Cervicogenic dizziness: a disease or a symptom ?

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Cervical vertigo or Cervicogenic dizziness

- "vertigo due to neck disorders" (Ryan and Cope, 1955)
- a vertigo or dizziness that is provoked by a particular neck posture, no matter what the orientation of the head is to gravity.
- “dizziness combined with a neck disorder, where reasonable alternatives have been ruled out.”

頸源性頭暈定義

狹義定義:

因為頸部神經傳入系統出現異常，
造成患者產生非特異性平衡失調的情況

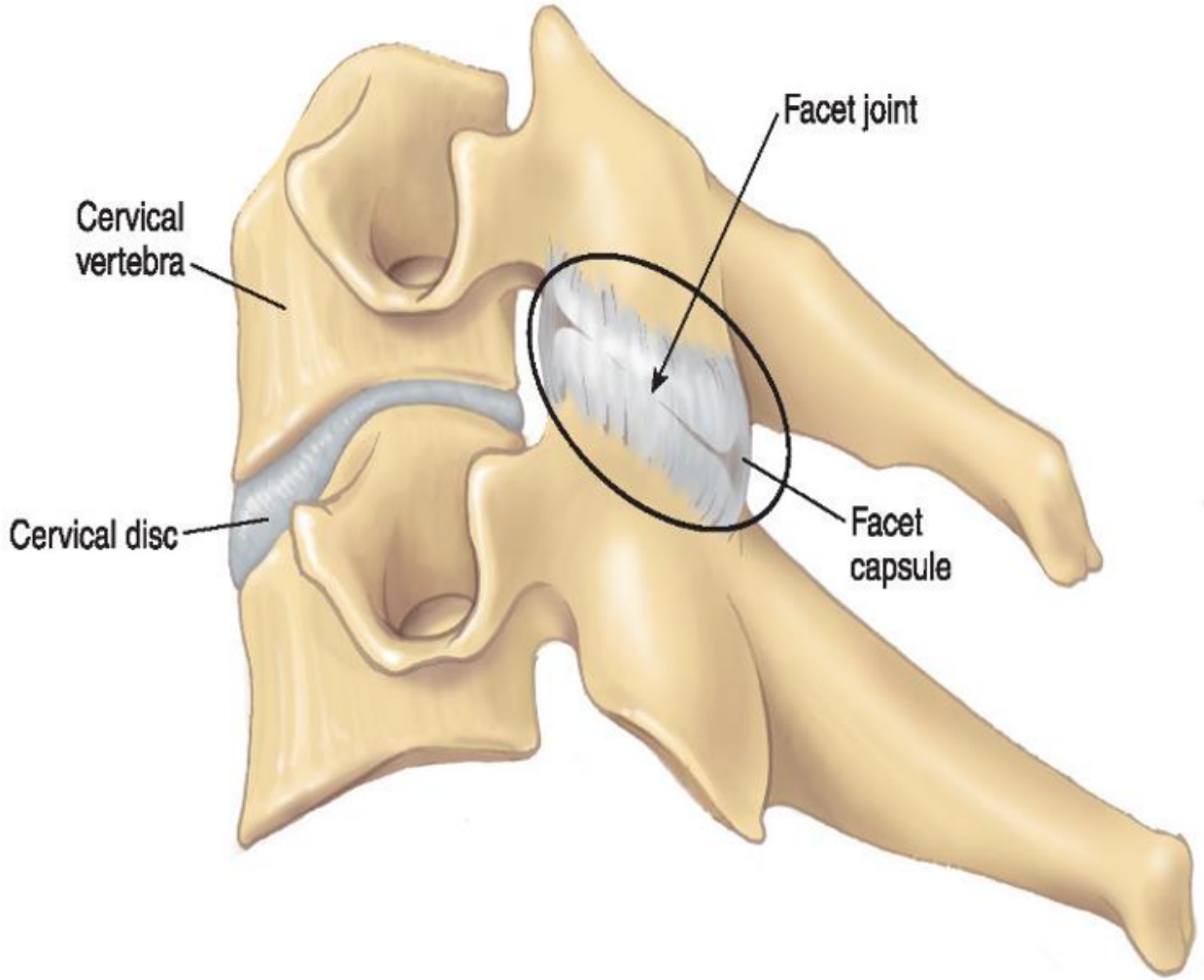
(Neck Proprioception disorder induced dizziness or vertigo)

