ORIGINAL RESEARCH PAPER
Volume - 14 | Issue - 03 | March - 2025 | PRINT ISSN No. 2277 - 8179 | DOI : 10.36106/ijsr
INTERNATIONAL JOURNAL OF SCIENTIFIC RESEARCH

CASE SERIES ON FOOT DROP

Neurology

Dr. Abirami S* Postgraduate, DM Neurology, Government Mohan Kumaramangalam Medical College Hospital, Salem-636001 *Corresponding Author

Prof. Dr. S. Sivakumar Professor Of Neurology, Government Mohan Kumaramangalam Medical College Hospital, Salem, Tamil Nadu-636001

Dr. Praveen Singh Peter Assistant Professor, Government Mohan Kumaramangalam Medical College Hospital, Salem, Tamil Nadu-636001

Dr. K. S. Raja Assistant Professor, Government Mohan Kumaramangalam Medical College Hospital, Salem, Tamil Nadu-636001

ABSTRACT

Foot drop results in high steppage gait, where they raise the affected leg higher off the ground by exaggerated flexion at the hip and knee, to permit the toes to clear during the stride phase. Here we present 5 different cases of foot drop. First case due to lumbo sacral disc disease, second due to Acute Inflammatory Demyelinating Polyneuropathy (AIDP), one another due to parasagittal meningioma and the other two because of leprosy and neurofibromatosis-II respectively. Since the site of lesion for foot drop may extend from cortex to peripheral nerve and muscle thorough examination and a wider differential diagnosis should be kept in order for quick diagnosis and early intervention that helps in patient recovery.

KEYWORDS

high-steppage, lumbar disc disease, meningioma, neurofibromatosis, leprosy, AIDP.

INTRODUCTION:

Foot drop is one of the common neurological problem that can results in repeated falls and distressing for the patient. Since the most frequent cause is common peroneal nerve compression at the neck of the fibula, there are many other causes that can results in foot drop. Sometimes a generalized peripheral neuropathy may present as foot drop when dorsiflexion weakness is more than planter flexion weakness. Sometimes foot drop may be the early presentation in some motor neuron diseases. Some rare distal myopathies may also present as foot drop. Patients having upper motor neuron weakness anywhere along the tract may also present with weakness of foot dorsiflexion than plantar flexion. So a careful history along with meticulous examination is warranted in case of foot drop for the better outcome of the patient.

Case 1:

A 71-year-old male presented with sudden onset of low back ache and right foot drop following lifting heavy weight. He had vague low back ache for past 6 months. Clinical examination revealed normal higher mental function and cranial nerves right leg rising test positive at 50" with asymmetrical wasting of bilateral calf muscles. He had right foot drop and weakness of left great toe extension and hypoesthesia over anterior aspect of right leg. Perianal sensation was intact with normal bladder function. All deep tendon reflexes were normal with bilateral angle jerks absent and no upper motor signs were documented. All other muscle strength were normal. Apart from systemic hypertension no remarkable past history. MRI of lumbosacral spine done showed L4-L5 disc bulge obliterating the thecal sac and narrowing both neural foramen with indentation on both sided nerve roots with cauda equine nerve roots compression. Patient diagnosed with lumbar disc prolapse and taken for discectomy.

Case 2:

A 45-year-old male presented with acute onset of glove and stocking pattern of numbness and bilateral asymmetrical foot drop (right > left) for 2 days. He had no other significant past history. Examination revealed normal higher mental function and cranial nerves. Clinical examination revealed bilateral asymmetrical lower limb weakness predominantly involving distal muscles more than proximal muscles without upper limbs and truncal muscle weakness. He had glove and stocking type of hypoesthesia with normal perianal sensation and bladder function. All deep tendon reflexes were normal except bilateral absent ankle jerk and bilateral absent plantar response. There was no upper motor neuron signs. MRI lumbo-sacral spine and whole spine screening was normal. Nerve conduction study was in favor of AMSAN variant of acute inflammatory demyelinating polyneuropathy (Table-2). Patient was treated with intravenous immunoglobulin and physiotherapy given.

