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DEPARTMENT OF IMAGING SCIENCES

Imaging Sciences Interesting Cases

CASE 50

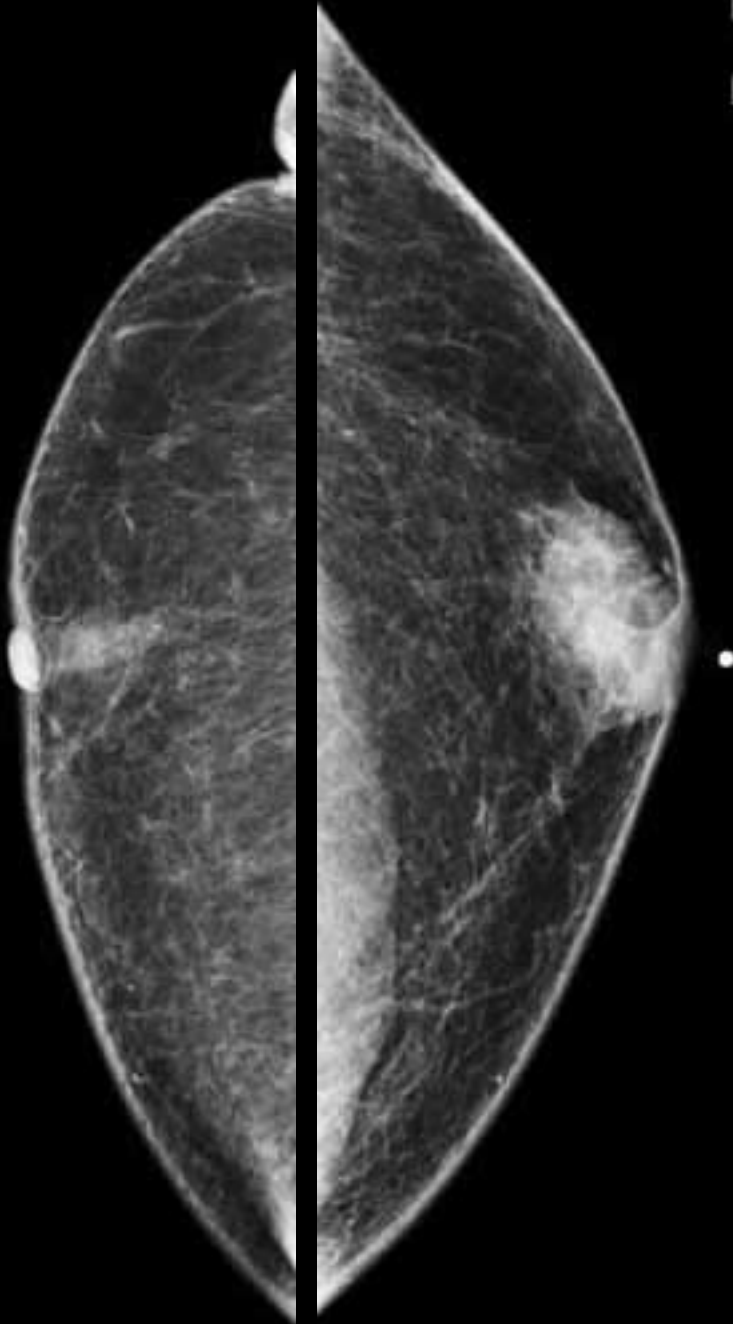
Edward Lin, MD

CLINICAL PRESENTATION: Patient is a 48-year-old male with a history of thyroid malignancy who presented with a skull base mass, vocal cord paralysis and a palpable lump in his left breast, which he noted over the past year. He now also reports increasing discomfort.

IMAGING FINDINGS: Standard two views and spot magnification 90 degree views of the breasts using full field digital mammography reveal predominantly fatty replaced breast tissue and an asymmetric left retroareolar mass. There is minimal glandular tissue in the right breast. Bilateral diagnostic ultrasound exhibits the same left retroareolar mass, which is predominantly hypoechoic with internal vascularity, well circumscribed and wider than tall. There is no appreciable mass in the right breast.