- 廣義定義

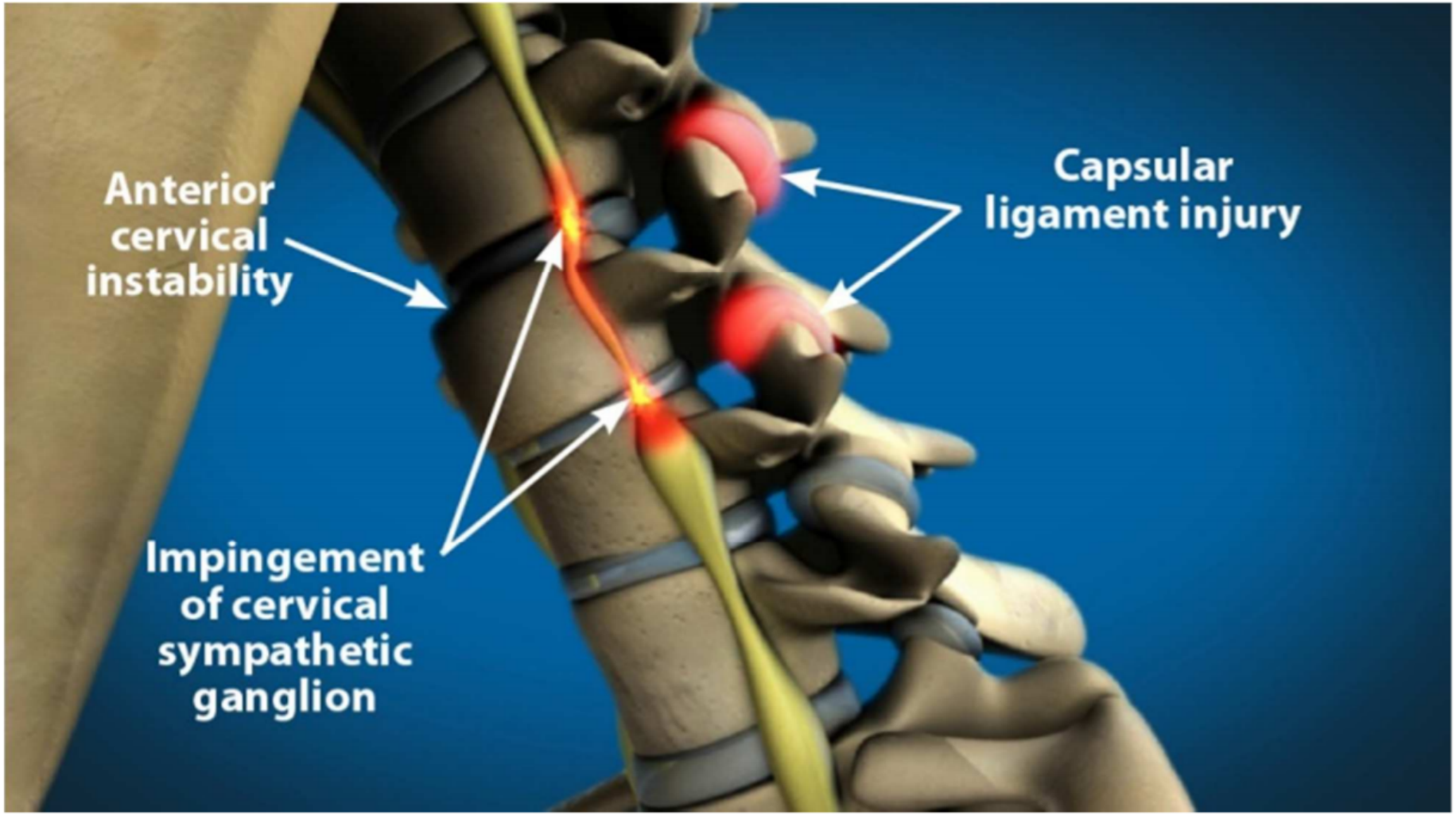
Dizziness is said to be cervicogenic when it is closely associated with the neck pain, the neck injury, or the neck pathology, after excluding the other causes of dizziness.

(proprioception, sympathetic, vascular disorders)

