



Brachial Plexopathy in Acute Burns

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Introduction

- More than a third of acute burn patients develop some form of peripheral neuropathy, with a higher incidence in patients with <20% total body surface area (TBSA) burn.¹
- Most frequently diagnosed neuromuscular abnormality was found to be generalized neuropathy.
- Brachial plexopathy was the fifth most common abnormality.²
- A reported cause of brachial plexopathy in an acute burn patient is malpositioning of the patient either in the operating theatre or the intensive care unit.
- A series of 3 patients admitted to the Royal Hobart Hospital in the last 10 years with more than 20% TBSA burns is presented.

Patients

- **Patient 1**
 - 34 year old man who sustained 49% TBSA burns to upper body from a flash burn
 - Developed right upper limb weakness
 - Unsuccessful nerve conduction studies (NCS) due to needle phobia
 - Improving with time and physiotherapy

- **Patient 2**

- 39 year old man who sustained 35% TBSA burns to right side of body after a motor vehicle accident
- Also had orthopaedic injuries to his hand and leg
- Developed bilateral upper limb weakness
- Bilateral brachial plexus neuropathy on NCS
- Improving with time and physiotherapy

- **Patient 3**

- 61 year old man who sustained 30% TBSA burns to face and torso from a barbecue accident
- Developed left upper limb weakness
- Pan brachial plexopathy on left side on NCS
- Tendon transfers performed on left side for a radial nerve palsy

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Discussion

- Peripheral neuropathy in a severely burned patient can be due to several causes, such as generalized neuropathy, critical illness neuropathy, or direct thermal injury.³
- The brachial plexus is the nerve structure most susceptible to damage from malpositioning during anaesthesia.
- To prevent injury, arms should be flexed and abducted to <90° in the supine position, and they should be kept as close to the patient's side, with the forearm pronated and the elbow flexed, with the hands on either side of the head in the prone position.
- Injury due to malpositioning usually improves with rehabilitation.⁴

References

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