Bilateral Foot Drop Without Cauda Equinae Syndrome Due To L4-L5 Disc Prolapse: A Case Report

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Citation

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Abstract

Aims: Lumbar disc prolapse in elderly patients at L4-L5 level presenting as bilateral foot drop without other features of cauda equine syndrome has been rarely reported.

Methods: This is a report of an elderly lady with presenting with sudden backache and radiating pain to both legs with bilateral foot drop. There was no urinary or bowel involvement. Clinical examination showed a bilateral L5 radiculopathy with normal perianal sensation. Investigations excluded other causes of bilateral foot drop. MRI revealed a L4 - L5 central disc prolapse causing severe canal stenosis at that level.

Results: Patient underwent L4 - L5 laminectomy and discectomy. At follow up a month later her bilateral foot drop had improved to normal and she was independent.

Conclusion: This case highlights the fact that though very rare, L4 -L5 disc prolapse can manifest with bilateral foot drop and surgery can produce a good result.

INTRODUCTION

Unilateral foot drop due to lumbar disc prolapse is seen occasionally. Cauda equine features with associated bilateral foot drop due to lumbar degenerative and disc pathology is also seen occasionally. But bilateral foot drop due to a L4-L5 disc prolapse is very uncommon and almost impossible theoretically. This case had only bilateral foot drop without any cauda equine features due to a L4-L5 disc prolapse.

CASE REPORT

A 72 year old lady presented with sudden onset severe backache and bilateral foot drop when she was sweeping the floor. She gave no history of back pain or pain in the legs previously. She was on treatment for dyslipidaemia and had a past history of right cerebellar infarction for which she is on antiplatelet medication

Clinical examination revealed a positive leg raising test at 45°, bilateral foot drop (Gr 1-2/5) with 50% sensory loss to pinprick both L5 dermatomes. Position sense was intact. Bilateral knee jerks, ankle jerks and plantar reflexes on both sides were normal. She had no other neurological deficits in the limbs and no cerebellar signs. Perianal sensation was intact with normal bladder function. Investigations to rule out medical causes of bilateral foot drop were all negative. MRI showed significant prolapse of the L45 intervertebral disc with ligamentum flavum hypertrophy and canal stenosis with evidence of compression of L5 foramina bilaterally (fig 1, 2, 3).

Figure 1

Figure 1: Pre-op Sag T2 image showing the L4-L5 disc prolapse causing canal stenosis

Figure 2

Figure 2: Pre-opaxial T2 image showing the L4-L5 central disc prolapse causing canal stenosis and bilateral foraminal stenosis

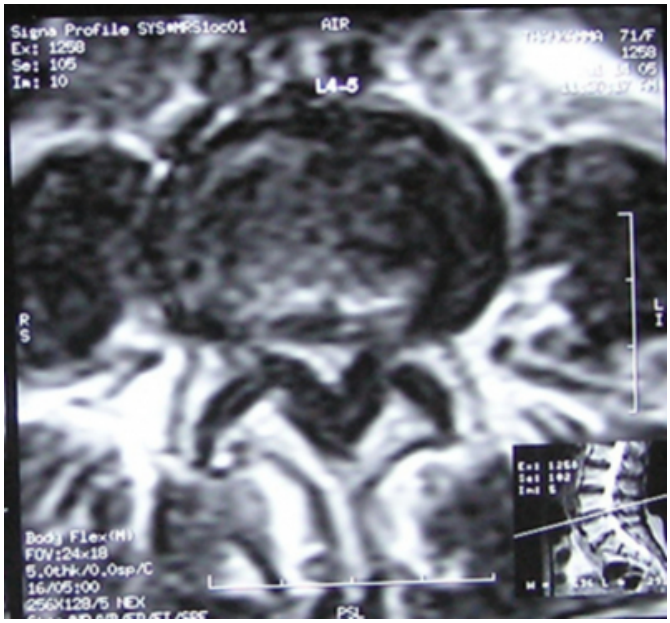
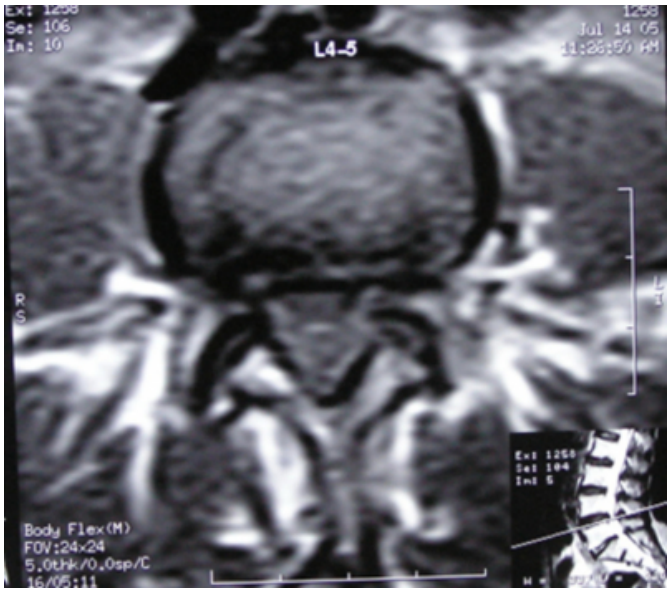


