CASE REPORT

The 30-year wait for treatment of an acutely painful knee

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SUMMARY

A 63-year-old retired man presented to our clinic reporting a severely painful, localised knee pain present for around 30 years and associated with a spontaneous palpable lump. He was prompted to seek medical advice at this point because his symptoms were exacerbated when his young grandchildren bumped into the knee. While radiographs were unhelpful, ultrasonography revealed a well-defined, subcutaneous soft tissue mass at the anterior aspect of the knee. Surgical excision was performed as a day case. Histological examination of the mass showed a glomus tumour. This patient had suffered for many years as a result of this painful mass but full resolution of his pain occurred immediately after excision.

BACKGROUND

This is a rare case of a symptomatic glomus tumour of the knee. There was a delay of around 30 years until diagnosis but once excised there was immediate resolution of the pain. We therefore suggest general practitioners, accident and emergency doctors and orthopaedic surgeons should consider a glomus tumour as a differential diagnosis in cases of painful lumps around the knee. Prompt referral to an orthopaedic surgeon recommended given the excellent prognosis following excision.

CASE PRESENTATION

An independent 63-year-old male patient presented to our clinic for an opinion about his exquisitely painful knee. He had worked in the financial sector and had a history of mild hypertension and hypercholesterolaemia controlled on medication.

His knee pain had persisted for around 30 years but had recently become more troublesome as his young grandchildren were prone to bumping into his knee causing severe pain over the lump. The patient found direct impact to the lump unbearable even to light touch. There were no mechanical symptoms of the knee to suggest intra-articular pathology. Examination revealed a well-defined, subcutaneous, mobile mass on the anterior aspect of the knee superficial to the patellar tendon. It had the clinical appearance consistent with a lipoma but was exquisitely tender to palpation.

INVESTIGATIONS

Radiographs of the knee in anteroposterior and lateral were unremarkable, however, ultrasound scan showed a 2.2×1.1 cm well-defined heterogeneous mass with well-defined borders at the

anterolateral aspect of the knee adjacent to the patellar tendon ([figure 1](#)).

DIFFERENTIAL DIAGNOSIS

Given the appearance and examination finding of a soft, mobile, well-defined lump it would be reasonable to consider a subcutaneous lipoma as the differential diagnosis. Differential diagnoses of non-tender masses around the knee include ganglion cysts which are commonly found in Hoffa's fat pad and synovial cysts, including the commonly known Baker's cyst. Synovial cysts are lined by synovial tissue unlike other juxta-articular cysts and occur due to a diverticular outpouching which is eventually pinched off at the neck.¹ Both of these cystic masses may present as a palpable, fluctuant mass around the knee but are rarely symptomatic with pain.

The presence of exquisite tenderness on palpation or pressure broadens the differential diagnosis. While pain from a lipoma is unusual, angioliipomas and neuromata have been reported as painful. Previous cases have reported that in the context of trauma or operative intervention to the medial aspect of the knee a painful neuroma may arise due to the subcutaneous course of the infrapatellar branch of the saphenous nerve.²

Soft tissue sarcomatous pathology should always be considered, but in this case the chronicity of symptoms decreased the likelihood of this diagnosis.

TREATMENT

After investigation, open excision of the mass under general anaesthetic was performed as a day case procedure. The procedure showed that the mass was subcutaneous, well defined and extended down to the level of the patellar paratenon with no

Figure 1 Ultrasound examination of the mass in the sagittal plane.

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Figure 2 H&E stain.

intra-articular extension. The mass was excised intact with clear margins on clinical inspection.

OUTCOME AND FOLLOW-UP

The patient returned to clinic 2 weeks later delighted that his pain had immediately resolved. His wound was well healed and he had suffered no adverse effects of the surgery. Percussion of his patellar tendon was pain free for the first time in 30 years. Histological examination revealed a glomus tumour of the knee (figures 2 and 3).

