

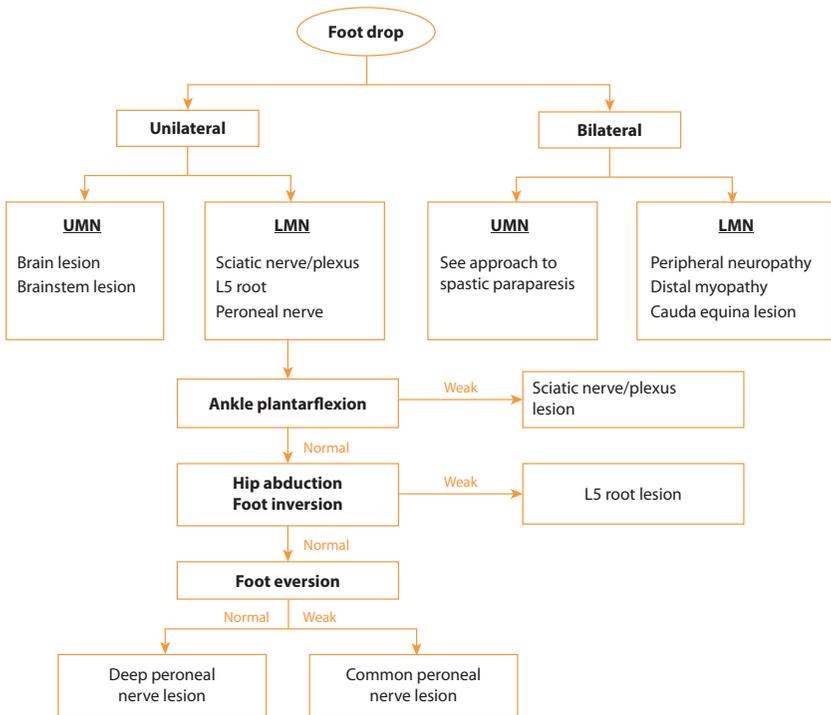
Neurology (Limbs) – Clinical Syndromes

## 2.6 | Foot Drop

Foot drop follows a simple and logical algorithm, but is often poorly done. We recommend checking ankle dorsiflexion as an early screen, while inspecting the patient from the foot of the bed. This will allow you to identify unilateral foot drop early and incorporate additional steps (e.g., hip abduction) that are not a routine part of the lower limb examination.

### Where is the Lesion

Foot drop can be due to a bilateral UMN disorder, a generalised LMN process, sciatic plexus, L5 root, sciatic nerve, or peroneal nerve lesion. Localisation follows a simple algorithm (Figure A2.7).



HMSN: hereditary motor and sensory neuropathy

Figure A2.7. Localisation of foot drop.

## 1. Exclude bilateral foot drop

- Bilateral LMN foot drop: peripheral neuropathy (Syndrome 2.5) or distal myopathy (myotonic dystrophy, facioscapulohumeral dystrophy, etc.; Syndrome 2.4).
- Bilateral UMN foot drop: usually a spinal cord lesion (Syndrome 2.1).

## 2. Exclude UMN foot drop

- Look for UMN features including hypertonia, clonus, hyperreflexia, upgoing plantars, or UMN pattern of weakness.
- The causes of unilateral UMN weakness are discussed in Syndrome 2.2 and include brain and brainstem lesions.

## 3. Consider sciatic nerve or plexus lesions

- A sciatic nerve lesion affects many more muscles, causing weak ankle plantarflexion, a depressed ankle jerk, and a larger area of numbness.
- A plexus lesion may affect certain nerve roots but not others, resulting in a myotomal pattern.

## 4. Distinguish peroneal nerve vs. L5 root lesion

- The critical test is hip abduction and foot inversion — these are weak in a L5 lesion, but normal in a peroneal nerve lesion.
- Sensory loss is over the lateral leg in an L5 lesion, but over the 1st webspace or dorsum of foot in a peroneal nerve lesion.

## 5. If peroneal nerve, distinguish deep vs. common peroneal nerve lesion

- A common peroneal nerve lesion also affects the superficial peroneal nerve, causing weak foot eversion and a larger patch of numbness over the dorsum of the foot.

Table A2.9 summarises the key differences between each cause of LMN foot drop.

**Table A2.9. Localisation of LMN foot drop.**

Action	Root and nerve		L5 root	Peroneal nerve		Sciatic nerve	Sacral plexus
				Deep	Common		
Ankle dorsiflexion	L5	Deep peroneal	Weak	Weak	Weak	Weak	Weak
Ankle plantarflexion	S1	Tibial	Strong	Strong	Strong	<b>Weak</b>	<b>Weak</b>
Hip abduction	L5	Superior gluteal	<b>Weak</b>	Strong	Strong	Strong	Weak
Foot inversion	L4-5	Tibial	<b>Weak</b>	Strong	Strong	Weak	Weak
Foot eversion	L5	Superficial peroneal	Weak	Strong	<b>Weak</b>	Weak	Weak
Sensory loss			Lateral leg	Only 1st webspace	Dorsum of foot	Extensive	

## What is the Lesion (A): Peroneal Nerve Lesion

Causes of a peroneal nerve lesion:

- Most common: compressive neuropathy at the fibular head (common peroneal nerve lesion) due to prolonged bed rest or trauma.
- Trauma and Iatrogenic – look for a scar at the fibula head (fracture, surgery).
- Causes of mononeuropathy (e.g., diabetes mellitus).
- As part of a mononeuritis multiplex (diabetes, vasculitis, etc.; see page 55).

## What is the Lesion (B): L5 Root, Sciatic Nerve, and Plexus Lesions

The causes here overlap. The more common causes may include:

	<b>L5 root</b>	<b>Sacral nerve</b>	<b>Sacral plexus</b>
(a) Compressive /traumatic	Prolapsed disk	Post op (hip) Prolonged sitting Postpartum	Postpartum
	Hematoma Neoplasm	Hematoma Neoplasm	Hematoma, retroperitoneal Neoplasm
(b) Vasculitis	Possible	Possible	–
(c) Inflammatory			Radiation
(d) Metabolic			Diabetic amyotrophy

## Look for Complications

Look for patient's function and mobility. Pay attention to the patient's footwear and use of any aids (e.g., an ankle foot orthosis).

## Sample Scripts

### Common peroneal nerve lesion

This middle-aged gentleman has left-sided foot drop, weak ankle dorsiflexion, and foot eversion. Ankle plantarflexion, foot inversion, and hip abduction are normal. Tone and reflexes are normal, and plantars are downgoing. There is sensory loss over the dorsum of the foot. The lesion localises to the common peroneal nerve. I note a surgical scar over the fibula head, suggesting that past trauma may be the cause of this lesion. Functionally, he walks with a high steppage gait on the left and does not use any orthosis. I am concerned about his fall risk as he appears to be tripping over often.

**L5 nerve root**

This middle-aged gentleman has a left foot drop with weak ankle dorsiflexion, weak hip abduction, and weak foot inversion. Ankle plantarflexion is normal. Tone and reflexes are normal. There is a patch of sensory loss over the lateral leg. The lesion is in the L5 nerve root. Possible causes include degenerative lumbar spine disease, trauma, compression by a space-occupying lesion, as well as causes of a mononeuritis multiplex. He appears to be comfortable, although I will like to take a history for back pain or trauma. Functionally he is ambulant with a stick. I will like to complete my examination by checking anal tone and doing a straight leg raise.