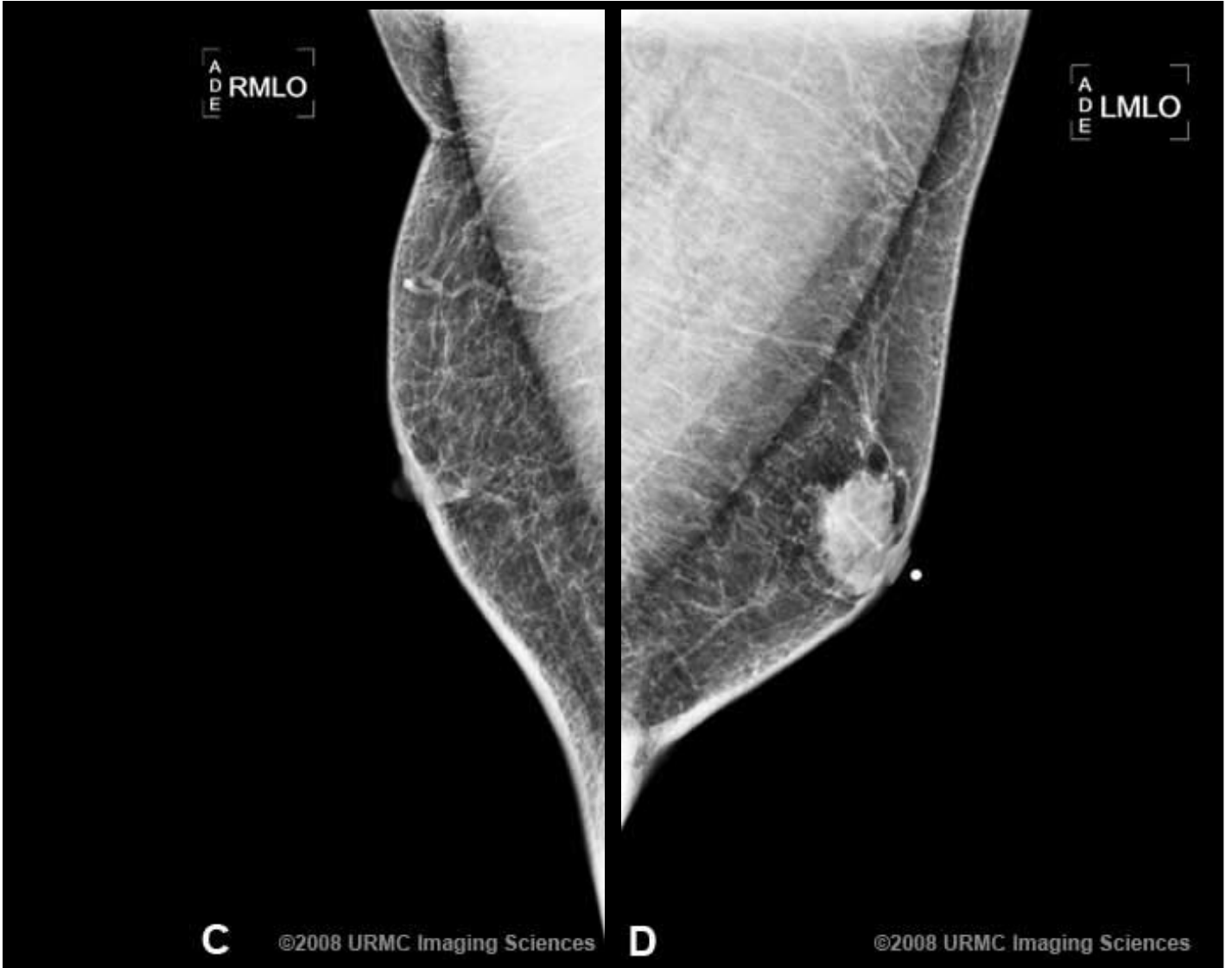
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