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An Intraneural Ganglion Cyst causing Foot Drop: A Case Report

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Introduction

- Foot drop is medically defined as weakness in the dorsiflexor muscles of the foot; it can be a common presenting problem in the outpatient setting with a wide differential, including muscular, neurologic, spinal, autoimmune, and musculoskeletal disorders
- Most common cause of foot drop is a compression peroneal neuropathy, often at the location of the neck of the fibula
- In rare instances, the compression can occur due to a ganglion cyst, which is a benign tumor consisting of gelatinous material that is typically asymptomatic

Case Report

- 46 year old male with a past medical history of HTN and chronic pancreatitis presented to clinic with a chief complaint of **right leg weakness and numbness/tingling** that developed suddenly two months
- Physical exam: revealed a right foot drop on ambulation with slight circumduction of right leg. Further neurological exam was remarkable for 2/5 muscle strength in right ankle dorsiflexion and eversion, with decreased sensation noted on right foot dorsal surface and lateral calf.
- EMG: demonstrated a right common peroneal mononeuropathy at the knee with demyelinating and axonal features with active denervation
- Ultrasound of the right knee: showed enlargement of the right common peroneal nerve at the level of the fibular head with a 1.1 x 0.5 x 1.6 cm hypoechoic collection in the region of the tibiofibular joint, possibly representing a ganglion cyst from the adjacent joint or an intraneural ganglion cyst
- Follow-up MRI: re-demonstrated a cystic lesion just medial to the common peroneal nerve and posterior to the proximal tibiofibular joint, which is suspected to arise from the articular branch of the common peroneal nerve
- Patient had symptomatic improvement with physical therapy and use of a AFO boot for 2 months

Imaging

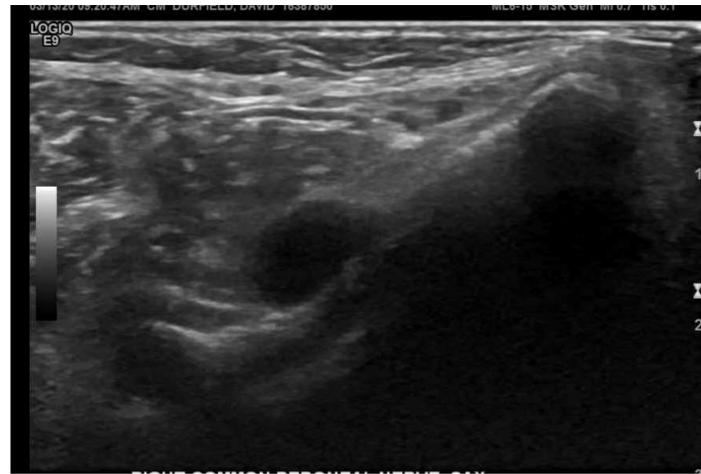


Figure 1. Ultrasound depicting a hypoechoic collection in the region of the tibiofibular joint, likely a ganglion cyst.

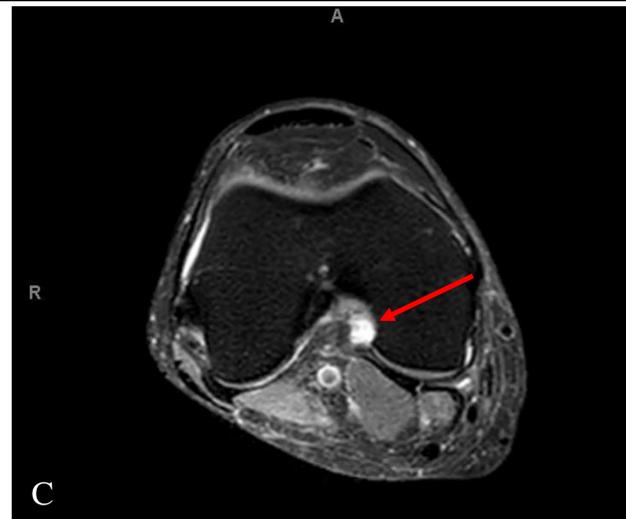
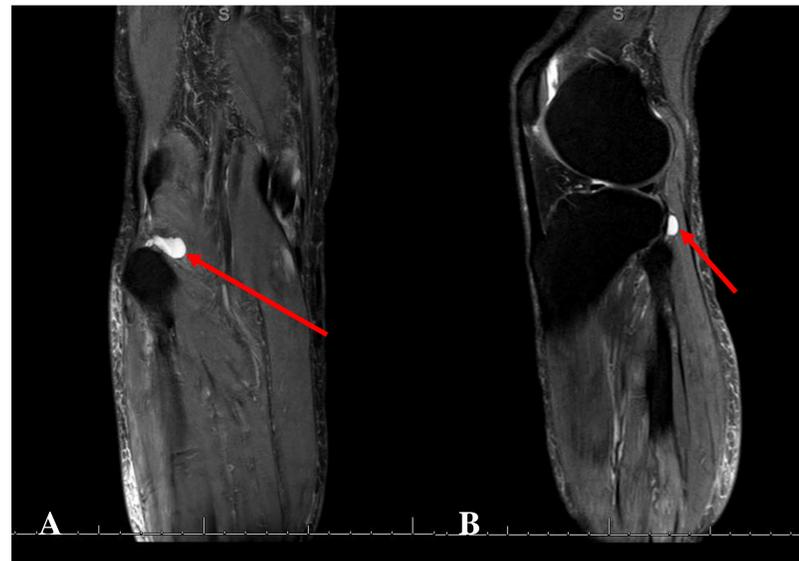


Figure 2. A. Coronal View, B. Sagittal View, and C. Axial view of an intraneural ganglion cyst, just medial to the common peroneal nerve.

Discussion

- Ganglion cysts are common benign lesions, that are often asymptomatic. However, occasionally they are found in locations causing peroneal nerve palsies.
- Ganglion cysts compressing the peroneal nerve can be either intraneural or extraneural, with differentiation occurring via imaging
- Intraneural ganglion cysts are non-neoplastic mucinous cysts located within the epineurium of a nerve
- Although the exact pathogenesis of these cysts are unknown, it has been shown in multiple case reports that as these cysts expand within the epineurium, they can cause compression of the adjacent nerve fascicles
- Diagnosis is primarily via MRI; although an EMG study may assist in correlating clinical findings by distinguishing the extent of sensory and motor impairment
- Current first line treatment recommendations endorse surgical removal of the ganglion cyst, primarily to prevent cyst reformation
- Might be less invasive and beneficial to start with a conservative approach to minimize unwarranted procedures since patients have shown improvement with rehabilitation and use of orthotic devices
- Successful outcomes, ultimately, are based on early diagnosis and treatment.

Conclusion

- Peripheral neuropathies caused by ganglion cysts are rare; with even more rarity noted in the lower extremities
- Treatment options are controversial; current first line recommendation is surgical removal though there may be some benefit to conservative approach
- Early diagnosis and treatment are essential

References

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