altered somatosensory input



Barre-Lieou Syndrome

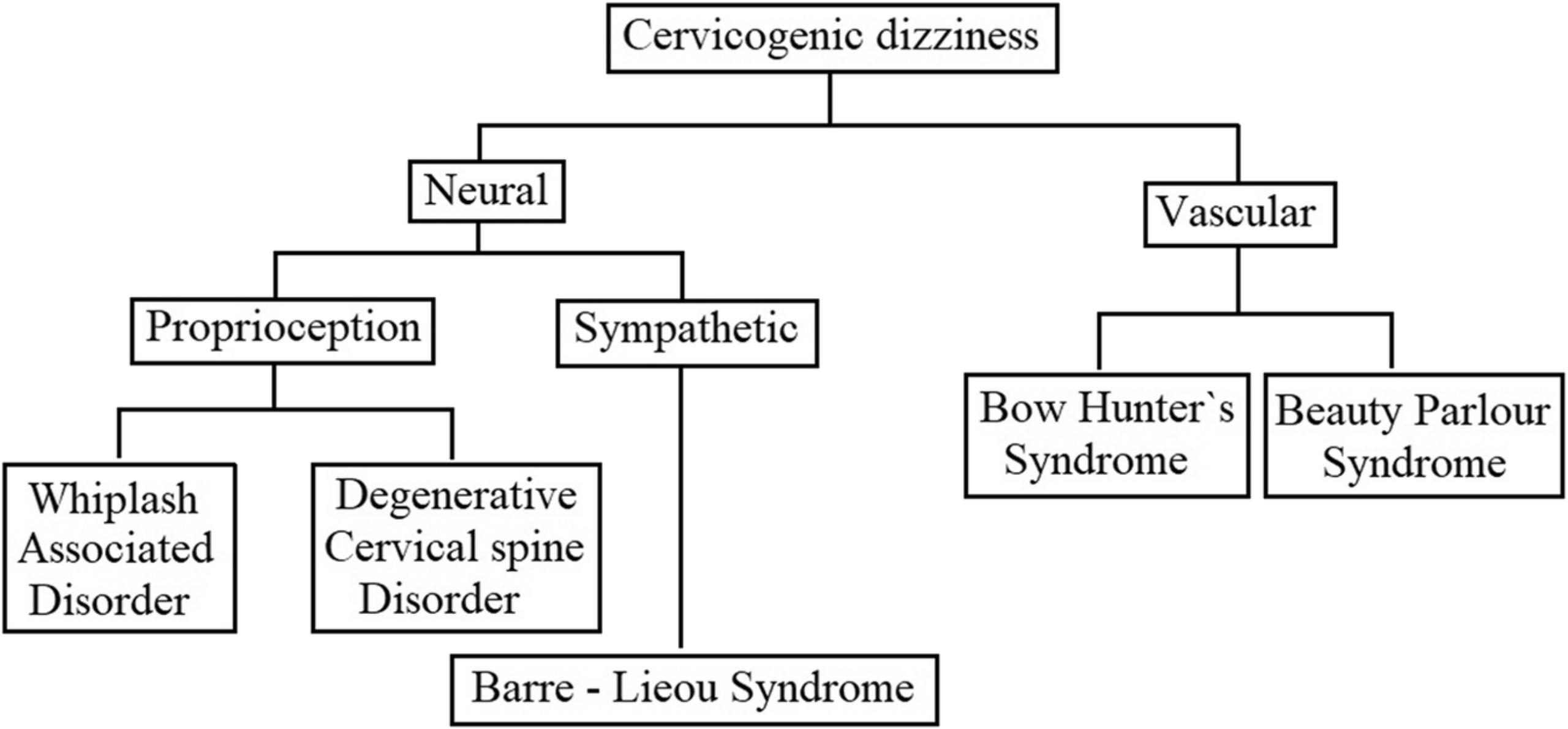


Symptoms of cervicogenic dizziness

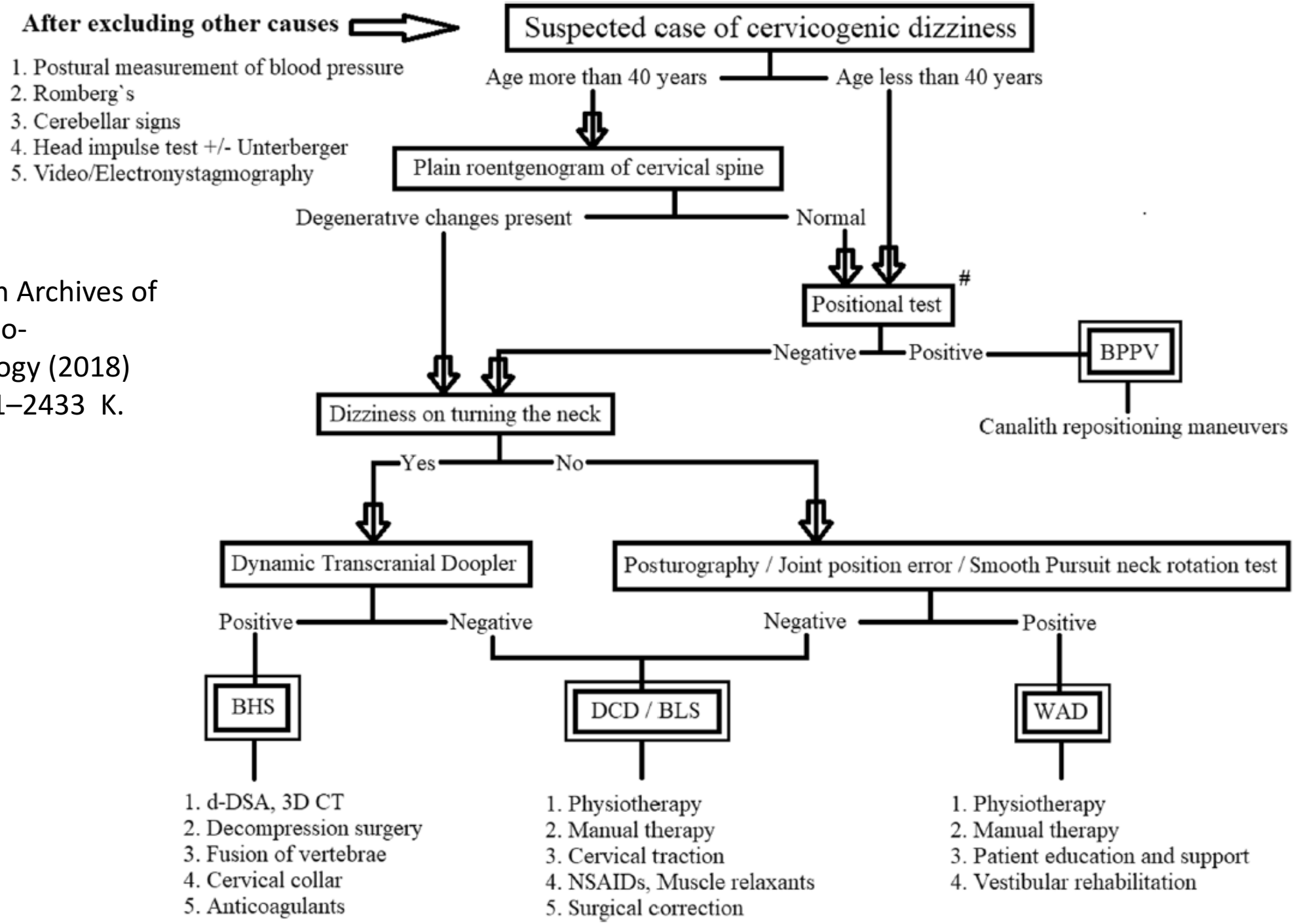
- Dizziness increased with neck movements or neck pain and
- Dizziness decreased with interventions that relieve neck pain (modalities, analgesic, anti-inflammatory or muscle relaxant medication).

Diagnosis of cervical vertigo (dizziness)
2019 laryngoscope Thompson-Harvey and Hain

- Dizziness
- Lack of reasonable alternative (ie ear disease, brain disease, and migraine)
  - Normal vestibular testing
  - Normal brain imaging
- Evidence of neck injury (one or more)
  - Abnormal cervical MRI
  - Severe stiffness to palpation
  - Temporal proximity of dizziness to injury confined to the neck

