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# Another cause for brachial neuritis?

- ▶ Richard W Frith
- ▶ Sydney Neuromuscular Meeting
  - ▶ November 2014



# “Brachial neuritis”

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- ▶ Neuralgic amyotrophy
  - ▶ Parsonage-Turner syndrome
  - ▶ Brachial plexus neuropathy
  - ▶ Brachial plexitis
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- ▶ Acute focal inflammatory neuropathy (AFIN)
  - ▶ Acute multifocal inflammatory neuropathy (AMFIN)



# Brachial neuritis

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- ▶ Typical syndrome
  - ▶ Antecedent event >50%
    - ▶ Infection
    - ▶ Exercise
    - ▶ Surgery
    - ▶ Vaccination
    - ▶ Trauma
  - ▶ Pain > 95%
    - ▶ Severe, relentless, nocturnal, mechanical exacerbation
    - ▶ Usually 3-6 weeks
    - ▶ >8 weeks – 10%
  - ▶ Weakness
    - ▶ Predominantly individual or multiple peripheral nerves
    - ▶ LTN, SSN, AN, AIN, and other motor nerves singly or in combination
  - ▶ Sensory symptoms common but comparatively minor



# Brachial neuritis

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- ▶ Immune mediated in some ?in all
- ▶ 1.6/100,000
- ▶ Familial form (up to 1/3 in some series)
  - ▶ Linked to chromosome 17q25, mutations in the septin (SEPT9) gene
- ▶ Differential diagnosis
  - ▶ Compressive cervical radiculopathy
  - ▶ Rotator cuff syndrome
  - ▶ Entrapment neuropathies
  - ▶ Other causes for focal neuropathy



# Brachial neuritis

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- ▶ Unusual patterns of disease
  - ▶ Any nerve or root
  - ▶ Lower cranial nerves
  - ▶ Phrenic nerve
  - ▶ Lower limb nerves - rare
- ▶ ? Painful radiculopathy with normal imaging



# Interscalene block & Brachial Neuritis

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- ▶ 32 F
- ▶ 2006
- ▶ Acromioplasty & clavicle resection
- ▶ Interscalene block
- ▶ Typical brachial neuritis
- ▶ Axillary & suprascapular neuropathies
- ▶ 2010 – mild deficit



# Interscalene block Cases

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- ▶ All from one neurophysiology practice
- ▶ Shoulder surgery with interscalene block via catheter +/- elastomeric pump post-procedure
- ▶ Bupivacaine or ropivacaine
- ▶ Typical brachial neuritis pattern (pain, weakness, neurophysiology)
- ▶ Significant neurological deficit
- ▶ Comprehensive NCS/EMG