DISCUSSION

Glomus tumours are usually benign hamartomatous masses thought to be of neuromyoarterial origin.^{3 4} Many clinicians will be aware of these tumours as a differential diagnosis in the acutely tender subungual mass of the digit. Indeed, glomus tumours are by far most commonly found in the hand.⁵ It has been estimated that glomus tumours are seen in the lower limb in only 1.6% of cases³ and review of the specialist orthopaedic literature shows only a handful of reports of glomus tumours of the knee.⁶

The first description of the distinct clinical features of these tumours supported by histological diagnosis was by Masson.⁶ Consistent presenting features are acute pain and tenderness even to light touch, some have a visible reddish blue tinge and cold exacerbation is commonly reported.⁷ The latter feature is likely to be linked to the role of normal glomus tissue in

Figure 3 Immunohistochemistry—Smooth Muscle Actin stain.

cutaneous temperature regulation.^{6 8} Many of the case reports of glomus tumour of the knee highlight that due to the low clinical suspicion and list of possible differential diagnoses, there is commonly a delay in the diagnosis, therefore delaying treatment. In one case study the patient underwent diagnostic arthroscopic surgery as osteoarthritis was thought to be the cause of the pain. It was only following a negative arthroscopy and subsequent MRI scan that a glomus tumour was diagnosed and treated.⁹

Clinical tests for glomus tumour reported in the literature include tenderness on direct localised pressure over the mass,¹⁰ and resolution of tenderness in response to ischaemia with infiltration of bupivacaine¹¹ or application of a limb tourniquet.¹²

Imaging via radiograph fails to show glomus tumours and even ultrasound has been shown to only detect 8 of 17 glomus tumours in one study.¹³ In our case ultrasound scan was effective in detecting the mass and the reporting radiologist was able to comment on specific features which were consistent with a benign mass, however, was not specific for glomus tumour. Previous case reports of glomus tumours of the knee have reported that MRI was an effective tool in identifying the underlying mass but are, like ultrasound scan, non-specific.¹⁴

In conclusion, glomus tumours of the knee are uncommon and only previously reported in specialist orthopaedic literature. They are often exquisitely painful and the impact to the patient of early diagnosis, referral to an orthopaedic knee surgeon and timely surgical excision cannot be underestimated. We follow this case report with the patient's perspective.

Patient's perspective

In my late 20s a lump appeared below my right knee—for no apparent reason. It was about 2.5 cm across and 1 cm in depth and its size remained unchanged for over 30 years. It was extremely tender and even the slightest touch would cause me excruciating pain. Rough and tumble games with my small children were often a very painful experience and even a slight brush against a plant when gardening would double me up in pain. I became very aware of my right knee and very defensive about it. I also occasionally suffered shooting pains up the right side of my body emanating from my right knee, which occurred for no discernible reason and usually when I was lying on the bed.

My general practitioner said that nothing could be done, because, if the lump was removed, it would only grow back. I, therefore, developed coping mechanisms to protect my knee, such as placing my hand over it when commuting in crowded train carriages or crossing my legs in company—but not always with success and the air has been known to turn blue!

Since the lump was removed in 2013 when I was 63, I have felt no pain when the area below my right knee is touched even firmly and the occasional shooting pains have stopped. Psychologically this has improved my life significantly. I have become much more relaxed, especially in the company of my small grandchildren and their dog (with a very waggy tail) and can now enjoy their company without the constant fear that a stray arm or leg (or tail) will inadvertently double me up in excruciating pain.

Learning points

- ▶ The knee is an uncommon site for glomus tumour to present.
- ▶ The diagnosis of glomus tumour of the knee may be missed and therefore remain untreated.
- ▶ Glomus tumours often have a well-described history of exquisite pain, local point tenderness and cold exacerbation.
- ▶ Case reports have shown that ultrasound scan and MRI are useful imaging modalities for detecting masses around the knee but both tools are non-specific for glomus tumour.
- ▶ In this case day case excision resulted in immediate resolution of symptoms.

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