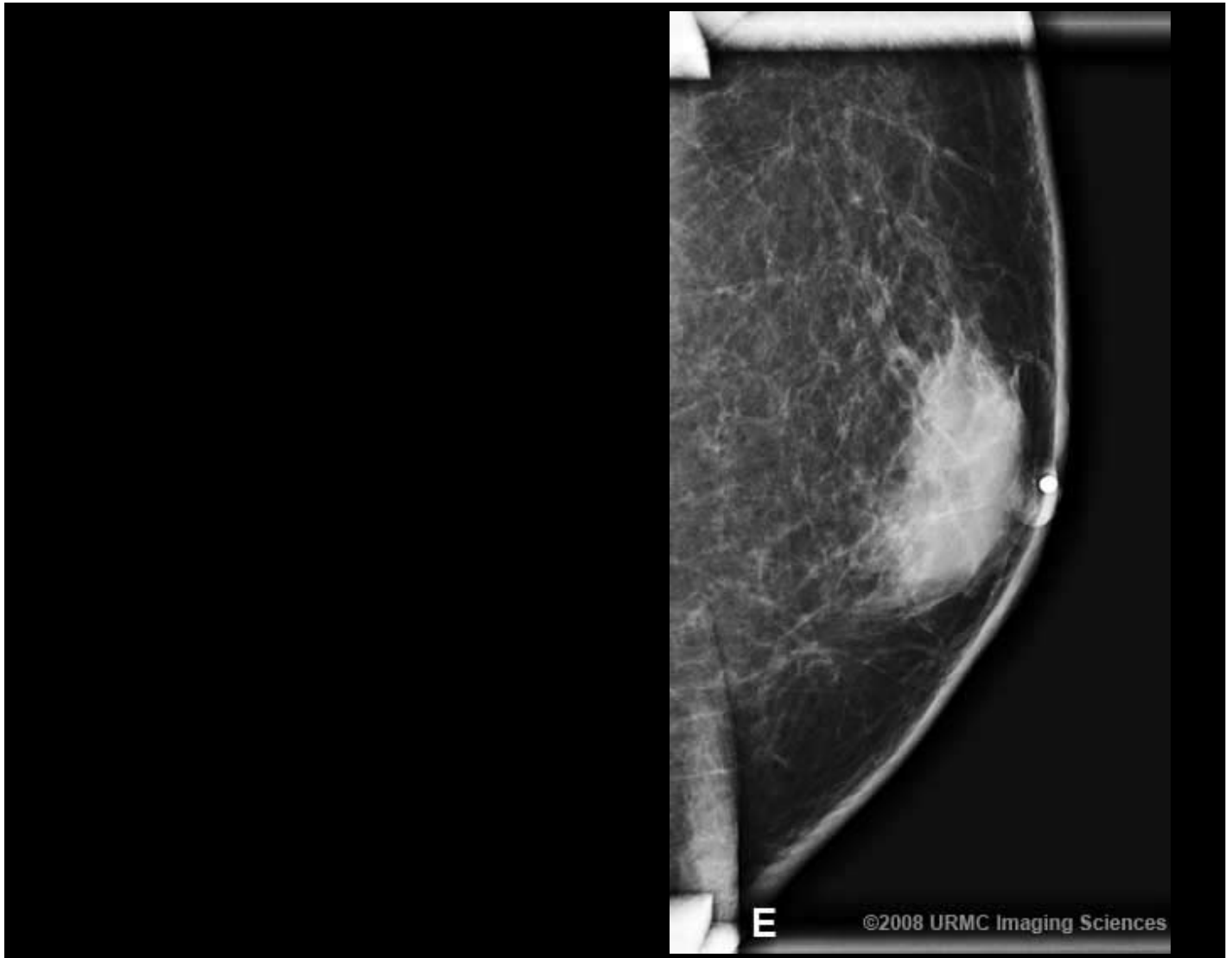


