

남성유방에서 유방암과 유사하게 보이는 과립세포종양: 증례 보고

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Granular Cell Tumor of the Male Breast Mimicking Malignancy: A Case Report

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Granular cell tumor of the breast is a rare tumor arising from Schwann cells. Although it is usually a benign tumor, its characteristics can mimic those of breast carcinoma clinically, radiologically, and macroscopically. The tongue is the single most common anatomic site involved; however, a granular cell tumor may arise in virtually any site of the body. We report on a 67-year-old male patient with a palpable breast mass presenting as an irregular mass on mammography and ultrasound.

Key words : Ultrasonography; Breast Neoplasms, Male; Granular cell tumor

Introduction

Granular cell tumor (GCT) of the breast is known as a rare tumor arising from Schwann cells. Male patients account for 6.6% of all GCTs of the breast and, according to one report, there were 21 cases with medical records describing male breast granular cell tumors; the initial clinical impression was breast cancer in most patients [1, 2]. From a search of electronic database MEDLINE, we identified three cases of male breast GCT, and no reports were found in the Korean radiologic literature.

Case Report

A 67-year-old male visited our hospital for evaluation of a non-tender palpable mass in his left breast. Physical examination showed a mass measuring approximately 2 cm in size, notified approximately six months ago, in the upper outer quadrant of the left breast. The man had no prior personal or family history of breast cancer. Mammography showed an irregularly shaped mass in his left breast measuring 2.8 cm in size (Fig. 1A). The mass retracted overlying skin with regional skin thickening. Neither axillary lymph node was enlarged. No associated calcifications were observed within the mass. On breast ultrasound examination, the lesion appeared as an irregular shaped

hypoechoic mass with echogenic halo and an indistinct margin with chest wall muscle in the left breast (Fig. 1B). We classified the mass as category 5 under the Breast Imaging Reporting and Data System (BI-RADS). Core biopsy with sonographic guidance was performed and the pathologic result was a GCT. Subsequently, the patient underwent surgical removal of the lesion. On gross examination, the tumor appeared as a grayish white, trabeculated mass measuring $2.0 \times 1.8 \times 1.0$ cm, without necrosis with

invasion of the overlying skin. Microscopically, the tumor was composed of cellular nests containing eosinophilic cytoplasm granules. In immunohistochemical analysis, the tumor was positive for S-100 protein and negative for pancytokeratin (Fig. 1C), showing deep reticular dermis involvement. Pathologically, there was no chest wall muscle involvement. No evidence of tumor recurrence has been detected after 14 months of follow-up.

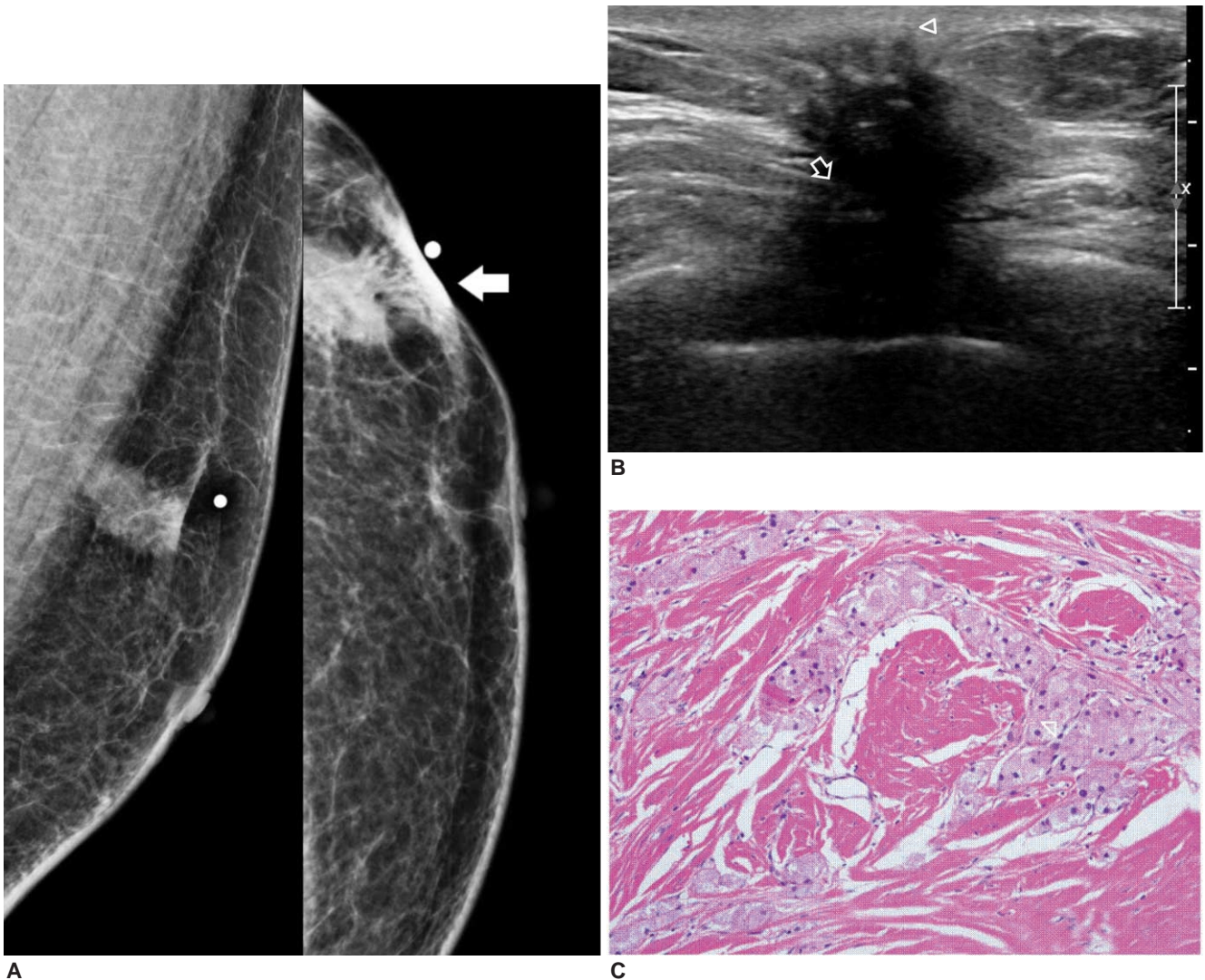


Fig. 1. A 67-year-old male patient with a palpable mass on the left chest wall.

