Neck pain: More than a pain in the neck?

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Conflict of Interest- real or potential
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☑️ I have no conflict of interest with the contents of this presentation
Objectives

At the end of this presentation the participant will be able to:

1) Name and distinguish significant causes of cervical pain

2) Distinguish cervical pain from shoulder pain

3) Perform a clinical assessment to differentiate cervical and shoulder pain
Musculoskeletal causes of disability

LBP

Neck pain

Shoulder pain
Risk Factors for neck pain

• Female
• Obesity
• Sedentary
• Smoking
• Psychosocial difficulties
• Sleep disorders
Case

- Male 32 ans
- Whiplash 3 weeks earlier
- What is the cause of my pain?
Category

- Neurologic
- Mainly cervical
- Mainly shoulder
- Pain syndrome
- Non neuro-MSK eg. Referred pain
Category

- Neurologic

  - Pain accompanied by neurologic signs or symptoms
Neurologic

- Radicular
- Dermatomal numbness
- Myotomatal weakness
- Neuropathic pain

- Myelopathy
- Hand numbness
- Balance problems
- Weakness
- Spasticity
- Loss of bowel and bladder function
Neurologic – more rares causes

- Brachial plexitis
- Suprascapular neuropathy
- Thoracic outlet syndrome
Category

- Neurologic
- **Mainly cervical**
- Mainly shoulder
- Pain syndrome
- Non neuro-MSK eg. Referred pain
Possible sources of pain

Articulations:
- Atlanto-occipital
- Atlanto-axial
- Zygapophysial (facet)

Discs

Ligaments

Muscles

Dural mater

Gilroy et al., Atlas of Anatomy. All rights reserved. © Thieme 2008, www.thieme.com
But is possible = probable = provable?
Épidemiology of cervical pain

• Reference: Cohen, BMJ, August 2017

10

40

50%

• Recurrent
Discogenic pain

- Prospective study with more than 100 discograms

  ‘Provocative cervical discography symptom mapping’
Provocative cervical discography symptom mapping

C2-C3 pain map

C3–C4 pain map

C4-C5 pain map

C5-C6 pain map
C6-C7 pain map

Fig. 7. C6–C7 discogram pain referral map.

Slipman et al, 2005

• Conflicts with older research which showed that disk pain maps resembled those from facet patterns (Bogduk and Aprill 1993).

• Does show that pain referral from disk pain overlaps and can mimic shoulder pain and radicular pain
Discogenic cervical pain treatments
Myofascial Pain

- Myofascial trigger points (TP)
- Developed in 1950s
- Latent TP
- Active TP
- US bubble study
Travell & Simons' Myofascial Pain and Dysfunction: The Trigger Point Manual, Janet G. Travell et al, 1999

Figure 6.1. Referred pain pattern and location (X) of central trigger point 1 in the middle of the most vertical fibers of the upper part of the trapezius muscle. Solid red shows the essential referred pain zone while the stippling maps the spillover zone.

Figure 6.2. Left side of figure shows referred pain pattern and location (X) of central trigger point 2 in the middle of the more horizontal fibers of the upper part of a left trapezius muscle. Right side of figure shows referred pain pattern and location (X) of central trigger point 3 in a right lower trapezius; this is likely to be a key TrP that induces satellite TrPs in the region to which it refers pain in the upper part of the trapezius muscle. (Conventions are as in Fig. 6.1).
Cervical facet pain

• Epidemiology
  – 50-60% de patients with chronic neck pain (Bogduk; Manchikanti)
Cervical facet presentation

- Neuro normal
- ? Worse with extension, rotation
- ? Palpation: articular pillars
- ? Often unilateral
Facet pain after whiplash

- Post-mortem
- Animal
- Biomechanics
- Studies with medial branch blocks
Figure 1. A sketch of the possible lesions of whiplash, as predicted by postmortem studies and biomechanics studies.
Figure 1 – Phases of head-neck and cervical spine kinematics: initial position (top left), S-curve (top right), extension (bottom left), and rebound (bottom right).

Figure 8. A lateral view of the cervical spine, on which the target points for C3, C4, C5, and C6 medial branch blocks have been marked with white dots.
Figure 5. A graphic summary of the prevalence of cervical zygapophysial joint pain in various studies using different samples of patients. The source samples are listed on the left. The diamonds indicate the reported prevalence and its 95% confidence intervals. Studies above the dotted line enrolled patients with whiplash or stipulated the proportion of patients with whiplash or post-traumatic neck pain. Studies below the line did not stipulate the number of patients expressly with whiplash.
Yin and Bogduk 2008

- Private practice study in USA
- Consecutive patients with cervical pain
- Facet joints: 55%
- Disk: 16%
- Atlanto-axial: 9%
- Atlanto-occipital: 1%
Cervical zygapophysial joint pain maps.

- Neck pain patients who responded to medial branch blocks
Figure 12 The probability of joints at the segments indicated being the source of pain in the areas depicted.
Figure 11  The probability of joints at the segments indicated being the source of pain in the areas depicted.
Superior cervical joint pain

- Occiput-C1
- C1-C2

A rarely performed injection
Atlanto-occipital and lateral atlanto-axial joint pain patterns.
Treatment for cervical facet pain

Same as for discogenic pain plus radiofrequency neurotomy +/- facet blocks
Figure 1  Common location of specific pain generators within the shoulder.\(^7\)
Shoulder

• Acute trauma: traction, compression

• Repetitive movements with the arms elevated
Differentiel Diagnosis MSK

- Glenohumeral: arthritis, instability, capsulitis
- AC, SC: arthritis, trauma
- Muscle-tendon: rotator cuff, biceps
- Labral tear
History

Shoulder

- Shoulder abduction
- Nighttime
- More focal
- Repetitive movement

- Weakness without pain, think of suprascapular nerve

Neck

- Shoulder abduction
- Inclination of the head to the opposite side of the pain.

Neurologic symptoms
Physical Exam

- Shoulder
- Inspection
- ROM
- Provocative tests
- Palpation

- Neck
- Inspection
- ROM
- Palpation
- Reflexes
- Power, sensation
- Spurling
- ULTT
• Peripheral nerve lesion (eg. axillary, suprascapular, longue thoracic nerve, cranial nerve XI)
Volleyball epidemic?

Weakness and atrophy more than pain

_Injury of the Suprascapular Nerve at the Spinoglenoid Notch: The Natural History of Infraspinatus Atrophy in Volleyball Players_

Andrea Ferretti, MD, Angelo De Carli, MD and Michele Fontana, MD

Radicular pain vs shoulder

Arm-Squeeze Test

Fig. 1 The Arm Squeeze Test
If provocation tests are positive in both regions consider a sub-acromial injection

AAFP 2003
Category

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Pain syndrome

• The neck and the shoulder are not the problem

• It is a component of many problems

• Not good candidates for injections

• Ensure not myopathy or PMR
Case

- 44 yrs old, PAB, diffuse neck, thoracic, peri-scapular pain
- Smoker
- No family MD
- MVA in 2017 but pain for years before
- Poor sleep
- Exam: pain ++
Dig to the centre of the onion
The A-Team

Active program in physio

Occupational therapy

Psychology

Focus on increasing level of function rather than reducing pain
Radiologic anomalies ≠ Pain

- MRI: Degenerative changes are common with increasing age

Applies to neck and shoulder

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