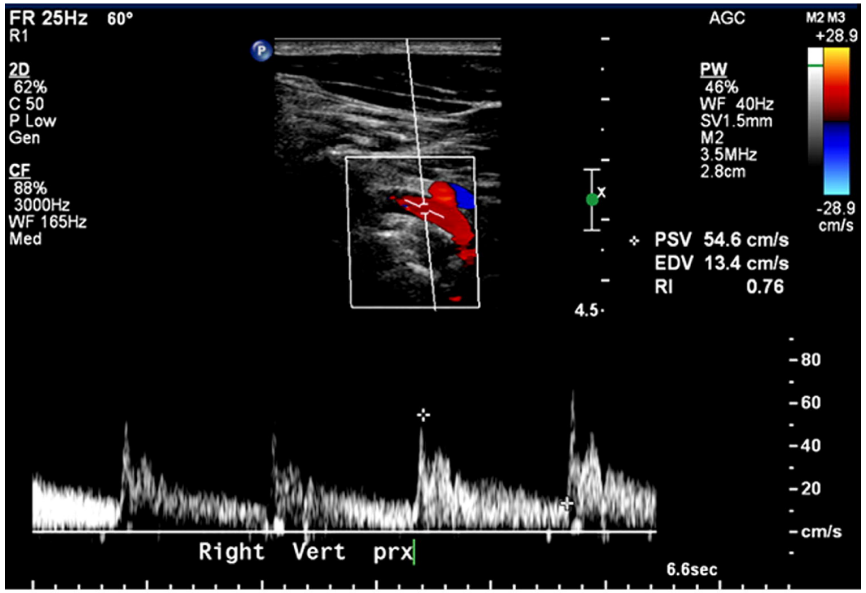


European Archives of Oto-Rhino-Laryngology (2018) 275:2421–2433 K. Devaraja



European Archives of Oto-Rhino-Laryngology (2018) 275:2421–2433 K. Devaraja

