information and a current status report must be submitted for a Federal Aviation Administration decision.[2] Air Force Instruction 48-123 does not mention bronchogenic cyst.[7]

Once the member was cleared by his CT surgeon, and with a normal chest X-ray, his waiver package was submitted; a waiver was granted shortly thereafter by the Naval Aerospace Medical Institute. The pilot has been flying without any issues since then.

Park BY. ***You're the flight surgeon: bronchogenic cyst.*** **Aerosp Med Hum Perform. 2015; 86(2):144–146.**

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This article was prepared by Elton Tay, Dip. Av.med., and Wee Hoe Gan, Dip. Av.med.

You are the flight surgeon conducting aircrew centrifuge training. A 25-yr-old aircrew has just completed his centrifuge profile and comes to you complaining that his left foot feels unusual when he walks. You notice that he has a left partial foot drop and is unable to dorsiflex the left foot fully.

1. Your next course of action is to discharge the patient with some muscle strengthening exercises for the left foot.

A. True
B. False

ANSWER/DISCUSSION

1. B. A sudden unilateral foot drop should be worked up as it may suggest underlying myopathy or neuropathy. Dorsiflexion of the foot arises from the actions of the anterior tibialis, extensor digitorum longus, and extensor hallucis longus muscles. Foot drop may result from direct injury to these muscles (muscle or tendon ruptures). Injury to the nerves that innervate these muscles may also be the possible reason for the foot drop.

You take a detailed history and find out that the aircrew has a history of back pain previously, which resolved with physiotherapy.

2. If you had only one option, which of his old MRI scans would you want to review?

A. Cervical spine MRI scans.
B. Thoracic spine MRI scans.
C. Lumbosacral spine MRI scans.

ANSWER/DISCUSSION

2. C. Foot drop may result from lumbosacral plexopathy or lumbar (L5) radiculopathy. L5 innervates ankle dorsiflexors such as the anterior tibialis and extensor hallucis longus.

The patient's old lumbosacral MRI shows only mild degenerative changes, with no signs of nerve impingement. He has no family history of nerve disorders and has no history of systemic disease. This is his first episode of foot drop or any muscle weakness.

You commence on your physical examination and look at the aircrew's left foot. You find that there is no swelling or bruising to suggest tendon rupture or a traumatic cause for the foot drop. You examine his spine, which reveals no tenderness and no paravertebral spasm. He has no limitations when performing straight leg raising.

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3. You are satisfied that the patient has no major musculoskeletal injuries from the centrifuge training and decide that there is nothing more that needs to be done.

A. True.
B. False

ANSWER/DISCUSSION

3. B. A full neurological examination should still be performed. A retrospective study[11] of 217 patients who presented with foot drop showed that 31% was from central neurogenic origin and 68% from peripheral neurogenic origin. Of the cases with peripheral neurogenic origin, 30.6% were from common peroneal nerve lesion, 19.7% from L5 radiculopathies, and 18.3% from polyneuropathies.

You do a detailed clinical examination and find no central neurological findings and no other muscle weakness or sensory loss to suggest polyneuropathy.

4. What investigations should you order?

A. Ultrasound of the foot.
B. MRI of the lumbosacral spine.
C. Nerve conduction studies.
D. All of the above.

ANSWER/DISCUSSION

4. D. Ultrasound of the left foot shows that all muscle tendons are intact and unaffected. The lumbosacral MRI is compared with the aircrew's old MRI and shows similar mild degenerative changes with no acute prolapsed intervertebral disc affecting the L5 nerve roots.

5. You request a nerve conduction study for the following reason(s):

A. To confirm that there is a peripheral neuropathy.
B. To localize the part of the nerve affected.
C. Both A and B.

ANSWER/DISCUSSION

5. C. Nerve conduction studies do not only confirm the presence of neuropathy, but are also useful in localizing the site of pathology in peripheral nerves.[5,10] The most frequent peripheral mononeuropathy causing a foot drop is common peroneal neuropathy. The common peroneal nerve travels across the lateral aspect of the popliteal fossa to the lateral knee, giving off the lateral cutaneous nerve to the calf, which provides sensation to the lateral aspect of the leg. The common peroneal nerve then travels subcutaneously at the lateral fibular just distal to the fibular head before entering the anterior part of the leg, dividing into the deep and superficial peroneal nerves. These nerves travel distally down the leg, across the ankle to end in the foot, innervating muscles such as the extensor digitorum and hallucis brevis.

The superficial nature of the common peroneal nerve at the level of the fibular head makes this site the most common area for injury.[6] Other frequent areas for peroneal nerve injuries are at the ankle or foot. Published causes of peroneal neuropathy at the level of the knee or fibular head include extrinsic compression (by habitually sitting cross legged,[12] tight orthopedic casts or pressure stockings, and pneumatic compressive devices applied to the legs to prevent deep vein thrombosis),[4,7] total knee arthroplasty,[8] and traumatic knee dislocations.[3]

Distal peroneal neuropathy at the level of the ankle or foot has been shown to be caused by ankle inversion sprains[9] that cause stretch injuries of the nerve. Other causes include ankle fractures, ankle arthoscopy, and tight fitting shoes and boots. To localize the site of peroneal neuropathy, motor nerve conduction studies are most often performed on the extensor digitorum brevis. By comparing conduction amplitudes and velocities at different nerve stimulation sites (above the fibular head, below the fibular head, and at the ankle), the site of the pathology can be ascertained.

The nerve conduction study confirms your suspicion that the aircrew's left foot drop is due to a common peroneal neuropathy and that the pathology is localized to the level of the fibular head. You speak to the aircrew again and note that there is no history of habitual leg crossing. There is also no injury to the knee such as a fracture or dislocation. You review the pneumatic 5-bladder G suit that he was wearing during the centrifuge training and find that it is ill fitting, with excessive compression over the fibular head. Your diagnosis is common peroneal neuropathy at the level of the fibula head due to external pneumatic compression from the G suit.

6. What is the aeromedical disposition for this patient?

A. DNIF permanently as his foot drop affects emergency egress from aircraft.
B. Prescribe an ankle foot orthosis in the interim and await spontaneous recovery. Return to fly after clearing functional assessments.

ANSWER/DISCUSSION

6. B. Common peroneal neuropathy secondary to external compression typically resolves spontaneously.[1] Treatment for such cases involves removal of the offending compressive agent and prescription of ankle foot orthosis to improve the gait in the interim recovery period. For patients with only partial weakness of dorsiflexion, strengthening exercises may help with functional recovery.[2] Some physicians prescribe vitamin B12 supplements to aid nerve recovery, but there is no strong evidence for its use in patients with neuropathy unrelated to vitamin B12 deficiency.

The aircrew was prescribed an ankle foot orthosis and vitamin B12 supplements. He also underwent physiotherapy to strengthen his left ankle dorsiflexors. He recovered fully in 6 wk and returned to flying after clearing cockpit and simulator assessments, as well as after successfully performing aircraft egress drills.

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