

## Intramammary glomus tumor: Radiologic and pathological findings

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**Abstract:** We aimed to describe a histopathologically proven intramammary glomus tumor and presented mammographic and Doppler ultrasound findings. Glomus tumor is a relatively uncommon soft tissue tumor. It can occur at any age and anatomical site with a predilection for the subungual region. Usually there is no diagnostic difficulty for small, painful subungual nodules but it is more difficult in deep locations. The breast is a very uncommon location for a glomus tumor. Ultrasound characteristics of glomus tumors located in the hand region are known and published previously. With its slightly lobulated margins, lucent notch, and highly vascular nature, ultrasound characteristics of our case were rather different and not helpful when the other glomus tumors located in the hand region were considered.

**Key words:** Breast, glomus, ultrasound, Doppler, mammography

### İntramamaryan glomus tümörü: radyolojik ve patolojik bulgular

**Özet:** Histopatolojik olarak intramamaryan glomus tümörü tanısı alan bir olguyu mamografi ve Doppler ultrason bulguları ile birlikte sunmayı amaçladık. Glomus tümörü nisbeten nadir görülen bir yumuşak doku tümörüdür. Genellikle; küçük, ağrılı, subungual nodüllerin tanısında zorluk olmamakla birlikte daha derin lokalizasyonlu lezyonlarda tanısal güçlük mevcuttur. El bölgesinde lokalize glomus tümörlerinin ultrasonografideki karakteristik özellikleri daha önce tanımlanmıştır. El bölgesinde lokalize glomus olgularının aksine bizim olgumuz hafif lobüle kenarlı, düşük ekolu çentiklenmesi ve belirgin vasküler karakterli olması bakımından ultrason özellikleri daha farklı olup tanıya yardımcı değildi.

**Anahtar sözcükler:** Meme, glomus, ultrason, Doppler, mamografi

### Introduction

Glomus tumors are benign vascular tumors. The classical location of the glomus tumor is the subungual region. However, they can also occur elsewhere in the skin, soft tissues, nerves, stomach, nasal cavity, and trachea. Some rare locations other than breast tissue have also been described. This report describes a rare case of a glomus tumor with radiologic and pathological findings originating in breast parenchyma.

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### Case report

A 61-year-old woman underwent a mammographic examination for right breast pain. She had not had regular breast screening before. She denied any family history of breast cancer. Her physical examination was normal except a painful point in her right upper quadrant. Her breast pattern was lipomatous in mammographic examination (Figures 1 and 2). A nodular lesion with lobulated margins was apparent in the right quadrant in her mammography. The lesion had a diameter of 8 mm. B-mode Ultrasound (US) (Figure 3) showed a hypoechoic solid lesion with a mixed echo pattern. Doppler US examination was also added to the examination to show the lesion's vascularity. Color and Power Doppler imaging revealed that the lesion was highly vascular (Figures 4 and 5). Because the lesion's size, and vascular and contour characteristics were rather different

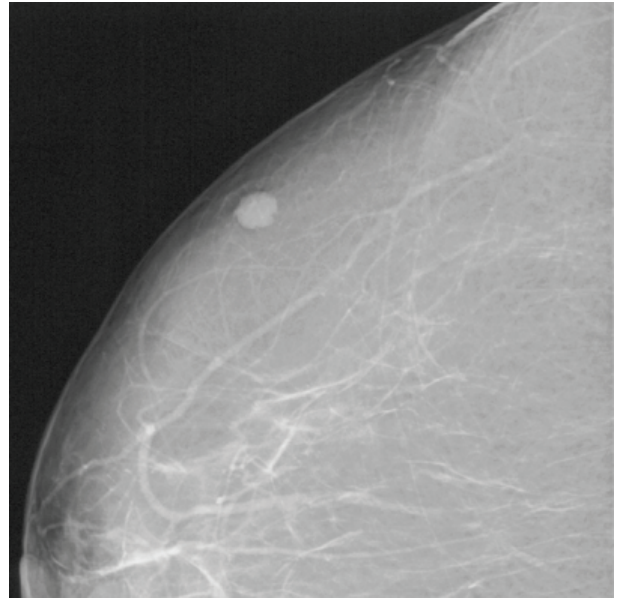


Figure 2. Close-up view of right CC mammogram of the lesion.