(bilateral rotational vertebral artery occlusion) Bow Hunter syndrome



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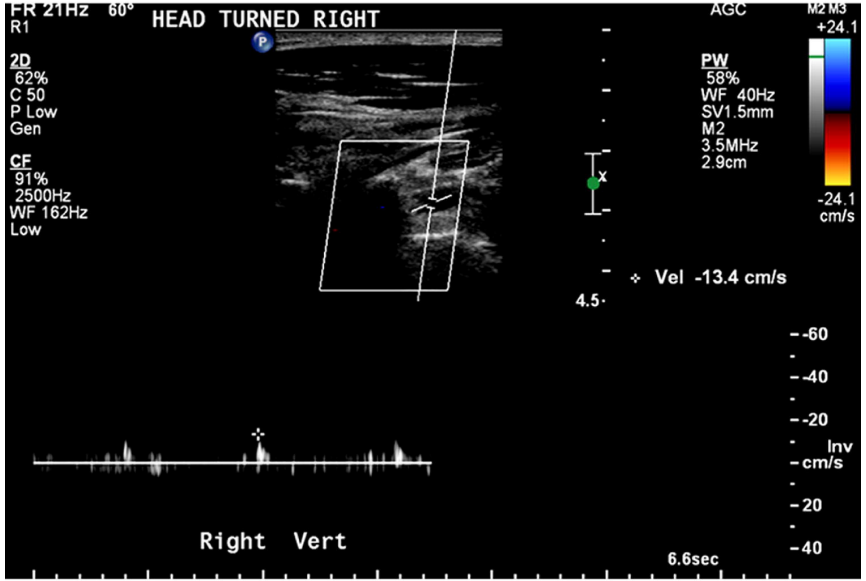
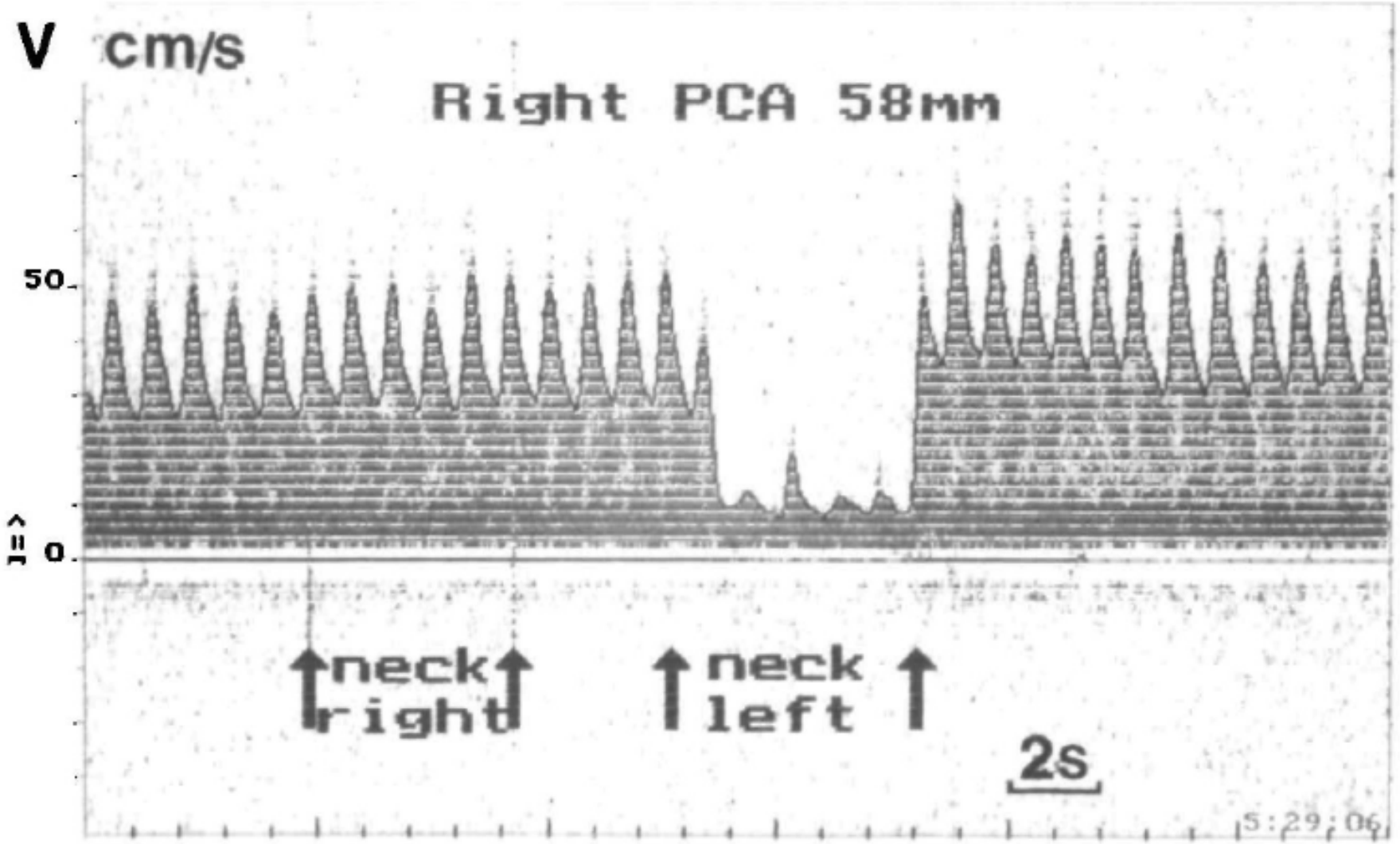
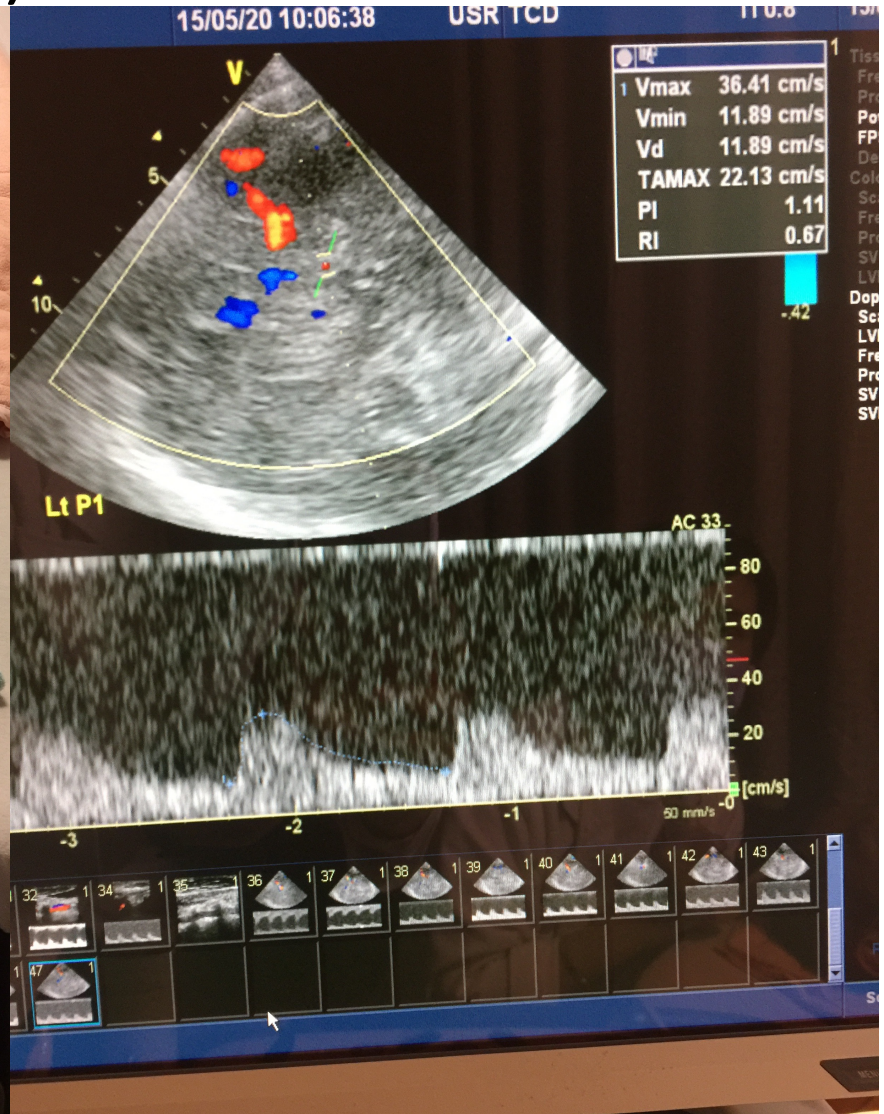


Dynamic transcranial doppler

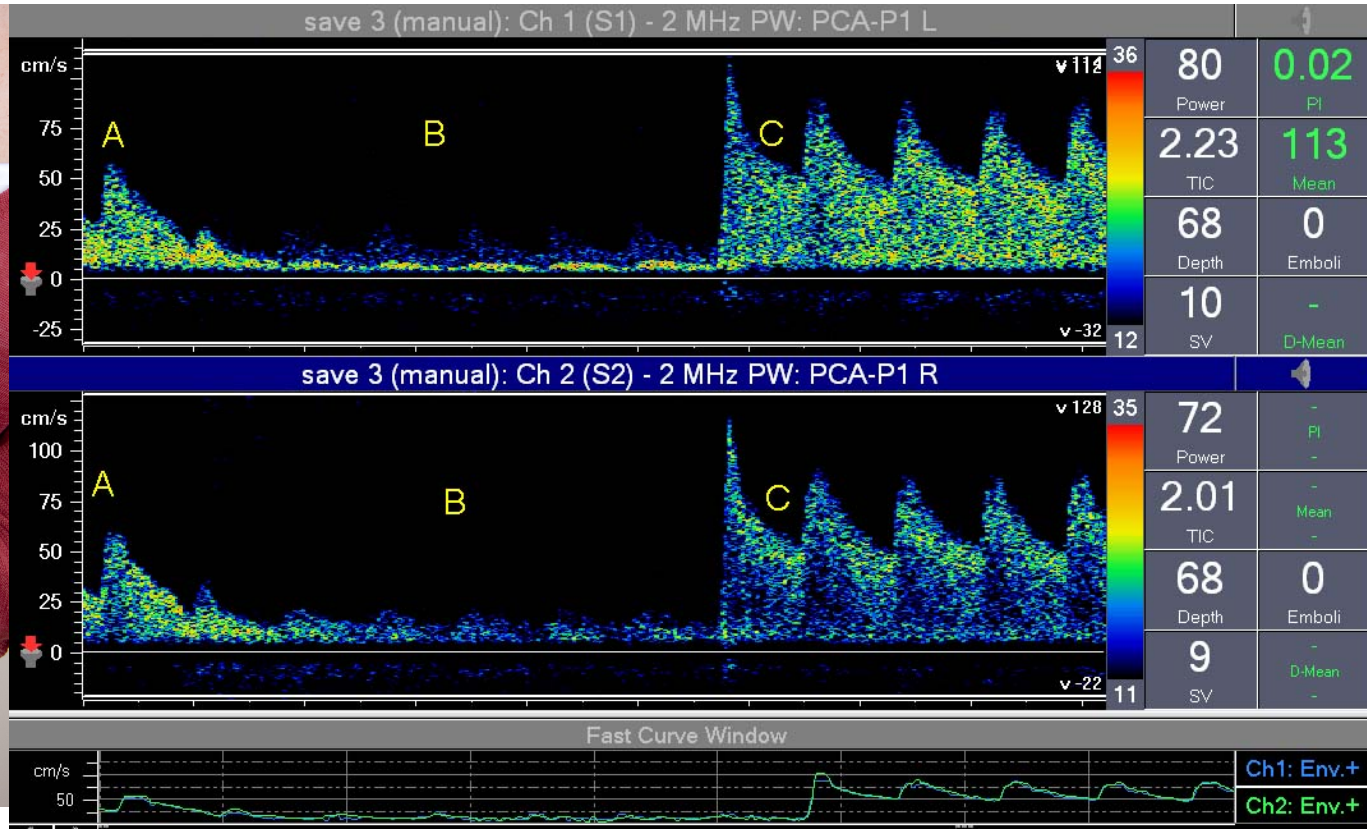
Brautaset, Stroke *Vol 23, No 2 February 1992*



Dynamic transcranial doppler (left posterior cerebellar artery)

