Nodular gynecomastia: Mammographic and Ultrasound findings
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Authors: Mavromati A, Nikolaidou O, Zontou G, Stavrogianni T, Malamas D, Xinou K. Dept of Radiology, Theagenion Anticancer Research Hospital, Thessaloniki, Greece
Patient: 60 years, male

Clinical History:
A 60 year old man presented to our hospital with a palpable mass on his right breast.

Imaging Findings:
A 60 year old man presented to our hospital with a palpable mass on his right breast. He noticed a lump to his breast a few months ago but thought that would disappear on its own. His medical history included high blood pressure and depression, for which he was under medical treatment for the last decade. The clinical examination revealed a mild tenderness to the right breast but no nipple retraction or discharge. The patient underwent mammography, which showed a normal left breast (Fig. 1) while on the right one appeared a well-defined, homogeneous subareolar density radiating from the nipple in a concentric manner (Fig. 2,3). Ultrasound examination of the right breast demonstrated an hypoechoic area in the retroareolar region that was concentric to the nipple (Fig. 4) and had a low RI (resistance index <0,7) (Fig. 5), consistent with nodular gynecomastia. Taking under consideration the fact that tricyclic antidepressants are known to cause gynecomastia, the clinical doctors, including psychiatrists, tried to alter the offending medication in order to regress this benign breast lesion. The results of this treating approach are yet to be seen.

Discussion:
Gynecomastia, a benign enlargement of the male breast as a result of proliferation of the glandular component, is common, being present in 30-50% of healthy men. It may be an incidental finding, an acute unilateral or bilateral tender breast enlargement or a progressive painless enlargement of the male breast. Gynecomastia has been associated with an increase serum level of estradiol and a decreased level of testosterone. This increased estradiol-to-testosterone ratio may arise from physiologic changes at puberty and senescence, but it may also be caused by endocrine and hormonal disorders, systemic diseases, neoplasms and certain drugs. There is a roentgenological classification of gynecomastia including the following three types: nodular, dendritic and diffuse. Nodular gynecomastia appears as a fan-shaped density radiating from the nipple. The density usually blends gradually into the surrounding fat, but it may be more spherical. The nodular pattern correlates with the pathologic classification of florid gynecomastia, which is thought to be the early phase of gynecomastia. At histologic analysis, florid gynecomastia is characterized by hyperplasia of the intraductal epithelium with loose, cellular stroma and surrounding oedema. The ultrasound features of nodular gynecomastia include a low -density subareolar mass, which sometimes branches out into the breast resulting in a discrete triangular hypoechoic area. The majority of patients with gynecomastia require no treatment other than removal of the precipitating cause. If it is drug-induced, it
may regress if the offending medication is stopped. Treatment of hyperthyroidism, correction of hypogonadism and surgical removal of testicular, adrenal or other causative tumours can also lead to regression. Specific treatment for gynecomastia is indicated in cases where it produces significant pain, embarrassment or emotional discomfort; medical treatment or surgery. Androgens, anti-oestrogens, aromatase inhibitors and danazol have all been used to treat gynecomastia. When gynecomastia has been present for more than 2 years, medical therapy is not usually effective and surgery may be the only available option.

**Differential Diagnosis List:** Nodular gynecomastia

**Final Diagnosis:** Nodular gynecomastia

**References:**


Figure 1

Description: shows a well defined subareolar concentric mass

Origin:
Figure 2

Description: shows a subareolar density radiating from the nipple

Origin:
Figure 3

Description: shows the subareolar hypoechoic nodule with an hyper-vascular flow, surrounded by echogenic normal fatty tissue. Origin:
Figure 4

Description: reveals that the flow within the mass has a low resistance index (RI < 7), => benign lesion
Origin:
Description: a normal left breast which consists predominantly of subcutaneous fat. Origin: