Foot drop is most often caused by injury to the peroneal nerve. This can be from mechanical compression around the fibular head due to internal or external forces. Examples of external forces include casts, trauma, and crossing legs. Internal causes include tumors, cysts, aneurysms, and compartment syndrome. Rapid weight loss has been described in adults as a contributing factor to peripheral paresis, termed “slimmer’s paralysis,” but seldom reported in children and adolescents. Subcutaneous fat around the fibular head normally protects the peroneal nerve from damage. Loss of the protective fat over the fibular head may predispose the peroneal nerve to compression. In addition, crossing legs may be uncomfortable in mortally obese persons, but more comfortable after weight loss, causing thin people to cross their legs in public restrooms. Our patient commented that nutritional deficiencies in patients who have lost weight rapidly contribute to causing neuropathies. Our patient lost weight at a rate of 2.5 pounds/week, and crosses her legs often, contributing to causing neuropathies.

The objective of this case study was to explore the association between rapid weight loss and foot drop in adolescents.

The patient is a thin, but not cachetic, 13-year-old female with evidence of rapid weight loss such as stretch marks on her back and saggy skin on her abdomen. She is friendly, interactive, and cheerful, but appropriately concerned about her condition. She observed 25% muscle atrophy and a loss of power in the right foot (see fig. 2). Her gait showed very evident right foot drop, with both feet dropped, which made her feel unstable while walking along alone her school. The rest of the physical exam was noncontributory.

The patient was advised to stop crossing her legs, and she was advised to consult a nutritionist and a physical medicine specialist for EMG. Out of concern for a metabolic disturbance contributing to the neuropathy, we ordered several labs, including a liver function panel and a lipid panel. These results returned normal. Motor nerve conduction studies of the tibialis anterior showed fibrillation potentials, sharp positive waves, enlarged motor unit potentials, and reduced number of motor units at maximal effort. These results are consistent with sural neural damage to the peroneal nerve, possibly mixed with a conduction block. The result is foot drop from peroneal neuropathy.

A two-week follow-up appointment with the patient showed that her foot drop had improved. The rest of her right foot, and very minimal right foot drop with gait observation. She was not using a walker. Her appointment showed that the patient had gained 26 pounds back since last appointment. She is following with a pediatric psychologist.

The American Academy of Pediatrics’ obesity initiative published extensive guidelines in weight management. Part of those guidelines strictly recommend adolescents lose no more than 2 pounds/week. Our patient in this case study lost weight at a rate of 2.5 pounds/week. If adolescents lose weight more rapidly than 2 pounds/week, or present with weight loss more rapidly than 2 pounds/week; or present with weight loss more rapidly than 2 pounds/week, or present with weight loss more rapidly than 2 pounds/week, or present with weight loss more rapidly than 2 pounds/week. Adolescents with peroneal neuropathies commonly have a history of weight loss, perhaps even more commonly than a history of leg crossing. Although there are many examples of foot drop after rapid weight loss in the adult world, especially after bariatric surgery, this is seldom commented on in the pediatric population. One author comments that this may be due to the adolescent peripheral nervous system being more “resilient” than the adult peripheral nervous system. American Academy of Neurology review of literature reveals 13 cases in children less than 19 years old. Most of these cases involve adolescents with anorexia, unlike this case where the rapidity of weight loss is more influential in developing peroneal neuropathy than the total amount of weight lost.

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Conclusions

This case highlights an unusual, although well documented association between rapid weight loss and foot drop, observed both while in the clinic and covertly while walking alone around her school. The rest of the physical exam was noncontributory.

The patient was advised to stop crossing her legs, and she was advised to consult a nutritionist and a physical medicine specialist for EMG. Out of concern for a metabolic disturbance contributing to the neuropathy, we ordered several labs, including a liver function panel and a lipid panel. These results returned normal. Motor nerve conduction studies of the tibialis anterior showed fibrillation potentials, sharp positive waves, enlarged motor unit potentials, and reduced number of motor units at maximal effort. These results are consistent with sural neural damage to the peroneal nerve, possibly mixed with a conduction block. The result is foot drop from peroneal neuropathy.

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References