Figure 1: Left retroareolar mass. Standard craniocaudal (CC) (**A**-right and **B**-left) and mediolateral oblique (MLO) (**C**-right and **D**-left) views of the breasts demonstrate a 3 x 1 cm retroareolar partially well-circumscribed mass in the left breast. The right breast reveals minimal glandular tissue. Spot magnification 90 degree view (**E**) of the left retroareolar region exhibits the same mass without evidence of microcalcifications.

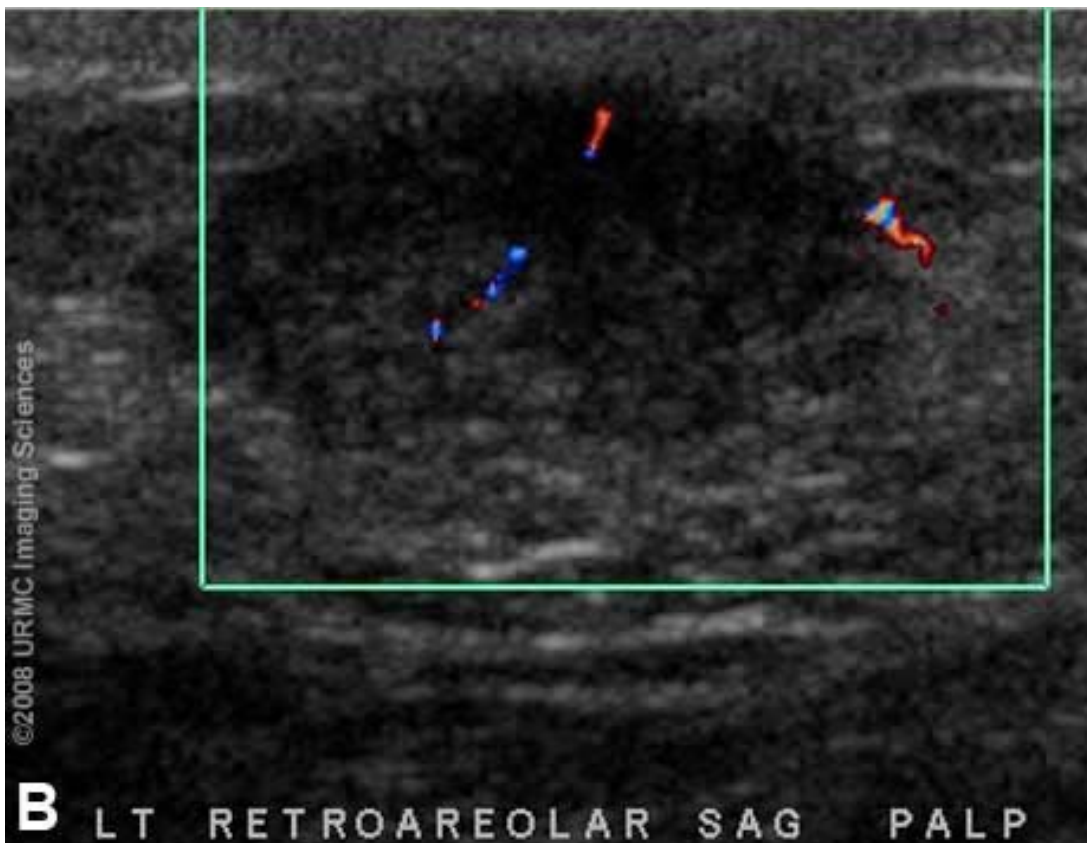


Figure 2: Longitudinal grayscale (A) and color flow Doppler (B) images of the left retroareolar mass demonstrate a lobulated, heterogeneous but predominantly hypoechoic mass with internal vascularity.

