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Case Report

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Massive glomus tumor in deltoid muscle: An unusual presentation

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Abstract

Glomus tumors originate from perivascular, temperature-regulating bodies. They are generally located at the fingertips, rarely around the shoulder girdle. This paper reports a deltoid glomus tumor larger in size than ever previously reported. The intramuscular mass, asymptomatic for 10 years, had enlarged to the extent of causing pain. Tumor size and localization suggested the presence of malignancy, indicating wide resection as appropriate surgical action. Incisional biopsy revealed benign morphology. Surgical treatment achieved complete pain relief. This is the largest glomus tumor reported to date. Marginal excision is the treatment of choice when there is no suspicion of malignancy, but due to our suspicions, we performed a wide resection of the tumor. Neither the diagnostic biopsy at the commencement of resection nor the post-surgical pathology later indicated malignancy.

Keywords: glomus, tumor, shoulder, deltoid muscle, massive

1. Introduction

Glomus tumors are generally located in the fingertips; the subungual location being the most common (1). Originating from perivascular, temperature-regulating bodies, they are typically less than 1 cm in diameter and frequently present as a small, bluish-red nodule.

Glomus tumors arising from the shoulder girdle are very rare, with few reported cases (2–7). We report a deltoid glomus tumor larger in size than previously reported.

2. Case report

A 59-year-old man with a 10-year history of swelling around the shoulder presented to our outpatient clinic with new intractable pain due to swelling. Physical examination revealed a 5x6 cm swelling at the posterior right shoulder. The mass itself was not sensitive or painful upon palpation. Direct radiographic studies showed no pathological signs. Magnetic resonance imaging with IV Gadolinium (MRI) revealed a well-defined 58x44x48 mm mass that was hypointense in T1-weighted images and hyperintense in T2-weighted images, located inside the posterior fibers of the left deltoid surrounding the deltoid artery (Fig. 1). Due to suspected sarcoma, histopathological examination was planned, and an incisional biopsy was performed. The biopsy revealed a soft tissue tumor of neurovascular origin, ruling out sarcoma and wide excision was planned. Written informed consent was obtained from the patient.

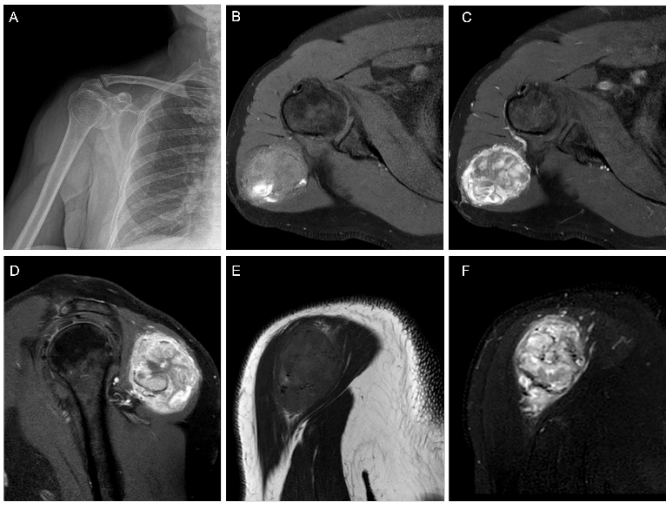

Fig. 1. a. Direct radiography of the lesion, MRI with intravenous contrast, images of the lesion, **b.** axial T1, **c.** T2 axial with contrast, **d.** T2 coronal with contrast, **e.** T1 sagittal view, **f.** T2 sagittal view with contrast

Under general anesthesia, the patient was placed in the beach chair position. The surgical incision was made elliptically within the previous biopsy tract and the mass was excised; resection was completed with clean surgical margins of 2 cm on all sides of the lesion (Fig. 2).

Macroscopy revealed a heterogenous tumoral mass consisting of striped muscle and adipose tissue with bleeding and calcified areas. Microscopy revealed a glomangioma-like structure caused by the thrombotic masses, with large bleeding

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areas and ischemic necrosis (Fig. 3).