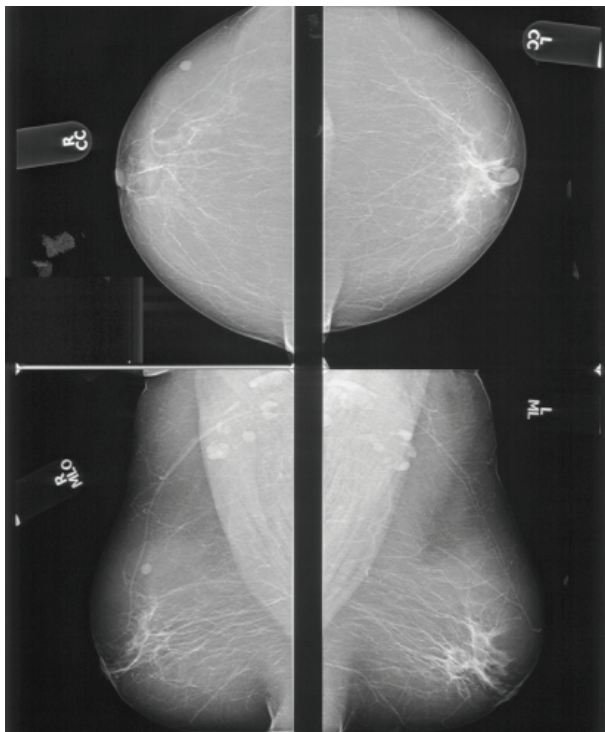


Figure 1. Bilateral craniocaudal (CC) and mediolateraloblique (MLO) mammography showing an 8 mm nodular right upper quadrant lesion that could easily be mistaken for an intramammary lymph node.

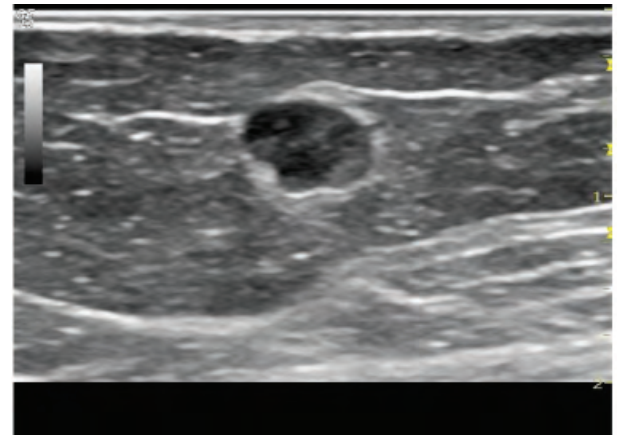


Figure 3. B-Mode ultrasound showed lobulated solid lesion with mixed echogenicity.

from those of an intramammary lymph node, an excision biopsy was planned. Excision of the mass was performed after sonographically guided needle localization. Histopathological investigation with immunohistochemistry revealed glomus tumor. It showed positive staining for smooth-muscle actin and focal vimentin positivity. The results were negative for desmin and estrogen (Figures 6-8).

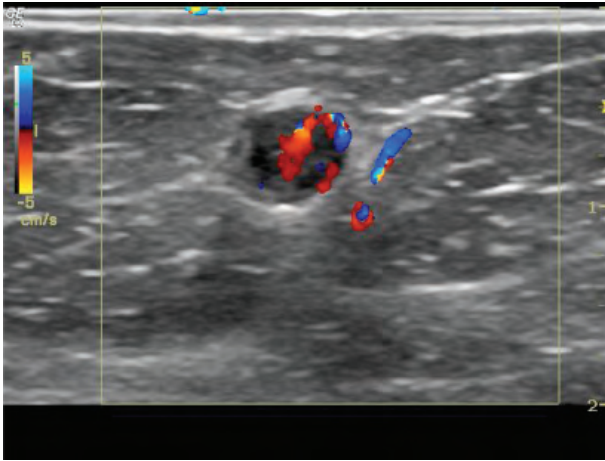


Figure 4. Color Doppler examination revealed the lesion's highly vascular nature.

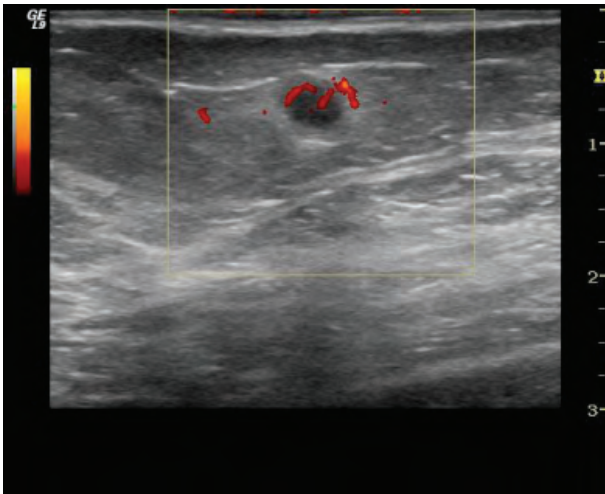


Figure 5. Power Doppler examination also confirmed the lesion's high vascularity.

