We describe a case of a proximal anterior leg mass causing weak great toe dorsiflexion. The lesion was demonstrated on MR imaging as a multilocular cystic lesion within the extensor digitorum longus muscle that was connected to the proximal tibio-fibular joint by a pedicle. Fluid extravasation was present that extended inferiorly from the lesion along the fascial planes into the distal anterior lower leg. At surgery, the lesion was found to be compressing the deep peroneal nerve. The final pathologic diagnosis was peroneal ganglion cyst.
ture. A pedicle connecting the lesion to the proximal tibiofibular joint was identified, and the mass was found to be compressing the deep peroneal nerve. The final pathologic diagnosis was peroneal ganglion cyst.

Discussion

Peroneal ganglion cysts, also referred to as proximal tibiofibular ganglion cysts, are relatively usual findings on MRI. One study of knee MRI scans in outpatients found a prevalence of approximately 0.76% for proximal tibiofibular ganglion cysts (1), while a similar study of popliteal cysts found a prevalence of approximately 30% (2). In both studies, these lesions were mostly incidental, asymptomatic findings. Clinically, they present with signs and symptoms of palpable mass and pain which can radiate down the leg and may be exacerbated by squatting. Compressive neuropathy of the common peroneal nerve or its branches may also occur. Generally, symptomatic peroneal nerve compression is first manifest by anterolateral leg and dorsal foot pain in the peroneal nerve distribution followed by progressive weakness of the peroneal musculature and finally foot drop (3-10). Classically, nerve ganglion cysts are described as pseudocysts formed by the accumulation of mucoid material around a nerve sheath, while ganglion cysts are similar mucoid-filled pseudocysts formed from adjacent joints or tendons (7, 8, 11). Recent studies have shown that peroneal ganglion cysts and intraneural ganglion cysts are similar in

Figure 1A. Ruptured peroneal ganglion cyst. T2 fat-saturated axial MRI shows a multiloculated cyst within the extensor digitorum longus muscle.

Figure 1B. Ruptured peroneal ganglion cyst. Post-gadolinium T1 fat-saturated axial MRI shows enhancement of the cyst walls but not of the cyst contents or the surrounding tissues.

Figure 1C. Ruptured peroneal ganglion cyst. T2 fat-saturated sagittal MRI shows a multiloculated cyst with fluid tracking distally from the lesion along fascial planes.
Ruptured Peroneal Ganglion Cyst

In the case presented, we believe that rupture of the cyst with fluid extravasation was the cause of the acute symptoms. Rupture of peroneal ganglion cysts has not been well-described in the literature, commonly with internal septations creating the "bunch of grapes" appearance (9). Careful examination can reveal communication with the proximal tibiofibular joint, although recent studies suggest that CT arthrography (12) or MRI arthrography (13) may be more sensitive for the evaluation of joint communication than just MRI. Following intravenous gadolinium administration, there may be mild enhancement of the fibrous cyst walls, as in our example, but the center should not enhance (9). With large cysts, mass effect can lead to peroneal nerve compression and denervation with resultant fatty atrophy of the peroneal musculature. The sequelae of denervation should be evaluated both with T1 unenhanced images to show fatty atrophy, as well as fast suppressed T2 or short-tau inversion recovery images to show edema (9, 10).

Treatment of peroneal ganglion cysts has traditionally been marginal excision with removal of the pedicle connecting the cyst to the joint (8). The rate of recurrence after such surgery is 13%, and recurrence following a second excision attempt as high as 100%; thus, repeat surgery is not recommended by some authors for the recurrent ganglion cyst (14). Spinner and coworkers have emphasized the importance of locating and severing the communication between the cyst and the proximal tibiofibular joint to prevent recurrence (15-16). Minimally invasive methods such as needle aspiration and corticosteroid injection have been even less effective, with an extremely high rate of cyst recurrence and low patient satisfaction; however these techniques may be useful for confirming the diagnosis or for those who refuse surgery (8). Any cyst exhibiting evidence of direct mass effect on the peroneal nerve should be treated with surgical excision (17). If a peroneal ganglion cyst recurs after marginal excision, resection arthroplasty of the proximal fibula or proximal tibiofibular joint fusion have been performed with high degrees of success and little or no recurrence (18).

Figure 2. Ruptured peroneal ganglion cyst. Post-gadolinium T1 fat-saturated sagittal MRI shows enhancement of the cyst walls but not of the cyst contents or the surrounding tissues. The fluid tracking distally along the fascial planes does not enhance.
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