'Top Cover Neuropathy' – Transient Brachial Plexopathy due to Body Armour

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SUMMARY: Two cases of partial lesions of the brachial plexus (brachial plexopathy) occurring in soldiers wearing body armour are described. This is an occupational hazard which has not been reported before.

Introduction

Transient brachial plexus lesion as a result of exogenous compression or traction is not uncommon¹. Recognition of the cause is important and often the clue to the diagnosis is in the occupational history. 'Top Cover' is a method of providing protective cover in a mobile vehicle with two armed soldiers appearing through the hatch of the vehicle. The soldiers wear body armour which weighs 10-12 lbs and aim a rifle from the top of the vehicle. Two cases of brachial plexopathy in soldiers performing such duty are discussed.

Case 1

A 20 year old Infantryman was referred with a one month history of pain in the left shoulder along with paraesthesia over the left scapula, deltoid and ulnar border of left forearm as well as paraesthesia of little and ring fingers of left hand. He had no complaints of headache, neck or chest pain. There was no history of recent trauma. Neurological examination revealed no objective neurological deficit apart from some hypoaesthesia over the left deltoid, the medial border of left ring finger and the left little finger.

Enquiry into the nature of his job revealed that he had arrived in Northern Ireland about 5-6 weeks earlier and had to wear body armour for several hours every day whilst providing 'Top Cover'. He was excused duties involving providing 'Top Cover' and within two weeks became totally asymptomatic.

Case 2

A 25 year old Gunner was referred with a 3 day history of sudden weakness in his left arm along with mild paraesthesia over the left suprascapular region, the lateral aspect of left arm and some tingling in his left hand. There was no history of trauma. Neurological examination of the left upper limb revealed grade IV/V power in the triceps, brachioradialis, wrist and finger extensors and grade III/V power in the left hand interossei. Touch sensation was mildly impaired over the little finger and medial aspect of ring finger of the left hand.

He too had arrived in Northern Ireland some 6-8 weeks earlier and his duties involved providing 'Top Cover' during mobile patrols.

He was already feeling better when seen at the clinic

for he had already been taken off this duty due to the weak left arm and had fully recovered after a further 3 weeks.

Discussion

An upper plexus lesion due to heavy backpacks in tall slender young soldiers is well recognised². Lesions of the median nerve alone or in combination with ulnar and radial nerve are known to occur in the axilla with misuse of a crutch^{3,4}. Distal brachial plexus injury due to vest restraint which rides up into the axilla in confused or combative patients has recently been reported⁵.

Whilst providing 'Top Cover' soldiers wear body armour weighing 10-12 lbs for 3-4 hours or longer at a stretch. The posture they adopt whilst holding the rifle on the vehicle allows much of the weight of the body armour to rest on the left shoulder. In addition the abduction and lateral rotation of the left arm whilst holding the rifle and flexion of the neck to the opposite side whilst aiming cause further traction to the upper roots of the brachial plexus. The body armour also digs into the axilla of the abducted left arm causing compression of the brachial plexus cords in the axilla. The first case reported seems to have had sensory involvement of C₅, C₈ and T₁ and the second case sensory involvement of C₅, C₆ and motor involvement of C₇, C₈ and T₁. The ulnar nerve in its superficial position over the olecranon is particularly prone to damage when it is rested on a mobile vehicle whilst supporting a rifle. Ulnar nerve palsy resulting from driving with the arm resting on a window sill is a frequently encountered cause⁶.

The possibility of brachial plexus lesion in soldiers providing 'Top Cover' should be recognised. Prognosis is excellent and recovery complete within 3-4 weeks in transient brachial plexopathy.

The fact that there have been so few cases amongst the thousands who have worn the body armour means that little or no fault can be ascribed to the body armour. It is sufficient to make servicemen aware of the problem and advise them to adjust the posture accordingly. An occupational history remains important when dealing with medical problems amongst servicemen.

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