# ISB Cases

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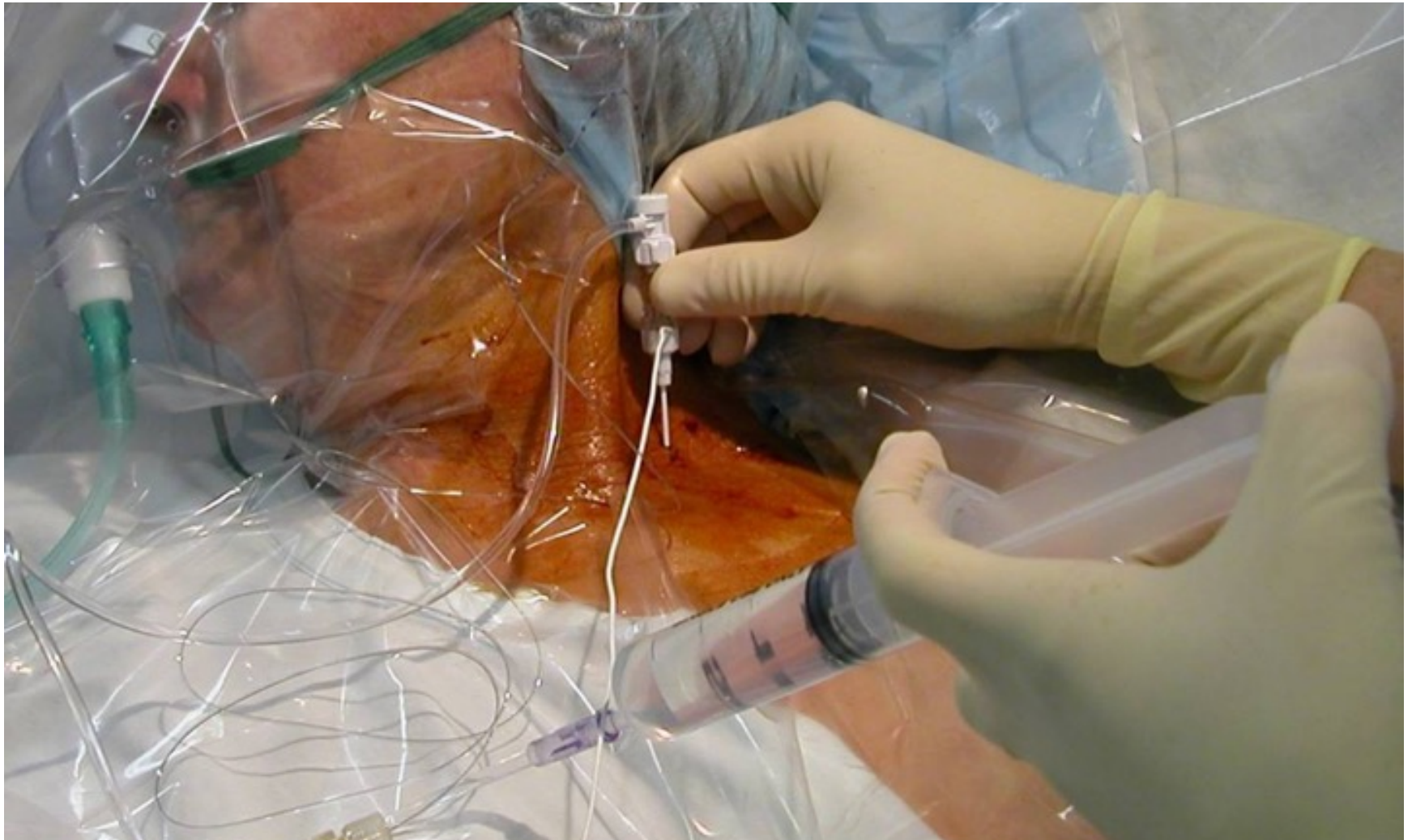
## ▶ Excluded

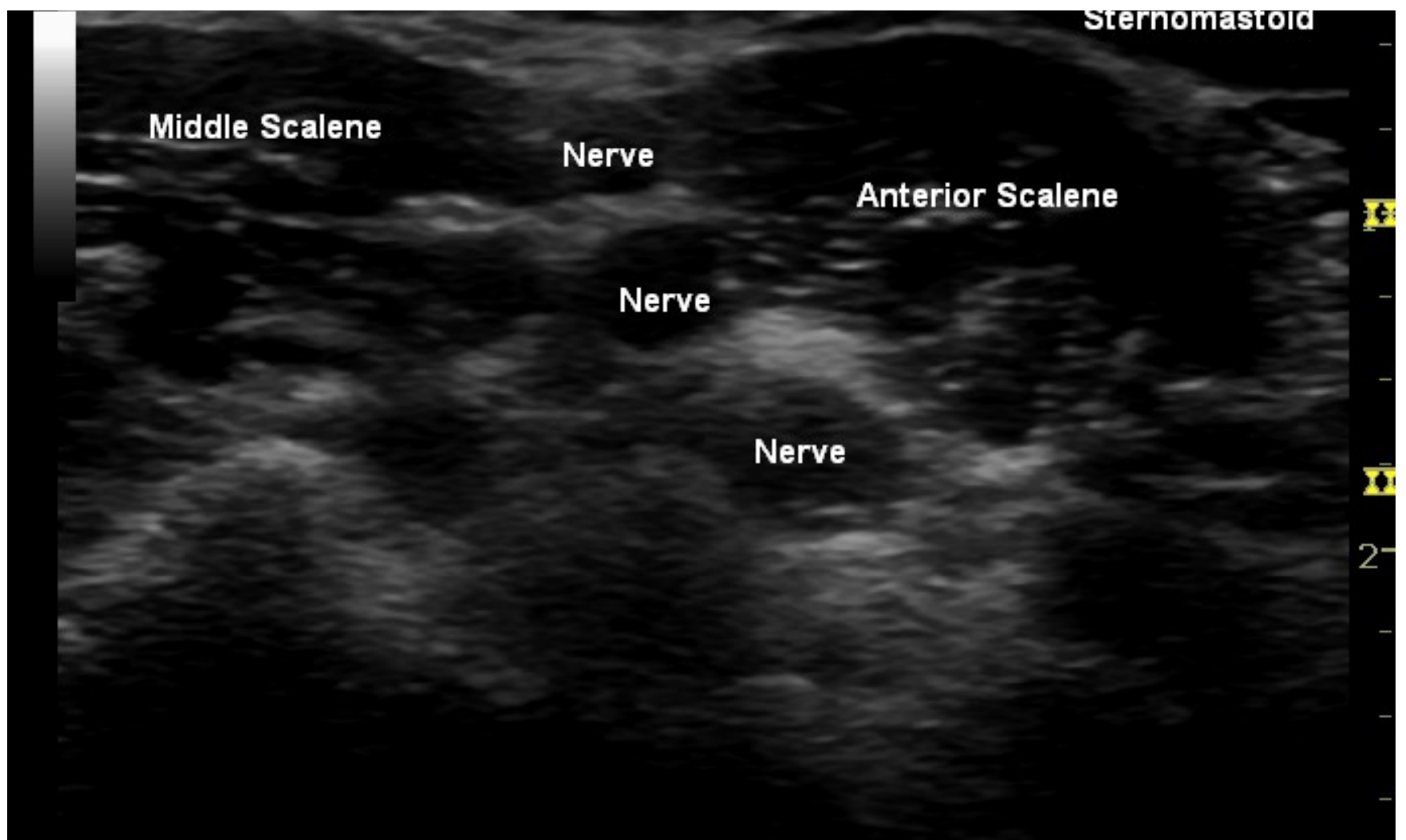
- ☐ Prior symptoms
- ☐ No deficit
- ☐ Prior trauma
- ☐ Surgical complications
- ☐ ACH/other private practice patients