Case 3:

A 42-year-old male presented with sub acute onset of right foot drop for past 1 month. He had no sensory and bowel-bladder symptoms. He had chronic back ache for 3 years following an accidental fall. He had also underwent craniectomy for meningioma resection 2 years back and was on antiepileptic. On examination his higher mental function and cranial nerves were normal. Spinomotor system examination showed right foot drop without any sensory disturbance and bilateral plantar showed extensor response. MRI lumbo-sacral spine was done showed burst fracture of L1 vertebral body causing spinal canal narrowing and indentation on conus medullaris with compression effect. MRI brain with contrast showed recurrent left posterior frontal parasagittal meningioma (figure: 1). Patient was planned for meningioma resection followed by spinal canal decompression.

Case 4:

A 30-year-old female presented with spontaneous ulcers over bilateral legs for past 6 months. She also had right foot drop with patchy numbness over dorsum of right foot and lateral aspect of lower 1/3rd of leg. She had RTA 20 years back and acquired squint. No other significant past history. Examination revealed normal higher mental function and cranial nerves. She had right foot drop and left great toe weakness. Sensory deficit over right common peroneal nerve distribution. She also had anesthetic patch over posterior aspect of lower third of right leg. Thickening of bilateral ulnar and common peroneal nerves were there. Nerve conduction study showed bilateral posterior tibial, common peroneal, right sural nerve were not stimulable and bilateral ulnar amplitude were decreased (table-2). Provisional diagnosis of borderline tuberculoid leprosy was made and patient was started on multidrug therapy for leprosy.

Case 5:

A 23-year old male admitted with acute onset of right foot drop for 3 days with patchy sensory deficit over right dorsum of foot and lateral lower 1/3rd of leg. He had underwent of resection of a neck swelling 4 years back followed by he developed slurring of speech. His mother expired at her 30 years of age due to neurological illness and his elder brother is bed ridden for past 3 years due to neurological illness whose records were not available. Examination revealed hyper pigmented macules over the trunk suggestive of café-Lau-spots and one cystic swelling over left wrist. His higher mental functions were normal. Visual acuity on right eye reduced to perception of light fundus showed absent fovea reflex with blurred margins. Left eye partial ptosis and tough wasting and fibrillation was there. Spinomotor system showed brisk deep tendon reflexes with right plantar no response and left plantar extensor. He had impaired bilateral cerebellar function tests on upper limbs. High steppage gait with right lower limb. MRI brain and spine with contrast done showed multiple cervical and lumbar spinal

meningioma (figure: 2), spinal l5 root meningioma, cervical medullary junction had calcified meningioma, schwannoma in bilateral internal auditory canal (figure: 3), right optic nerve glioma was found. Diagnosis of Neurofibromatosis-2 was made. Advised for resection of cervico-medullary junction tumor and genetic counselling was given.

DISCUSSION:

Foot drop is the condition where there is inability to lift the forefoot due to weakness of dorsiflexors of the foot. Muscles of ankle and foot dorsiflexors namely, tibialis anterior, extensor digitorum longus and extensor halluces longus which help in clearing the foot during the swing phase of walking and control plantar flexion of the foot on heel strike, weakness results with the tendency of a person to walk with an exaggerated flexion of the hip and knee to prevent the toes from catching on the ground during swing phase. Foot drop can therefore hinder walking and increase the risk of tripping and falling. Lesion site localization of foot drop can be challenging because it may localize along the full course of upper and lower motor neuron pathways which often overlap in clinical presentation. The most common causes are l5 radiculopathy, peroneal neuropathy, sciatic nerve palsy, myopathy, scapuloperoneal syndromes, sensory ataxia and stroke, drug toxicities. The causes of foot drop may be divided into three general categories: neurologic, muscular. Subjective History along with thorough neurological exam, gait assessment, Electromyography (EMG) / Nerve conduction studies along with relevant imaging helps in diagnosis.

