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Letter to the Editor

Compression of the common peroneal nerve due to peroneal muscle infarction in a patient with diabetes



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This 56-year-old female with type I diabetes was admitted for the abrupt onset of pain, erythema, and induration of the lateral aspect of her left leg. Starting on the next day, she gradually developed a complete loss of function of the common peroneal nerve (CPN). Leg compartment pressures were normal. Her CPK was 5638 U/L and her glycated haemoglobin 9.2%. Findings were normal from Doppler ultrasound of the lower-limb veins and arteries. Imaging studies of the spine were normal. The peroneal muscles appeared abnormal on the MRI scan of the left leg (Fig. 1). Electromyography (EMG) evidenced sensorimotor length-dependent axonal polyneuropathy with no myogenic abnormalities and an accelerated trace in the distribution of the CPN suggesting a neurogenic mechanism. Examination of a muscle biopsy from the left peroneal muscle found necrotic muscle tissue with a paucity of

endomysial capillaries consistent with an ischaemic process. Taken in concert, these findings pointed to muscle infarction. Analgesics were given, the diabetes was brought under control, and a drop-foot splint was provided. By day 5 the CPK level had returned to normal. At follow-up 3 months later, the pain and induration had resolved and the neurologic deficit improved gradually. The follow-up EMG showed evidence of denervation with reinnervation occurring in the distribution of the CPN and no signs of myositis. These findings confirmed the diagnosis of external CPN compression by edema related to muscle infarction.

Muscle infarction was first reported as a complication of diabetes in 1965 [1]. This rare event occurs chiefly in patients with uncontrolled type I diabetes responsible for microvascular damage. The pathophysiology, although still unclear, probably involves both occlusive arterial disease and diabetic microangiopathy [2]. The thigh is more often affected than the leg or upper limbs [3]. We are aware of only three previous reported of peroneal muscle infarction [4]. The clinical presentation consists of edema, induration, and pain in the involved muscles [5]. The MRI findings combine muscle edema with low signal on T1 images and high signal on T2 images with postgadolinium enhancement [4]. The diagnosis rests on a set of converging findings including patient comorbidities and the results of the physical examination and MRI. A muscle biopsy is not performed routinely but is necessary in atypical cases. The main differential diagnoses are deep vein thrombosis, pyomyositis, compartment syndrome, focal myositis, and necrotizing fasciitis [4].

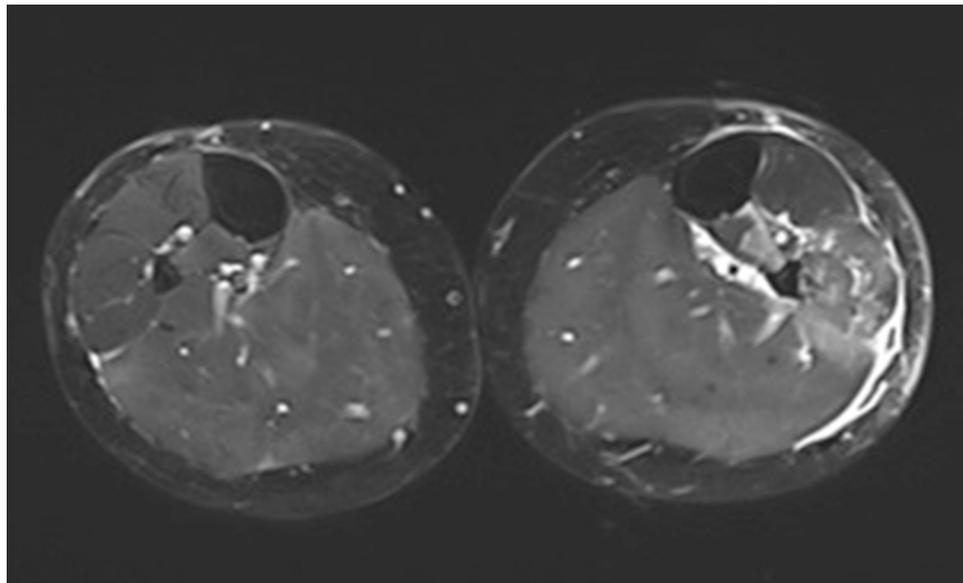


Fig. 1. Axial STIR image showing hyperintensity in the peroneal muscles.

To the best of our knowledge, there has been a single report of motor deficits due to external CPN compression by edema related to muscle infarction [6]. The CPN is vulnerable to compression as it courses under the proximal peroneus longus muscle along a pathway that resembles an anatomical tunnel [7].

Muscle infarction complicating diabetes is a rare but probably under-estimated complication. Insufficient awareness of this complication combined with the many differential diagnoses raise major diagnostic challenges. Nerve compression by muscle edema is exceedingly rare.

Disclosure of interest

The authors declare that they have no competing interest.

References

- [1] Angervall L, Stener B. Tumoriform focal muscular degeneration in two diabetic patients. *Diabetologia* 1965;1:39–42.
- [2] Scully RE, Mark EJ, McNeely WF, Ebeling SH, Phillips LD. Case records of the Massachusetts General Hospital. Weekly clinicopathological exercises. Case 29-1997. *N Engl J Med* 1997;337:839–45.
- [3] Morcuende JA, Dobbs MB, Crawford H, Buckwalter JA. Diabetic muscle infarction. *Iowa Orthop J* 2000;20:65–74.
- [4] Horton WB, Taylor JS, Ragland TJ, Subauste AR. Diabetic muscle infarction: a systematic review. *BMJ Open Diabetes Res Care* 2015;3:e000082.
- [5] Shenavandeh S, Anushiravani A, Nazarinia M. Diabetic muscle infarction and diabetic dermopathy two manifestations of uncontrolled prolonged diabetes mellitus presenting with severe leg pain and leg skin lesions. *J Diabetes Metab Disord* 2014;13:38.
- [6] Karalliedde J, Vijayanathan S, Thomas S. Painful foot drop: a presentation of diabetic muscle infarction. *Diabet Med* 2010;27:958–9.
- [7] Anderson JC. Common fibular nerve compression: anatomy, symptoms, clinical evaluation, and surgical decompression. *Clin Podiatr Med Surg* 2016;33:283–91.

Marie-Charlotte Desmottes*

Quentin Brehier

Ewa Bertolini

Irène Monteiro

William Terreaux

Centre hospitalier Annecy-Genevois, 1, avenue de l'Hôpital, 74370 Metz-Tessy, France

* Corresponding author.

E-mail address: mc.desmottes@hotmail.fr

(M.-C. Desmottes)

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