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Evaluation of a patient with foot drop: differentiating between radiculopathy and peroneal nerve palsy

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Epidemiology Foot drop is characterized by a weak anterior tibialis muscle on dorsiflexion. It most commonly results from pathology arising from the L4/L5 level but can also arise due to other causes.[1] Hereditary motor sensory neuropathy (HMSN) is an inherited group of peripheral nerve disorders, associated with decreased production of proteins in or myelination of peripheral nerves – which can also present with foot drop. Charcot Marie Tooth disease (CMT) is the most commonly inherited HMSN – with a prevalence of around 40 per 100,000.[2] Up to 36% of patients with CMT present with peroneal nerve palsy, which can also present with a foot drop. In a patient with foot drop, it is important to distinguish whether the cause is secondary to stenosis at L4/L5 or a peroneal nerve palsy such as CMT.

H&P A patient presented with loss of dorsiflexion of the left foot (foot drop) and loss of arches on the left foot. The patient was able to invert his foot but was unable to evert the foot. The patient also had normal sensation along the dorsum of the left foot.

Diagnosis In order to differentiate a deep peroneal nerve palsy from L4/L5 radiculopathy, the patient's ability to invert and evert the foot was tested. Furthermore, because L4/L5 radiculopathy can affect the superior and inferior gluteal nerves, the patient's intact gluteal muscles and tensor fasciae lata decreased the likelihood of radiculopathy. The patient's ability to invert but not evert, coupled with normal gluteal muscles and sensation along the anterior portion of the foot indicated a deep peroneal nerve palsy rather than L4/L5 stenosis.

Keywords: Peroneal nerve palsy, radiculopathy, foot drop, Charcot Marie tooth (CMT), hereditary motor sensory neuropathy (HMSN)

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Transcript

Slide 1: 0:00-0:14

Hello everybody today will be discussing the evaluation of a patient with foot drop specifically differentiating between lumbar radiculopathy.

Slide 2: 0:14-0:33

Just to briefly outline the presentation, we'll first go over a history and physical will then get into the diagnosis and conclusions as well as showing accompanying video demonstrating the diagnosis.

Slide 3: 0:33-1:36

Foot drop is characterized by a weak anterior tibialis muscle on dorsiflexion and the foot drop most commonly arises from pathology in the L45 region there's also a group of neuropathy is known as a hereditary motor sensory neuropathy H MSN to be abbreviated which are inherited group of peripheral nerve disorders associated with decreased production of proteins within or myelination of the peripheral nerves and H MSN can also present with foot drop one specific type of H MSN is Charcot Marie tooth disease or CMT it's the most commonly inherited H MSN and has a prevalence of around 40 per 100,000 slightly over 1/3 add around 36% of patients with CMT present with peripheral nerve palsy with a foot drop.

Slide 4: 1:36-1:57

So the purpose of this slide set is to go over in a diagnosis of foot drop how one can differentiate between food truck which is secondary to stenosis at the L4L5 region from perineal nerve palsies such as charcot marie tooth.

Slide 4: 1:57-2:29

In this case patient presented with lots of dorsiflexion of the left foot so foot drop as well as loss of arch is on the left foot the patient was able to invert the left foot but was unable to ivart that same foot of note the patient also had normal sensation along the dorsum of the left foot as well as intact gluteal muscles as well.

Slide 5: 2:29-3:13

So when it comes to differentiating between L 4-5 radiculopathy and the perineal nerve palsy a couple of things can be tested one is the ability to invert invert the foot as discussed above 2 is the sensation along the anterior portion of the foot as well as the involvement of the gluteus muscles in the tensor fascia lata so this patient's ability to invert but not even the foot coupled with normal sensation along the anterior portion of the foot as well as intact gluteal muscles in the TSL indicated the perineal nerve policy rather than an L4 5 stenosis.

Slide 6: 3:13-4:33

Five stenosis so now will just show a quick video accompanying this diagnosis hi how are you today we're going to patient comes in with a foot drop and we're going to go through some of the ways to differentiate and look at that so this gentleman has had a had a foot track and the first thing when you look at look at his foot you can see has circle changes to his foot where he sort of lost all his arch is in his foot so we asked him to bring up his toys to his head right Sir and you'll notice here is no strength in his anterior tibialis so the first thing we have to do is differentiate is this a L5 or L4 nerve problem or is this a perineal nerve problem so the way

to do that is first can you invert your foot this way chords me and he's got excellent inversion can exit you go can you either it or push your foot out and he had zero shrink there and so we put it together we go excellent inversion new Y version no anterior tibialis every sensation here is normal is normal sensation point that goes together is that's a parental murder palsy not at all five radiculopathy thank you.

Slide 7: 4:33-4:45

That video concludes the slide set and then the following slide i'll just show some brief references and thank you for your time.

Slide 8: 4:45-4:49

[END]

References

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Disclosures

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