

A CASE REPORT OF BILATERAL FOOT DROP IN A YOUNG GIRL

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ABSTRACT

Acute unilateral foot drop is a well-known entity, but bilateral foot drop in progressive fashion is rare. In particular, slow-progressing bilateral foot drop occurs with various metabolic causes, as in anorexia nervosa, hypothyroid myopathy, Crohn's disease, and post-electroconvulsive therapy. Parasagittal intracranial and spinal pathologies and cauda equine may also cause progressive bilateral foot drop. This case is presented with bilateral foot drop due to common peroneal nerve entrapment.

KEYWORDS: Common Peroneal Nerve, Foot Drop, Nerve Conduction Studies

INTRODUCTION

A 16-year-old female presented at the outpatient department with walking and gait difficulties complaints. Additionally, she reported experiencing pain in both feet after prolonged walking and a history of sudden falls. The patient's medical history was unremarkable, including no relevant family history or traumatic incidents. She had reached normal developmental milestones and had a complete vaccination history. There was no recent surgery or exposure to toxins or heavy metals. Upon physical examination, the patient exhibited a plantarflexed and in-toe foot posture, accompanied by a high-stepping gait. Active dorsiflexion and toe extension were absent, while passive movements remained within normal limits. Sensation in the feet was normal. The strength of the ankle dorsiflexion and toe extensors was notably diminished at 0/5. Muscle power in both lower limbs was graded as 3/5 on the right and 4/5 on the left, per the MRC grading system. Additionally, a 2cm muscle wasting was observed in the right leg compared to the left, just above the ankle. Deep tendon reflexes were within the normal range. Comprehensive blood counts, general biochemistry, protein levels, tumour markers, vitamin B12, and folic acid levels were all within normal ranges. Nerve conduction and electromyographic studies revealed bilateral compression of the common peroneal nerve below the fibula neck. Subsequently, the patient received counselling and was scheduled for surgical intervention to release the entrapment of bilateral common peroneal nerves. Surgical exploration of the common peroneal nerves was carried out after thorough investigation and preparation. Intraoperatively, it was noted that the diameter of the right common peroneal nerve was

smaller compared to the left. A successful surgical release was performed on both nerves. At the three-month postoperative follow-up, the patient expressed a 90% satisfaction level with the surgery. Significant improvements were observed, including the absence of falls and the high-stepping gait. However, the bulk of the limbs remained unchanged.



Figure 1: Preoperative Position of Feet



Figure 2: During the Operative Position



Figure 3: Postoperative Position of Feet

DISCUSSION

Foot drop is defined as the weakness of the tibialis anterior muscle and is frequently accompanied by weakness of the extensor hallucis longus and extensor digitorum longus. Foot drop results from a disruption in the neural pathway from parasagittal cortical motor neurons to the spinal cord upper motor neurons and the peripheral, spinal cord roots and ending with the peroneal nerve. It is usually caused by lower motor neuron pathologies, commonly disruption of the conduction from deep peroneal nerve (L4-5).¹ Both the brain and spinal cord could be the source of the presentation due to specific vascular, neoplastic, infective, demyelinating lesions, or it may be from some local or systemic pathology. A study showed that most cases were due to spinal cord injuries and disc disruption, but in our case, there was no systemic or spinal pathology.² One of the case reports by Westhout FD at el also shows similar signs and symptoms as our patient having more weakness in the right leg than the left leg.⁴ Surgical treatment involves neurolysis via the release of the overlying fascial planes and should be tailored to address the entrapment's etiology and the specific location. Most studies showed that

decompression of the involved nerves results in better outcomes, as we did in our case.⁵

CONCLUSIONS

Due to the relative infrequent involvement of lower limb nerves in disease conditions, diagnosis can be difficult and often missed. Entrapment neuropathies are relatively uncommon in the lower extremities, but peroneal nerve entrapment is the most frequently encountered lower limb neuropathy. Electrodiagnostic studies have shown to be helpful in the diagnosis of nerve entrapment. However, many peroneal nerve entrapments will resolve with less invasive treatment. Surgical treatment is often required when entrapment is refractory to conservative management.

CONFLICT OF INTEREST: None

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CONTRIBUTORS

1. **Muhammad Inam** - Concept & Design; Critical Revision; Supervision; Final Approval
2. **Shah Fahad** - Data Acquisition; Data Analysis/Interpretation; Drafting Manuscript



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