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Large prepatellar glomangioma: A case report

Melissa L. Maxey[a], Chase C. Houghton[b], Katherine S. Mastriani[a], Richard M. Bell[a], Fernando A. Navarro[a,*], Ashkan Afshari[a]

[a] Department of Surgery, University of South Carolina School of Medicine, Two Medical Park Rd, Suite 300 General Surgery and Vascular Surgery, Columbia, SC 29203, United States
[b] University of South Carolina School of Medicine, 6311 Garners Ferry Road, Columbia, SC 29209, United States

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ABSTRACT

INTRODUCTION: Glomangiomas are rare, benign tumors derived from the glomus body, typically presenting with the classic triad of pain, tenderness to palpation, and hypersensitivity to cold. Most commonly they present as a solitary lesion in the extremities, especially subungual, but they may present elsewhere.
PRESENTATION OF CASE: We describe the case of a large (64 mm × 59 mm × 41 mm) glomangioma on the anteroinferior aspect of a healthy 49 year old male's knee. Symptoms included constant throbbing pain with intermittent stabbing sensations localized to the mass. The mass was evaluated first by magnetic resonance (MR) imaging and then by histopathology following excision.
DISCUSSION: Although rare, clinical diagnosis of glomangiomas may be sufficient in typical cases, however in atypical cases, like the one discussed here, further evaluation is often necessary. Here MR findings were suggestive of a glomangioma with low to intermediate signal strength on T1 and mixed signal strength on T2. Intravenous gadolinium infusion demonstrated marked heterogeneous enhancement of the lesion, as well as serpiginous vascular malformations surrounding the lesion. Histopathology following excision confirmed a benign glomangioma depicting monomorphic small, round eosinophilic cells with minimal atypia which stained positive for smooth muscle actin, and negative for cytokeratin, S-100 and CK-34 via immunohistochemistry.
CONCLUSION: The following case report details an atypical presentation of a benign glomangioma anterior to the knee in a patient experiencing chronic minor trauma to the area. Diagnosis was suggested by clinical presentation and MR imaging, and was confirmed histologically.

1. Introduction

Surgeons are occasionally confronted with complex soft tissue tumors where the diagnosis may be in doubt. A carefully considered approach to the diagnosis and initial management is essential. Glomangiomas are rare, benign tumors derived from the glomus body. They have been reported to account for 1.6% of all soft tissue tumors in the extremities [1]. Glomus tumors typically arise in the extremities, especially subungual, but they may also be found in atypical locations. Surgical removal of glomangiomas is usually effective and curative. Unfortunately, diagnosis is often delayed. There are few reports of glomus tumors in the knee area, often presenting with knee pain (see Table 1). In the present study, we report an unusual case of a large prepatellar glomangioma.

2. Presentation of case

An otherwise healthy 49 year-old man presented with a progressively enlarging, painful mass on the anteroinferior aspect of his left knee for 1 year. Over the year the mass had gradually increased in size and become more painful. More recently, the patient described a constant throbbing pain with intermittent "stabbing" sensations and limited range of motion. The patient was a diesel mechanic and spent many hours on his knees. He reported multiple episodes of minor penetrating injuries to the area. On physical exam, there was limited range of motion at the left knee joint; a heterogeneous mass (60 mm × 50 mm × 50 mm) appeared on the anteroinferior aspect of the left knee, which was exquisitely tender with surrounding erythema and warmth (Fig. 1a,b). The mass also demonstrated small areas of ulceration (Fig. 1a). No regional lymphadenopathy was palpated.

Plain radiograph of the left knee joint showed a mass superficial to the patellar tendon with a nonspecific focus of calcification.

* Corresponding author.
E-mail addresses:
melissa.maxey@palmettohealth.org (M.L. Maxey), chase.houghton@uscmed.sc.edu (C.C. Houghton), katherine.mastriani@palmettohealth.org (K.S. Mastriani), richard.bell@palmettohealth.org (R.M. Bell), fernando.navarro@uscmed.sc.edu (F.A. Navarro).

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Table 1
Previously reported glomus tumors in the knee area: location, size, and patient attributes. Case report described presently included for reference (grey). *Mean (Range), NR = not reported.

Location	Size (mm)	Age (yrs)	Sex	Presenting Duration of Symptoms	Trauma History	Refs.
Medial aspect of knee	65 × 35 × 15	10	M	2 wks	Yes	[20]
Lateral femoral condyle	6 × 12 × 16	33	M	10 yrs	NR	[21]
Infrapatellar fat pad	8 × 5	42	F	1 yr	NR	[22]
Medial aspect of knee	50	73	M	3 yrs	NR	[23]
Prepatellar	15 × 11 × 20	75	M	30 yrs	NR	[19]
Medial aspect of knee	8 × 5	47	M	1 yr	No	[24]
Lateral aspect of knee	15 × 15 × 12	65	M	10 mo	No	
Anterior aspect of knee	4-5	60	M	4 yrs	NR	
Anterior aspect of knee	20 × 8 × 4	65	M	NR	No	
Popliteal possa	10 × 15 × 20	9	F	2.5 yrs	No	[25]
Anterior aspect of knee	10 × 10	69	M	5 yrs	Yes	[26]
Medial to tibial tuberosity	15 × 20	48	F	10 mo	Yes	
Present case: prepatellar	64 × 59 × 41	49	M	1 yr	Yes	–