# Interscalene block





# Interscalene block & Brachial Neuritis

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49 F

AC joint reconstruction

Typical clinical picture for BN

Severe anterior interosseous neuropathy (completely denervated) & patchy median neuropathy



# Interscalene block & Brachial Neuritis

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63 F

TSJR

Severe median, ulnar & musculocutaneous neuropathies

Pattern – multiple peripheral nerves rather than plexus or root damage



# Interscalene block & Brachial Neuritis

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44 F

Rotator cuff repair

Severe axillary & SS neuropathies



# Interscalene block & Brachial Neuritis

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54 F

Rotator cuff repair

Lower trunk plexopathy



# Interscalene block & Brachial Neuritis

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57 M

Acromioplasty & rotator cuff repair

(Tight sling on arm ?radial neuropathy)

Severe posterior cord, musculocutaneous & SS  
neuropathies



# Interscalene block & Brachial Neuritis

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72 F

TSJR

Severe pain

PH uncomplicated SJR/interscalene block

Partial posterior cord lesion





# Interscalene block & Brachial Neuritis

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35 M

ORIF after clavicle fracture

Severe brachial plexopathy sparing spinati and trapezius

Severe neuropathic pain

Flail arm



# Interscalene block & Brachial Neuritis

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68 M

SJR

Severe nocturnal neuropathic pain

Hypersensitivity medial arm/forearm

Ulnar neuropathy plus



# Brachial Neuritis – no ISB

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49 M

Professional sportsman

Elective clavicle plating

No IS block but ropivacaine infusion into operative site

Severe pan-brachial plexopathy

Posterior cord most affected

Neurology review “brachial neuritis”



# Brachial Neuritis

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2009-2014 57 cases

▶ Spontaneous	23
▶ Trauma/repetitive activity	11
▶ Post-operative (non-shoulder)	5
▶ Interscalene block	17
▶ Ropivacaine wound infusion	1
▶ Contralateral to ISB	0



# Interscalene block & Brachial Neuritis

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## Concerns/criticisms

- Flawed case ascertainment

- Unknown denominator

- Surgical or other trauma

- Coincidental ipsilateral BN

- Related to Interscalene block

  - Operator

  - Technique

  - Equipment

  - Drugs



# Literature – ISB complications

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- ▶ Single case reports
- ▶ Lenters et al J Shoulder Elbow Surg 2007;16:379-87  
27 plexus or nerve injuries in 3172 ISBs
- ▶ Singh et al J Bone Joint Surg Am. 2012;94:2040-6  
“Brachial plexitis” 3/1319
- ▶ Frederickson & Kilfoyle Anaesthesia. 2009 Aug;64(8):836-44  
Nerve injury at 30d 3.7% of 637