A. Mammography shows an irregularly shaped, spiculated margined hyperdense mass with regional skin retraction (white arrow) in the left breast with radiopaque marker in the palpable lesion.

B. Ultrasound shows an irregular hypoechoic mass with echogenic halo, an indistinct margin with chest wall muscle (white arrow), and overlying skin thickening (arrowhead).

C. Microscopically, proliferation of polygonal to spindle shaped cells with abundant eosinophilic granular cytoplasm (white arrowhead) (Haematoxylin and eosin, $\times 200$).

Discussion

GCTs were fully described in 1926 by Abrikosoff, who proposed that they originate from striated muscle cells, and, as such, called them myoblastoma [3]. However, now, Schwannian origin has been found to be the most accepted histogenesis of a GCT that is invariably reinforced by immunoreactivity with S-100 protein, with neuron-specific enolase in maximum studies, or with ultrastructural confirmation of Schwannian differentiation [3, 4]. GCTs are large benign tumors that may be subcutaneous, intradermal, or submucosal. The most frequent site is the tongue; however, various localizations, including skin and visceral, have been reported. In a previous report, approximately 5% – 6% of cases of GCT were observed in the breast and it is generally known as an uncommon tumor of the breast with variously reported incidence, 4.9% – 15.9% [1, 4–6]. Male patients account for 6.6% of all GCTs of the breast [1, 7]. Some recent studies have suggested that GCT of the breast is less rare than previously suspected and should be considered routinely in the differential diagnosis of breast masses [3, 5]. GCT could be multifocal in up to 10% of cases [7]. Although GCTs of the breast are usually solitary, approximately 10% coexist with malignancy [5]. GCT of the breast is most common in premenopausal, middle age, and African American women [4, 8]. However, there is no known epidemiologic factor of GCT of the breast in male.

It usually manifests as a painless, firm, mobile mass in the breast. Occasionally, the mass is fixed to the pectoral fascia, chest wall, or skin with resulting dimpling, retraction, or edema. and simulates breast cancer [7]. In male patients, a GCT originating from the pectoralis major muscle can hardly be distinguished from a GCT of the breast [4, 7]. Misdiagnosis could potentially lead to unnecessarily aggressive treatment, therefore, differentiation of GCT from other primary breast tumors is important.

Mammographically, these tumors are known to vary in appearance, ranging from well-circumscribed

benign-appearing nodules to highly suspicious spiculated masses associated with skin retraction and thickening. No microcalcification was described in the majority of reports [3, 5, 6, 9, 10]. In most previous reports, GCTs were found to be hypoechoic on ultrasonography, however, in some cases, a hyperechoic portion of the mass was reported [2, 3, 5, 10]. GCT of the breast can show a heterogeneous echo texture, indistinct margin, increased blood flow, and posterior acoustic shadowing as well as more benign-appearing findings, such as a well circumscribed margin and posterior acoustic enhancement. Spiculations and angular margins, findings very suspicious for carcinoma, may be observed. On Doppler ultrasonography, a GCT may show variable vascularity [2, 3, 5]. In our case, mammography and ultrasonography showed several suspicious findings for malignancy, including an irregular shape with overlying skin retraction.

On MRI findings of breast granular cell tumors, T2-weighted imaging showed variable signal intensity ranging from low to high, and T1-weighted imaging showed low or intermediate signal intensity. On contrast-enhanced imaging, a variable enhancement pattern could be seen as either homogeneous or heterogeneous with or without rim enhancement [2, 9]. MRI was not performed in our case.

Clinically and radiologically, establishment of a definitive diagnosis of GCT of the breast without a biopsy is impossible. Ultrasonography guided percutaneous biopsy of the lesion is well established as the diagnostic procedure of choice for histopathology sampling, however, fine needle aspiration cytology has been reported to be effective in making a diagnosis of GCT [11].

While the majority of GCTs behave in a benign manner, occasional malignant cases have been described [5]. CGT, which is usually treated by wide local excision in order to avoid local recurrence, has a recurrence rate of 2 – 8% [7]. Due to the tumor's high degree of resistance, radiation and chemotherapy are not advised. Even when negative margins are not obtained, the prognosis is still favorable [12].

In summary, GCT is a rare breast tumor that mimics

breast malignancy both clinically and radiologically. For patients with a palpable mass of the breast, GCT should be included in the clinical differential diagnosis with carcinoma, and histological analysis of these lesions is required for achievement of a diagnosis and to avoid over-treatment.

요 약

과립세포종양은 슈반세포에서 기원한다고 알려진 흔치 않은 양성 종양이다. 신체의 다양한 부위에서 발생하며, 흔히 혀에 생긴다. 남성 유방의 과립세포종양은 매우 드물고 초음파소견에 대한 보고가 제한적이다. 이에 저자들은 남성 유방에서 유방암과 유사한 임상양상과 영상소견을 보이는 과립세포종양 증례를 경험하여 보고한다.

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