Table 1: Nerve Conduction Study Of The Patient, Which Was Suggestive Of Guillain Barre Syndrome

		Latency	Amplitude	NCV	F- WAVE
MOTOR	Right	3.87	2.63	12.92	30.36
Median	Left	3.56	7.06		
Ulnar	Right	3.94	2.8		
	Left	3.19	6.0		
PTN	Right	-	-	-	-
	Left	-	-	-	-
CPN	Right	-	-	-	-
	Left	-	-	-	-
SENSORY	Right	2.35	33.27	59.57	-
Sural	Left	2.12	49.34	66.04	-
Median	Right	-	-	-	-
	Left				
ulnar	Right	-	-	-	-
	Left				

Table 2: Nerve Conduction Study Of The Patient With Leprosy

		Latency	Amplitude	NCV
MOTOR	Right	3.0	18.62	50.10
Median	Left	3.19	9.81	57.02
Ulnar	Right	2.25	16.01	52.73
	Left	2.69	12.78	56.13
PTN	Right			
	Left	1.50	28.17	41.67
CPN	Right	-	-	-
	Left	2.62	2.07	
SENSORY	Right	-	-	-
Sural	Left	2.02	9.85	40.06
Ulnar	Right	1.90	44.90	47.83
	Left	2.05	39.04	46.82
Median	Right	2.55	45.48	47.06
	Left	2.67	47.5	45.97

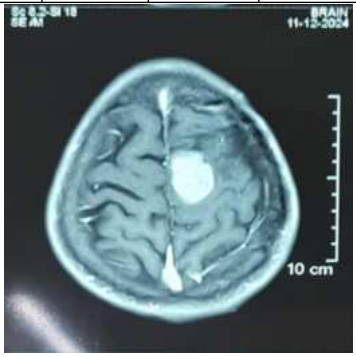

Figure 1: Well defined extra-axial Dural based mass lesion in left fronto para falcine region- Meningioma

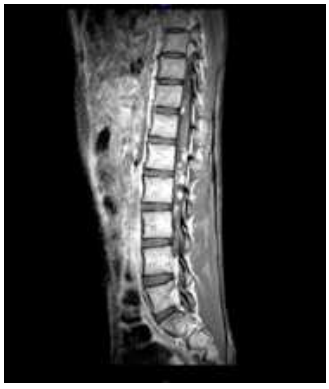

Figure 2: Multiple cranial and lumbar meningioma

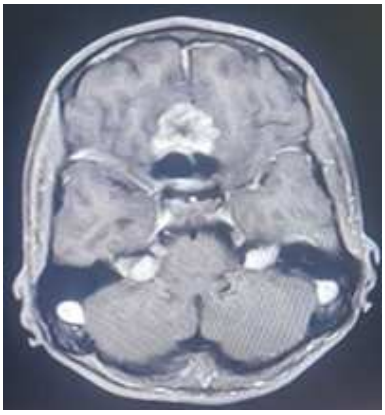

Figure 3: Meningioma in planum spenoidale and schwannoma in bilateral internal auditory canal

REFERENCES:

1. Das Gupta E. A man with febrile illness and difficulty in walking. Malays Fam Physician. 2008 Apr 30;3(1):51. PMID: 25606113; PMCID: PMC4267032.
2. John D Stewart, doi: 10.1136/jnnp.2008.149393.Pract Neurol 2008 8: 158-169
3. Selin Tural, Deniz Konya, Ibrahim H. Sun, Arzu Gercek, Serdar Ozgen, Necmettin M. Pamir, Foot drop: The first sign of an intracranial tumor?, Journal of Clinical Neuroscience, Volume 14, Issue 5, 2007, Pages 490-492, ISSN 0967-5868, https://doi.org/10.1016/j.jocn.2006.01.028.
4. Bilić H, Hančević M, Sitaš B, Bilić E. A rare case of parasagittal meningioma causing isolated foot drop: case report and review of the literature. Acta Neurol Belg. 2021 Apr;121(2):555-559. doi: 10.1007/s13760-019-01255-8. Epub 2019 Nov 30. PMID: 31786742.
5. Li-Ren Chang, Shyh-Jou Shieh, Neurofibroma Derived from the Deep Peroneal Nerve: A Case Report, The Kaohsiung Journal of Medical Sciences, Volume 22, Issue 6, 2006, Pages 290-296, ISSN 1607-551X, https://doi.org/10.1016/S1607-551X(09)70314-6.