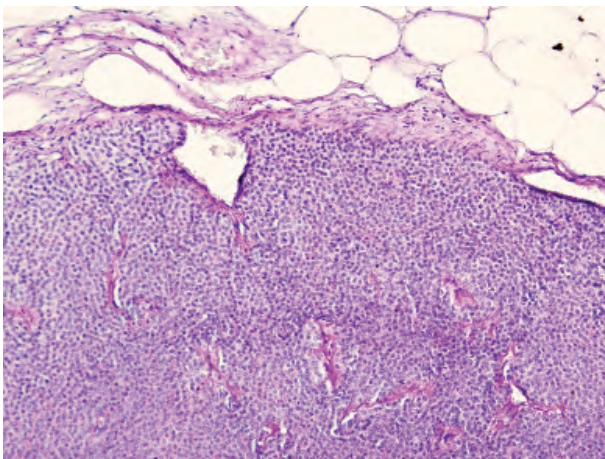


Figure 6. The tumor composed of glomus cells is well demarcated from adipose tissue. PAS 400×.

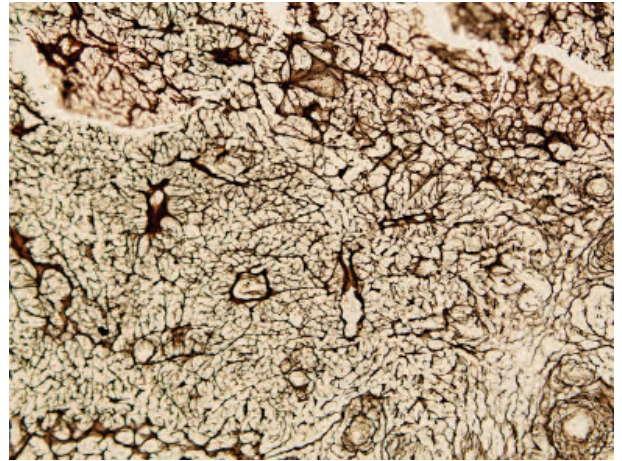


Figure 7. Reticular network of the tumor cells. Reticulum 200×.

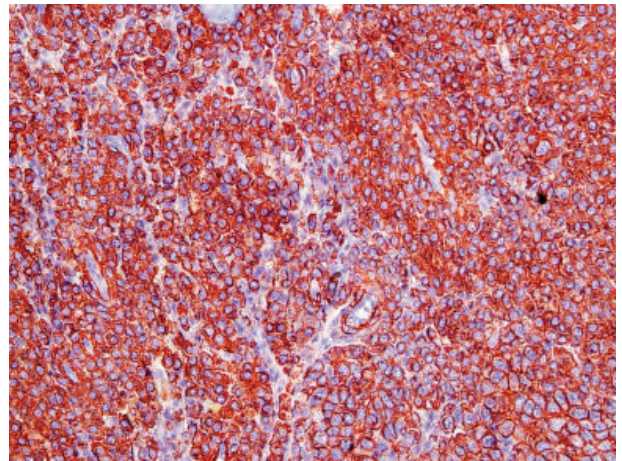


Figure 8. Tumor cells showed positive staining for actin. Actin 400×.

## Discussion

Glomus tumor is a relatively uncommon soft tissue tumor. It can occur at any age. The subungual region is the preferred site in glomus tumor (1). Usually there is no diagnostic difficulty for small, painful subungual nodules. The diagnosis is more difficult in deep locations. Glomus tumors are found in a variety of locations including the soft tissues (2,3), bone (4,5), gastrointestinal tract (6), trachea (7), lung (8), and oral and nasal regions (9,10). Although the appearance of glomus tumor is most suggestive histopathologically, immunohistochemical studies are used to confirm it (11,12).

Glomus tumors in breast localization are rarely reported in the literature. Biscelliga et al. stated that no glomus tumor in the breast had been recorded in the literature (13). Holck and Bredesens established a case of glomus tumor presenting as a solid, painless axillary mass in a 32-year-old female (14). Gould et al. described a potentially malignant form in a 26-year-old woman with 15 cm asymptomatic mass in axilla extending to the anterior and posterior axillary lines (15).

Plaque-like variety has been described as an unusual and very rare clinical form including some bluish nodules scattered on mamma (16). A glomus tumor with skin location involving the breast of a 26-year-old man has been reported (17). In our case the tumor was located deep in breast parenchyma.

Differential diagnosis of a smoothly marginated lesion with a slight lobulation in breast is variable,

including epithelial malignancies, vascular tumors, and solitary metastatic lesions (18). With its typical localization and lucent notch it can easily mimic an intramammary lymph node. However, ultrasound examination was not consistent with a lymph node showing echogenic hilus in this particular case (19). Intramammary nodes have an average size of 4-6 mm. They have usually hypoechoic cortex and hyperechoic fatty hila and they show normal hilar vascularity with Doppler US (20).

US characteristics of glomus tumors located in the hand region are known and published previously (21,22). With its slightly lobulated margins, lucent notch, and highly vascular nature, the US characteristics of our case were rather different and were not helpful when the other glomus tumors located in the hand region were considered.

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