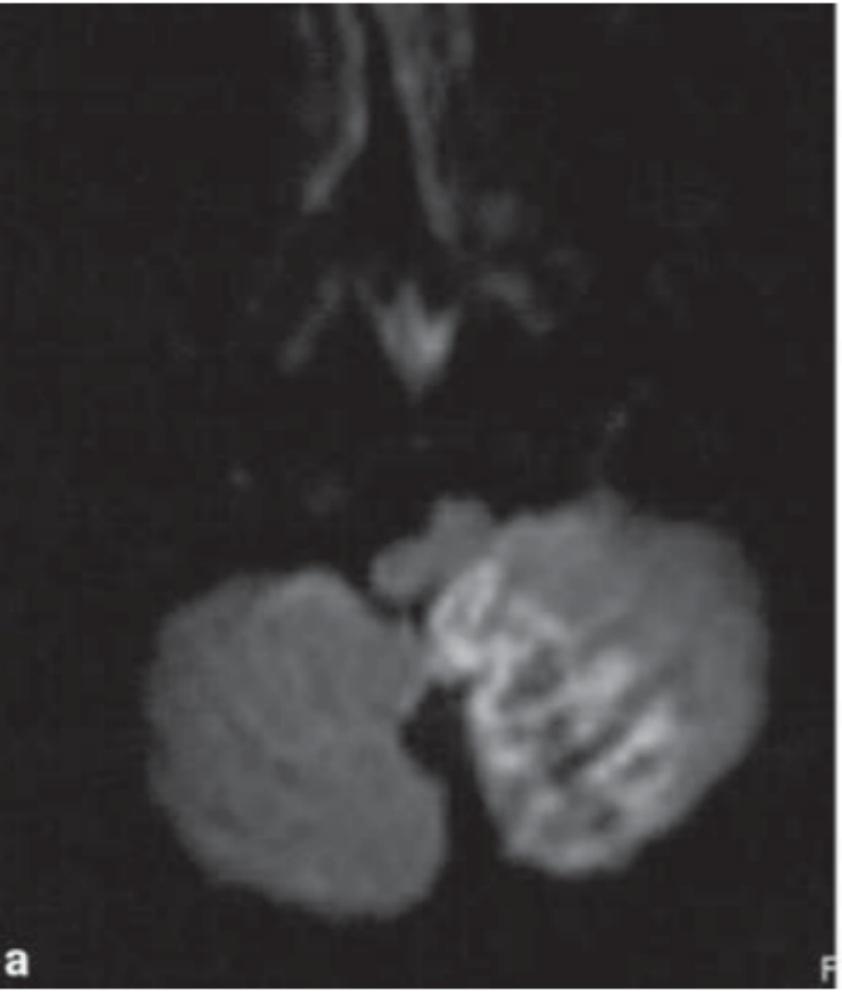


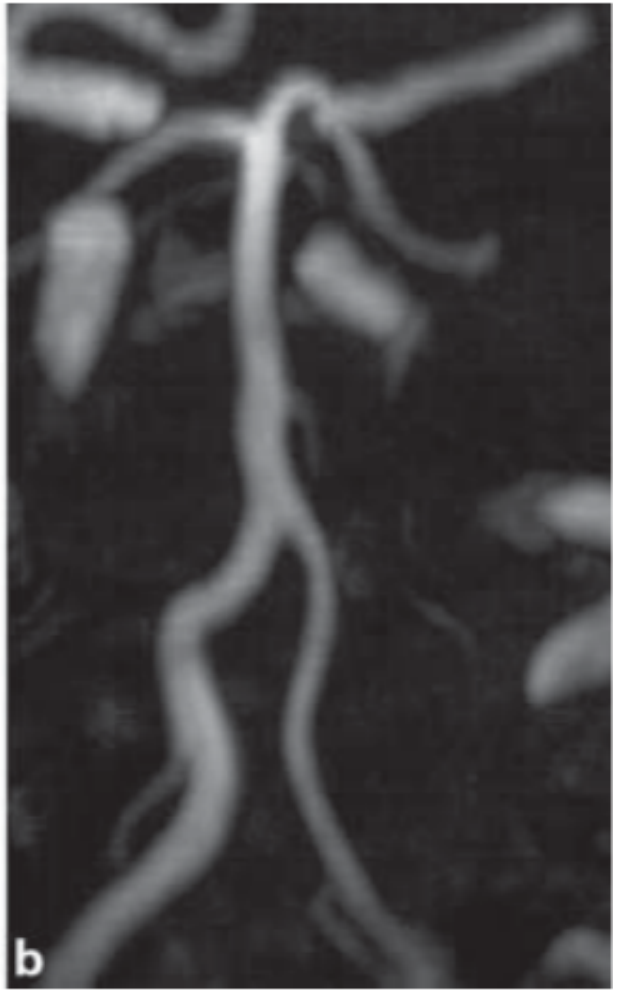
Dynamic transcranial ultrasound

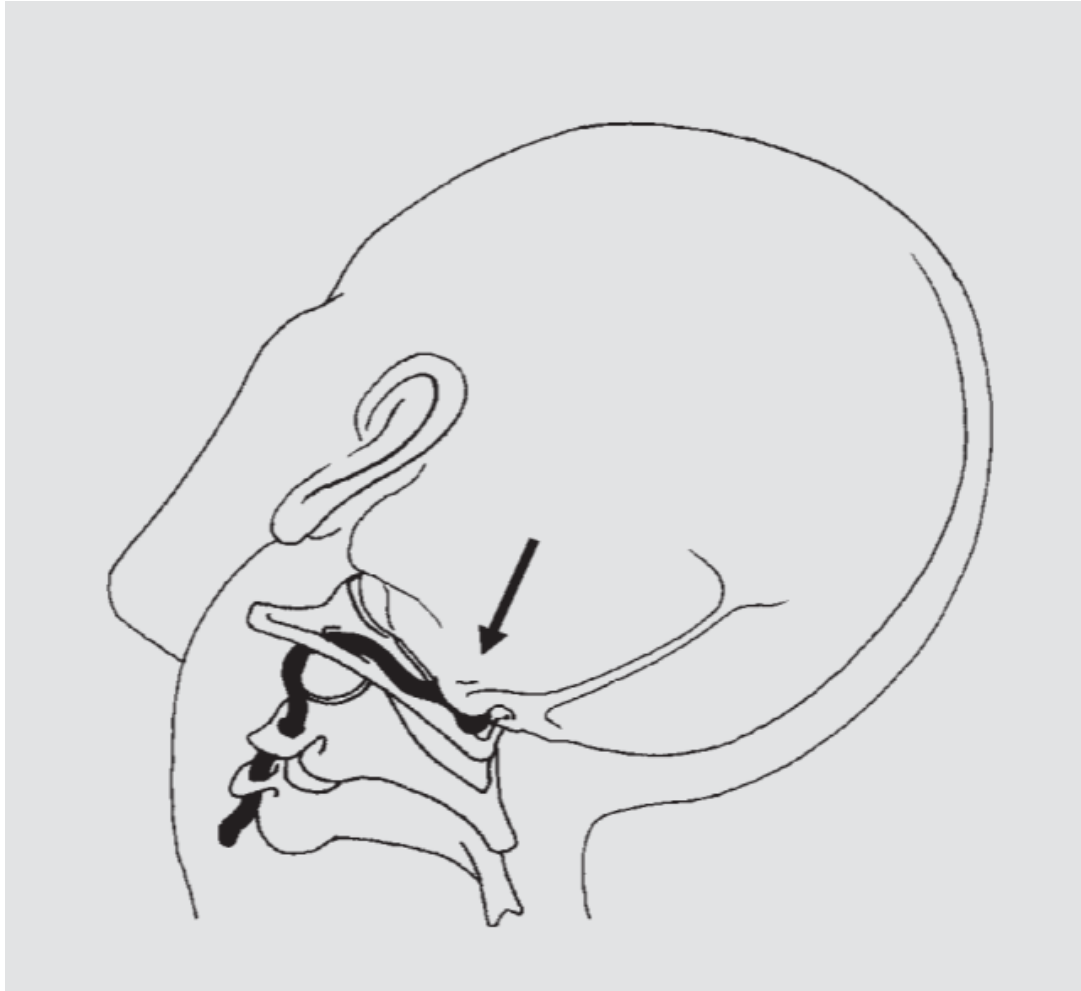


Beauty parlor stroke syndrome

Beauty parlor stroke syndrome







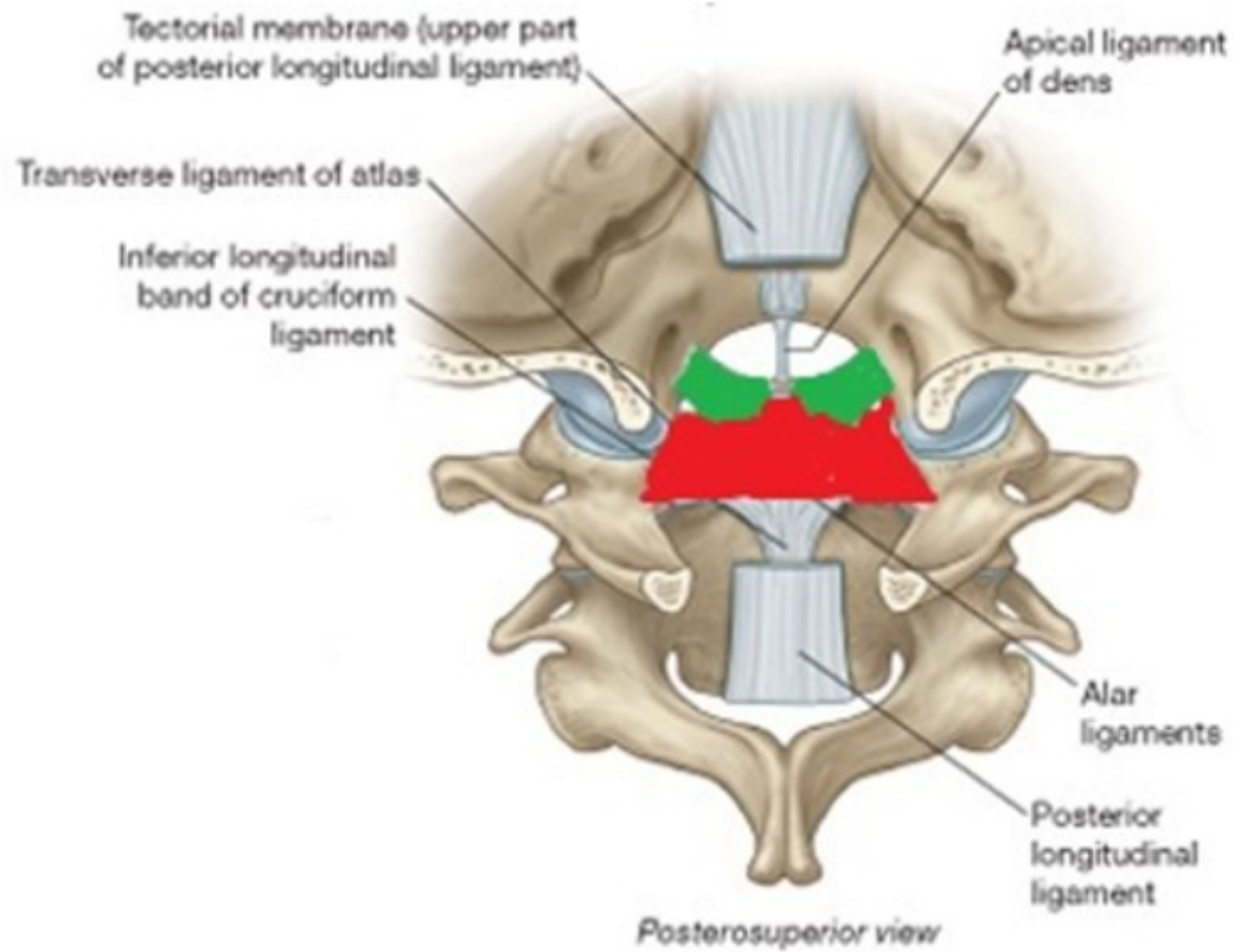
Neck torsion examination
