testosterone ratio as evident in our patient having ratio of 374:37.6 causing gynaecomastia. In addition, increased thyroid hormone levels directly stimulate peripheral aromatase, which converts androgen to oestrogen and raises the oestrogen/androgen ratio even further. Lastly the subnormal levels of testosterone in an elderly male patient with raised LH and FSH, a picture suggestive of hypogonadism further tilt the oestrogen/androgen ratio in favour of oestrogen.

Conclusion: Gynaecomastia, painful or painless can be the only manifestation of hyperthyroidism and in many cases patient may not be able to appreciate symptoms suggestive of hyperthyroidism but most men are able to note any change in their breast size. Therefore is essential to include thyroid function in the work up of any patient with gynaecomastia. Recognition of this uncommon presentation in a common disease like hyperthyroidism will help to expedite therapy and avoid unnecessary investigation and treatment as exemplified by our patient who was saved from not-needed mastectomy.