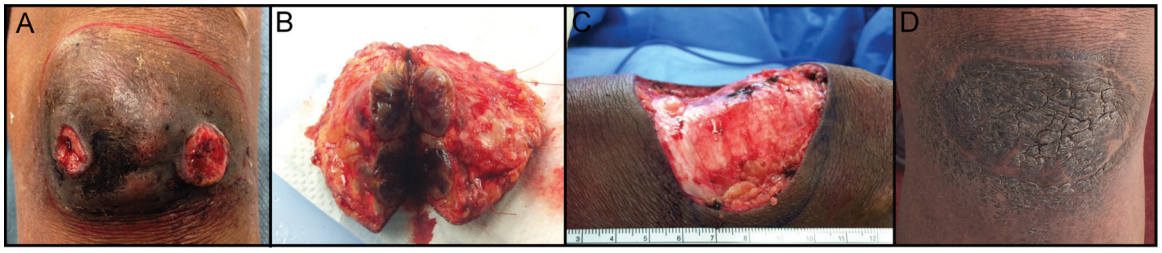

Fig. 1. A Large prepatellar mass following incisional biopsy. B. Excised gross specimen: gray/brown multinodular, encapsulated, and hemorrhagic mass measuring 55 ×43 × 27 mm with negative gross margins. C. Surgical defect following excision. Ruler demonstrates cm increments. D. Final aspect of the wound 2.5 years post-operative.

MR imaging (Siemens Symphony 1.5T) demonstrated a heterogeneous 64 mm × 59 mm × 41 mm mass, centered in the prepatellar subcutaneous fat, abutting the patellar tendon (Fig. 2). There was intermediate signal strength on T1 (Fig. 2), heterogeneous signal strength on T2 (Fig. 3), and marked signal enhancement with gadolinium (Fig. 4). Incisional biopsies at three sites of the mass showed reactive inflamed granulation tissue. The mass was excised using sharp dissection, and then vacuum assisted closure was performed.

Grossly the specimen demonstrated a gray/brown multinodular, encapsulated, and hemorrhagic mass measuring 55 mm × 43 mm × 27 mm with negative gross margins (Fig. 1). Histopathology demonstrated a monomorphic population of small, round, eosinophilic cells with minimal atypia (Fig. 5). Immunohistochemistry was positive for smooth muscle actin (Fig. 5) and negative for cytokeratin, S-100, and CK-34. This was consistent with a glomangioma. Once final histopathology confirmed the benign nature of the lesion the wound was closed with a split thickness skin graft. The graft was harvested from the left lateral thigh using a 0.018 inch dermatome with a 3 inch guard and placed unmeshed on the 80 × 100 mm wound. Numerous slit incisions were then made in the graft (pie crusting) to allow for fluid drainage. As of this writing the patient had remained symptom free for 2.5 years with no recurrence.

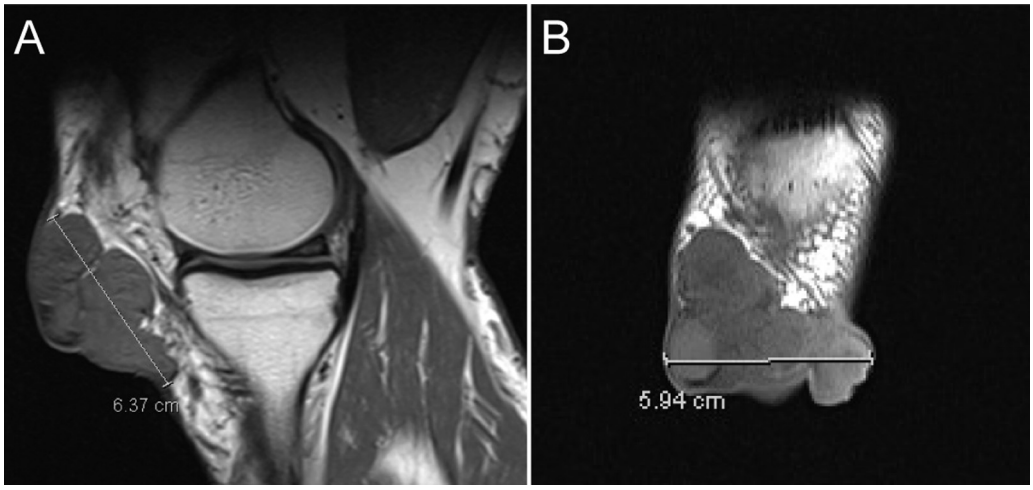

Fig. 2. T1-weighted MR images of a large soft tissue mass of the left subpatellar area (A) in the sagittal plane (TE: 18 ms, TR: 688 ms) and (B) in the coronal plane (TE: 11 ms, TR: 552 ms), measuring 64 mm craniocaudal × 59 mm transverse × 41 mm anterior-posterior mass. This soft tissue mass is lobulated and of low to intermediate strength on T1-weighted images. The lesion does not appear to invade the patellar tendon, bone or joint space.