An 18-Month Diagnostic Odyssey: Benign Peripheral Nerve Sheath Tumor Presenting as Refractory Anterior Thigh Pain

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Introduction

Chronic anterior thigh pain is routinely attributed to myotendinous strain, tendinopathy, or lumbar radiculopathy. Benign peripheral nerve sheath tumors are a rare, under-recognized cause. Incorrect primary diagnosis occurs in approximately 45% of cases.[1] When symptoms persist despite conservative management and anatomically targeted interventions, reconsideration of the primary pain generator is essential. We present a case of femoral nerve schwannoma that remained undetected for 18 months despite serial imaging, conservative therapy, and multiple interventional pain procedures.

Materials and Methods

This retrospective single-patient case report reviews the patient's clinical course from initial orthopedic evaluation through surgical excision and histopathologic diagnosis. Clinical records, imaging studies, procedural documentation, operative reports, and pathology findings were reviewed. As this case report contains no patient-identifiable information, it is exempt from Institutional Review Board review requirements in accordance with MedStar Health policy; documentation is available upon request. Informed consent for publication was obtained from the patient. Platelet-rich plasma injection for quadriceps tendinopathy is described as an off-label therapy. No investigational agents were administered.

Results / Case Report

A 55-year-old recreational runner presented with progressive right anterior thigh pain and swelling that began while jogging. Examination demonstrated focal mid-quadriceps tenderness with preserved strength and normal radiographs, leading to a diagnosis of quadriceps strain. Despite activity modification, physical therapy, NSAIDs, and non-contrast MRI showing nonspecific vastus lateralis edema, symptoms progressed over the following year, limiting walking, driving, and exercise.

Given persistent pain, she underwent ultrasound-guided diagnostic quadriceps tendon anesthetic injection, producing anterior thigh numbness without pain relief, followed by platelet-rich plasma injection with transient improvement. Lumbar MRI later demonstrated mild degenerative changes with subtle nerve root contact, and right L3-L4/L4-L5 transforaminal epidural steroid injections improved posterior radicular symptoms but failed to relieve anterior thigh pain, prompting reconsideration of the pain generator.

Repeat non-contrast MRI identified a 1.7-cm proximal thigh lesion initially interpreted as a venous aneurysm. Duplex ultrasonography demonstrated no internal flow, prompting contrast-enhanced MRI, which revealed a 2.0 × 1.7 × 1.7 cm enhancing intermuscular mass adjacent to the femoral nerve, concerning for peripheral nerve sheath tumor. Surgical excision with femoral neuroplasty was performed, and histopathology confirmed benign schwannoma. At early postoperative follow-up (6 weeks), chronic anterior thigh pain had resolved with only expected postoperative sensory changes.

Discussion

Interventional procedures provide diagnostic information beyond their therapeutic effect. Here, persistent anterior thigh pain despite anatomically targeted tendon and lumbar interventions constituted clinically meaningful negative findings that prompted diagnostic reassessment. Schwannomas, the most common benign peripheral nerve sheath tumors, often present with pain rather than neurologic deficit and are frequently misdiagnosed as musculoskeletal disorders, resulting in diagnostic delay.[2] Contrast-enhanced MRI should be considered when symptoms remain discordant with examination findings, imaging, and treatment response.



References

1. Uerschels AK, Dengler NF, Chihi M, Lenkeit A, Dinger TF, Jabbarli R, Sure U, Hagenacker T, Wrede KH, Gembruch O. Benign peripheral nerve sheath tumors: an interdisciplinary diagnostic and therapeutic challenge. Neurosurg Rev. 2023 Aug 18;46(1):205. doi: 10.1007/s10143-023-02107-z. PMID: 37594583; PMCID: PMC10439084.

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