Figure 3

Figure 3: Pre-op T1 axial image showing the L4-L5 central disc prolapse causing canal stenosis and bilateral foraminal stenosis



The patient underwent L4 & L5 decompressive laminectomy and L45 discectomy with bilateral L5 root canal exploration. Postoperatively her neurological deficits improved progressively. At the time of follow up after 4 weeks the bilateral ankle dorsiflexion had improved to 5/5. She was able to walk and climb steps without support and was

independent. Her L5 sensory loss also improved without any fresh perianal or bladder deficits. MRI repeated at the end of 8 weeks showed adequate decompression of the neural elements (Fig 4).

Figure 4

Figure 4: Post-op sagittal T2 image showing adequate decompression

DISCUSSION

Bilateral isolated foot drop is a very rare condition and occurs with various metabolic causes like lead poisoning, Crohn's disease ([1]), hypothyroid myopathy ([2]), anorexia nervosa ([3]) and post electroconvulsive therapy ([4]). Eskandary and coworkers [5] presented six cases with foot drop due to parasagittal pathology and alerted readers to this possibility.

Lumbar disc prolapse in the elderly is not very common. However there have been some studies reporting cases of elderly patients with lumbar disc prolapse ([6, 7, 8]).

Mahapatra and coworkers [9] claimed the first report of a patient presenting with bilateral foot drop due to a prolapsed intervertebral disc. This patient had other features of cauda equina involvement in the form of urinary involvement and motor weakness and sensory loss below knee. He had a large L3-L4 disc prolapse for which patient underwent L3 – L4 laminectomy and the large extruded disc was removed. Patient recovered well in the postoperative period. Recently Oluigbo et al ([10]) reported a case of bilateral foot drop of acute onset related to lumbar canal stenosis in the absence of an acute disc prolapse, either on imaging or at surgery.

The patient in this report is an elderly lady who presented with only bilateral foot drop (no cauda equinae features) and had a large central L4-L5 disc prolapse. She also recovered her ankle function very well after surgery. The reason for such a presentation may due to the fact that the patient had an element of pre-existing age related root canal compromise due to bony and ligamentous hypertrophy with a superadded central disc prolapses at L4 – L5. Studies ([11]) have shown that rapid onset of spinal root compression has a profound effect on the function than a slow onset and the recovery is also quicker after early decompression. Our patient also recovered her motor and sensory deficits relatively early.

Cauda equina syndrome due to lumbar disc disease has been described previously. Choudhary and Taylor [12] studied 42 cases of lumbar disc disease presenting with cauda equina syndrome and found that only in 5 cases was pure disc herniation the cause of the syndrome. No patient in this series had a bilateral foot drop. Chang and coworkers [13] analysed 144 consecutive lumbar disc herniation patients and found only four patients presented with cauda equina syndrome. Again none of the cases had a bilateral foot drop. Girardi et al ([14]) retrospectively analysed the prognosis of preoperative foot drop after lumbar surgery in 55 patients with foot drop and herniated nucleus pulposus and/or lumbar spinal stenosis. There was one patient with bilateral foot drop but the exact pathology is not clear.

Kostuik and colleagues ([15]) recommended early surgery in patients with cauda equina symptoms due to disc prolapse but felt that immediate surgery within six hours may not be necessary for good recovery. In elderly patients with sensory motor deficits, it has been reported that the postoperative outcomes are good and early surgery has to be considered (6, 10). Prognosis for foot drop after remedial surgery has also been reported to be good in spite of age, duration, cause and severity of the disease (14).

Lumbar disc prolapse with or without canal stenosis has to be considered in patients presenting with bilateral foot drop. Early decompression usually leads to good recovery. In this patient even though she probably had canal stenosis she was totally asymptomatic and was very active (including sweeping the floor). Her problem started acutely with pain and foot drop which suggests that acute disc prolapsed and not canal stenosis alone is the cause of the bilateral foot drop. To our knowledge this is probably the only case with a L4-L5 disc prolapse presenting with bilateral foot drop without any cauda equina features and recovering very well after surgery. Also for a L4-L5 disc prolapse to cause bilateral foot drop is indeed rare because of the anatomy.

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