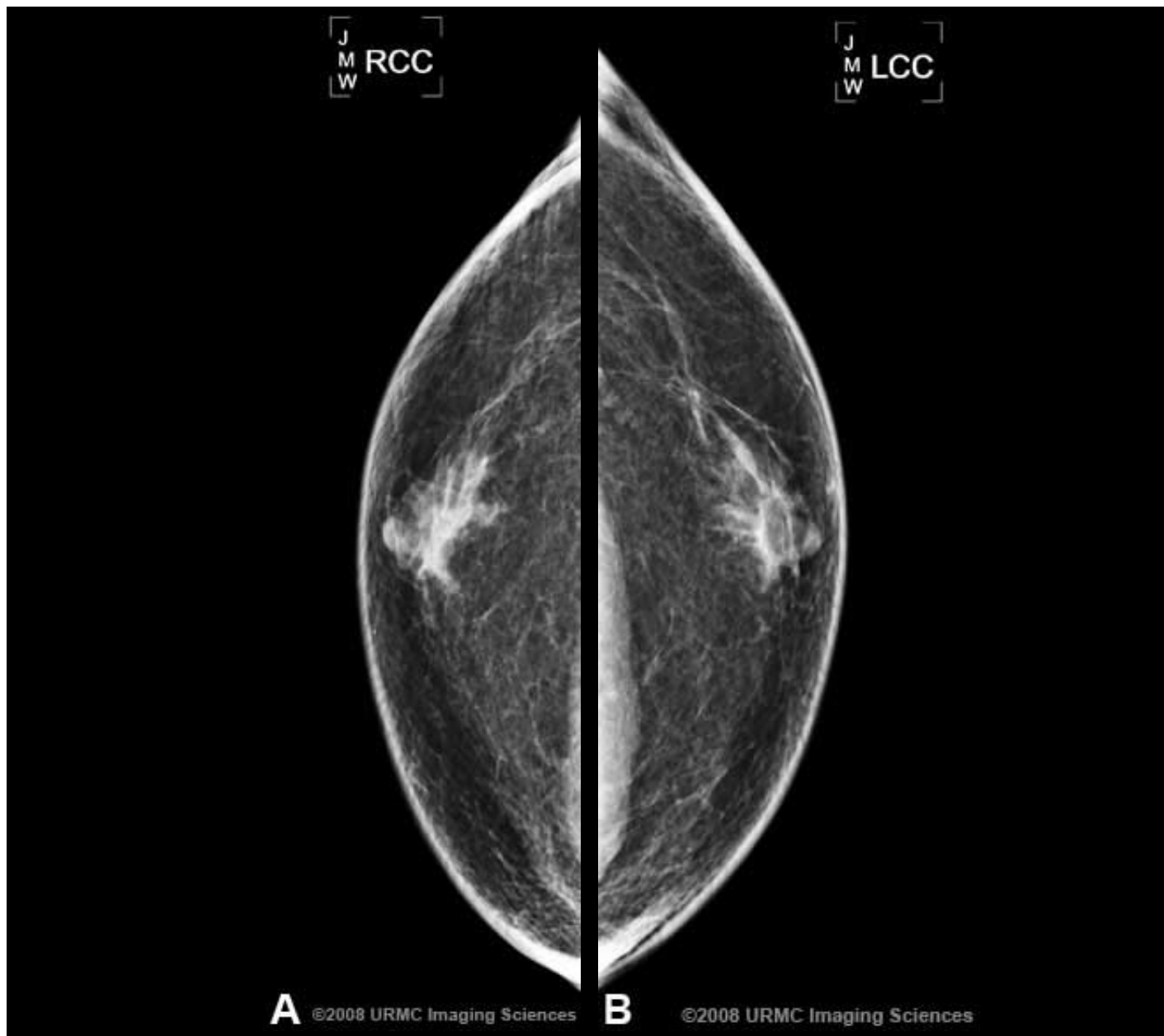


FIGURE 3: Bilateral CC views (**A**-right and **B**-left) using full-field digital mammography in a different patient demonstrating a more typical appearance of gynecomastia.

DIAGNOSIS: Gynecomastia

DISCUSSION: Gynecomastia is a common, benign process, typically occurring in males over the age of 44 years. It is the most common indication for mammogram in males. Gynecomastia results from hyperplasia of the ductal epithelium and stromal elements, often in response to an elevated serum estradiol-to-testosterone level. Estradiol levels are more commonly elevated in younger patients, whereas testosterone levels are decreased in elderly patients. Other etiologies of gynecomastia include endocrine and hormonal disorders, such as Klinefelter syndrome and hypogonadism, liver cirrhosis, chronic renal insufficiency, neoplasms such as adrenal or hepatocellular carcinomas, and drugs, including cimetidine, omeprazole, tricyclic antidepressants, Thiazide diuretics, spironolactone, diazepam and anabolic steroids. Patients with gynecomastia will often present with a soft, mobile tender mass in the retroareolar region.

The three mammographic appearances of gynecomastia consist of nodular, dendritic and diffuse patterns. These patterns correspond histologically to florid, fibrous and diffuse gynecomastia. Florid gynecomastia represents the early phase of gynecomastia, with areas of edema. Fibrous gynecomastia is a result of long-

standing gynecomastia, which contains dense, fibrotic stroma. Diffuse gynecomastia is similar in appearance to a heterogeneously dense female breast.

Nodular gynecomastia is the most common pattern and appears radiographically as a fan-shaped density in the retroareolar region (Fig. 3). The posterior edge may blend posteriorly into the adjacent fat or maintain well-defined spherical borders. The nodular type may be symmetric or occupy more of the upper, outer quadrant. Dendritic gynecomastia exhibits a retroareolar density with fibrous bands that extend into the breast tissue posteriorly.

The differential for gynecomastia includes breast cancer, lipoma, epithelial inclusion cyst, fat necrosis, lymph node and hematoma. The most common types of male breast cancer is ductal carcinoma in situ and invasive ductal carcinoma. Breast cancer typically manifests as a palpable, fixed and painless mass. On mammography, male breast cancer often occurs in the retroareolar region, sometimes eccentric in relation to the nipple. The mass can be well defined or infiltrative. Calcifications are more coarse and less common than those seen in females. Gynecomastia and male breast cancer usually exhibit mammographically distinct characteristics, but overlap of the two entities still prompt ultrasound and biopsy to confirm the diagnosis. In addition, an ultrasound can also help detect breast cancer when it is obscured by gynecomastia.

Due to the asymmetry of the left retroareolar mass, skull base mass and history of malignancy, this patient underwent a biopsy, which revealed gynecomastia with areas of duct ectasia and fibrosis.

REFERENCES:

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2. Michels LG, Gold RH, Arnat RD. Radiography of gynecomastia and other diseases of the male breast. *Radiology*. 1977 Jan;122(1):117-22. [PubMed]