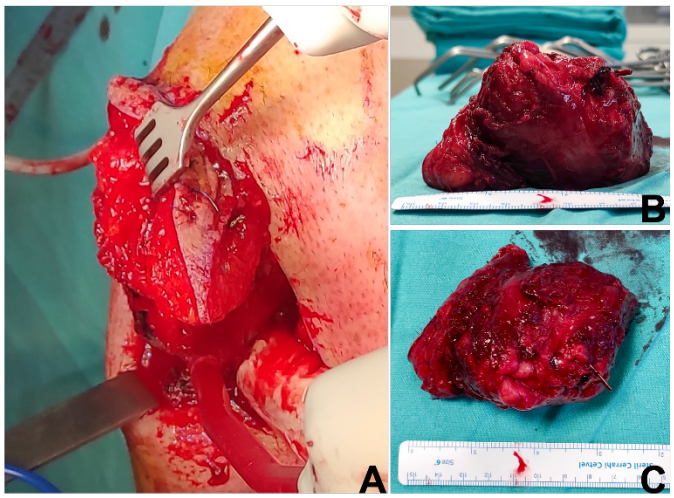

Fig. 2. a. Per-operative photographs of the tumor, photographs after the wide resection, **b.** superior view, **c.** anterior view

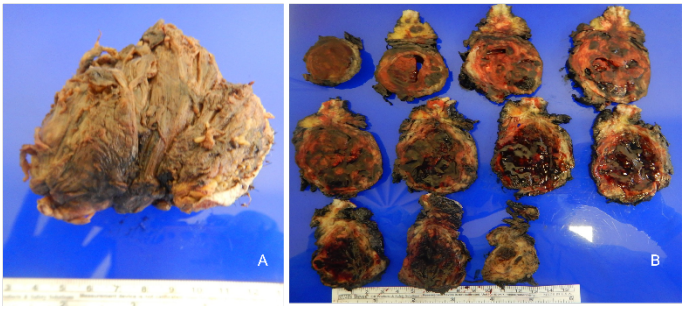

Fig. 3. a. Macroscopic view of the specimen, **b.** sectional views of the specimen.

S100 [SCYTEK (4C4.9)] and cytokeratin AE1/AE3 (PanCK) [LEICA (AE1/AE3)] were negative on immunoassay, while actine (SMA) [SCYTEK (1A4)] was positive; Ki-67 [DAKO (MIB-1)] ratio was lower than 1%. A histomorphological glomangioma-like structure has emerged due to hematoma masses, extensive bleeding, ischemic necrosis, and bleeding organization seen in the tumor. However, due to the very large solid cellular areas, it was concluded that the lesion was a glomus tumor. The patient underwent rehabilitation immediately following surgery and was asymptomatic during the 6-month follow-up period.

3. Discussion

Glomus tumors generally are seen in the hand, particularly under the nail bed; though they may develop anywhere on the body, they are rarely seen elsewhere (2, 8). The forearm is the most common extra-digital location and the shoulder and back are the least common sites of this tumor (3–5, 9, 10). Most previously reported glomus tumors in varied locations in the body have had a maximum size of 4.9 mm (7). The most recent case report that is relatively smaller than the presented one, was a glomus tumor which infiltrates the biceps femoris muscle at the popliteal fossa with a dimension of 40x39x42mm (11). The lesion may not cause serious symptoms until compressive symptoms occur; our patient was symptom-free for about 10 years.

Glomus tumor diagnosis may be straightforward when the tumor is localized in the hand as is clinically typical, but diagnosis of this tumor in other locations can be challenging (4, 7, 8). Neuroma, post-traumatic organized hematoma, fat necrosis, rotator cuff diseases, and cystic lesions must be considered in the differential diagnosis (2, 3). Direct radiographic studies are usual unless the lesion is not calcified (2). MRI identifies these lesions with a high sensitivity but low specificity (11, 12).

Malignant transformation of these lesions is rare, with only one reported malignant progression of a lesion in the shoulder area (13, 14). Folpe et al. have defined factors associated with the malignant transformation of these neoplasms as including large size (>2cm), deep localization, atypical mitotic features, moderate to high nuclear grade, and mitotic figures ≥5/50 HPF. Tumor size and intramuscular localization pointed to the presence of malignancy in our case, indicating wide resection as an appropriate surgical action. Neither the diagnostic biopsy at the commencement of resection nor the post-surgical pathology later indicated malignancy.

Persistent complaints after surgery may be associated with inadequate surgical excision. Our patient had no complaints immediately after surgery and was asymptomatic during the follow-up period. Recurrence of this kind of tumor is very rare and persistence is related to not noticing the multiple localizations of glomus tumors (1).

Though rare, benign vascular tumors such as glomus tumors should be considered in the differential diagnosis of space-occupying lesions around the shoulder.

Informed consent

The informed consent was obtained from the patient.

Conflict of interest

We declare that we have no conflict of interest.

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None to declare.

Authors' contributions

Concept: K.T., H.Ç., Design: K.T., H.Ç., Data Collection or Processing: K.T., H.Ç., Analysis or Interpretation: K.T., H.Ç., Literature Review: K.T., H.Ç., Drafting: K.T., H.Ç.

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