

**Granular Cell Tumor of the Chest Wall**

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**Abstract**

Granular Cell Tumors (GrCTs) often present as slowly growing painless nodules, and can arise in essentially any anatomical location, but occur most commonly in the head and neck. GrCTs are unique and so named because of the classic histomorphology of the tumor cells having abundant granular eosinophilic cytoplasm. The presence of these tumors in the chest wall has unique implications. The purpose of our case report is to review the diagnosis and management of a patient with a granular cell tumor of the chest wall.

**Key Words:**

Chest wall mass, Granular Cell Tumor

## **Introduction**

Granular cell tumors (GrCT), also known as Abrikossoff's tumor, and granular cell schwannoma, are rare, mostly benign neoplasms that were first described in 1926 by Abrikossoff (1). They often present as slowly growing painless nodules, and can arise in essentially any anatomical location, but occur most commonly in the head and neck. The tongue is the most common overall location (2). Other common sites include the respiratory tract with the spine being exceptionally rare (3). These tumors demonstrate extensive granular cell histology, and characteristically have large, round eosinophilic granules surrounded by a clear halo. The purpose of our case report is to review the diagnosis and management of a patient with a granular cell tumor of the chest wall.

## **Case Report**

The patient is a 63-year-old female with a history of hypertension, who presented to her primary care physician (PCP) with a chest wall mass. Her main complaint was chest pain localized to the chest mass. She noticed the mass several months prior to presentation and notified her PCP when the mass increased in size and began to cause pain. On exam the mass was localized to the right of the midline of the sternum 2 cm above the xiphoid. The mass was irregular in shape, non-mobile, and tender to touch. The patient underwent an extensive workup, which included a Computed Tomography scan that revealed an irregularly shaped soft tissue mass measuring 2.6 x 3.1 x 2.1cm. The mass abutted the costal cartilage and extended anteriorly to the skin surface. The patient underwent an incisional biopsy, which showed evidence of a granular cell tumor. She subsequently, underwent complete excision of her chest wall mass (Figure 1). The procedure involved a 3cm incision over the lower portion of the sternum, with an excisional biopsy (Figure 2). Post-operatively she recovered well and was discharged to home on the same day. The

pathology showed a 13.5g mass, measuring 3.4 x 2.5 x 2.5cm, with gray-pink, fibrous tissue streaking through areas of adjacent adipose tissue. The final diagnosis was a benign granular cell tumor.

## **Discussion**

The case presentation reviews a patient who was diagnosed with a chest wall granular cell tumor after developing chest pain. The chest wall as a potential location for this tumor is exceedingly rare (4-7). The geographic and temporal span of these reported cases underscores their uniqueness – Italy 1994 (n=1 case), Greece 2001 (n=2), and Japan 2010 (n=1). The majority of the patients had good surgical outcomes although the sample sizes are small. After surgical resection the patient was discharged and followed in clinic for a total of 1 year.

Granular cell tumors most commonly affects the skin, subcutaneous tissue (8) but other locations including the gastrointestinal tract, and rectus muscle (9). Although the majority are benign, the malignant characteristics include necrosis, vesicular nuclei with large nucleoli, and increased mitotic activity (10). The differential diagnosis includes rhabdomyoma, hibernoma, and the reactive changes associated with trauma and injury. The histologic characteristics and reactivity toward S-100 and CD68 distinguish GrCT from rhabdomyoma (11) and these tumors contain large granular cells with central nucleoli (12).

The presence of GrCT in the chest wall has unique implications compared to other anatomical locations. As the mass grows in size, it may result in chest pain and discomfort. In addition, a large chest wall mass may lead to respiratory complications such as difficulty with breathing at rest or with activity. Moreover, if the mass is not excised it may complicate the performance of a median sternotomy during open-heart procedures. Although unlikely, as the

mass increases in size depending on its location it may lead to heart compression or impingement.

The main treatment for GrCT is primarily surgical with clear margins, as incompletely excised tumors are at risk of recurrence (7)(13). The case highlights the importance of considering granular cell tumors on the differential for a chest wall mass. Other tumors to consider include benign masses such as fibroma, as well as malignant masses including leiomyosarcomas (4). Since the majority of these tumors are benign this portends a positive prognosis for these patients.

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