head-fixed, body-turned maneuver

Upper cervical spine instability test

- Sharp purse test
- Transverse ligament stress test
- Alar ligament test
- C-spine lateral flexion extension view
- (頸部牽引或徒手治療的禁忌)

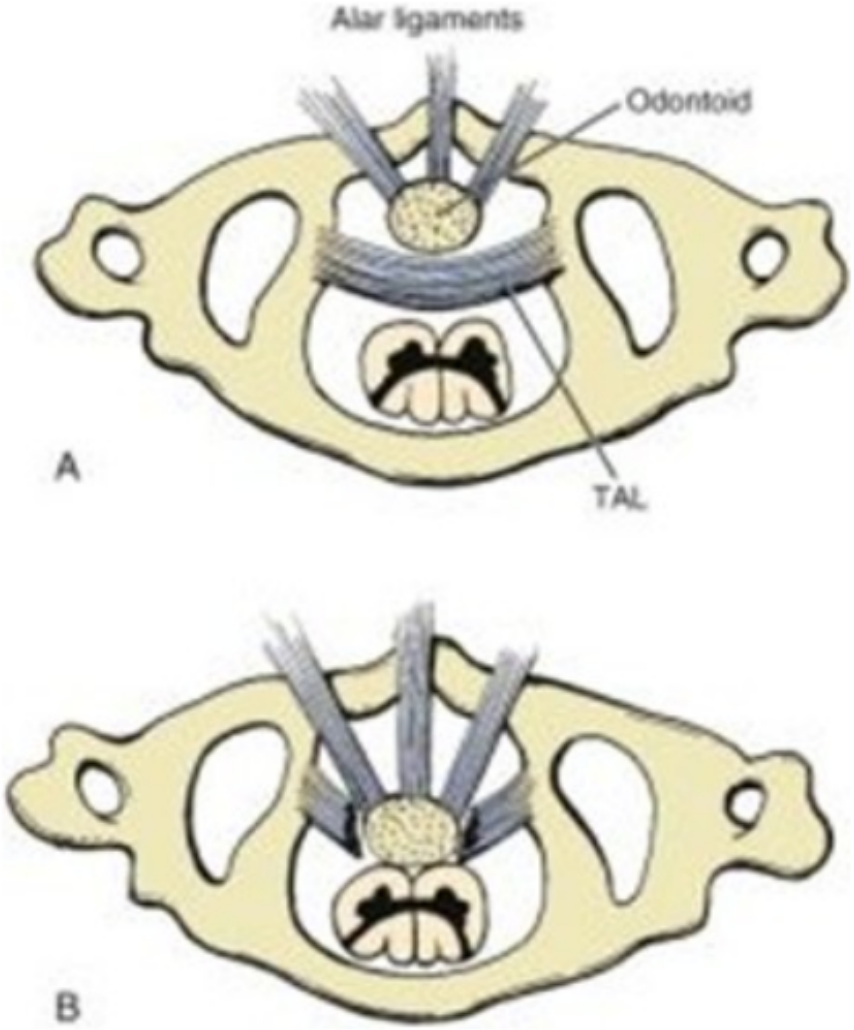
Atlantoaxial Joint

Alar Ligament and Transverse Ligament

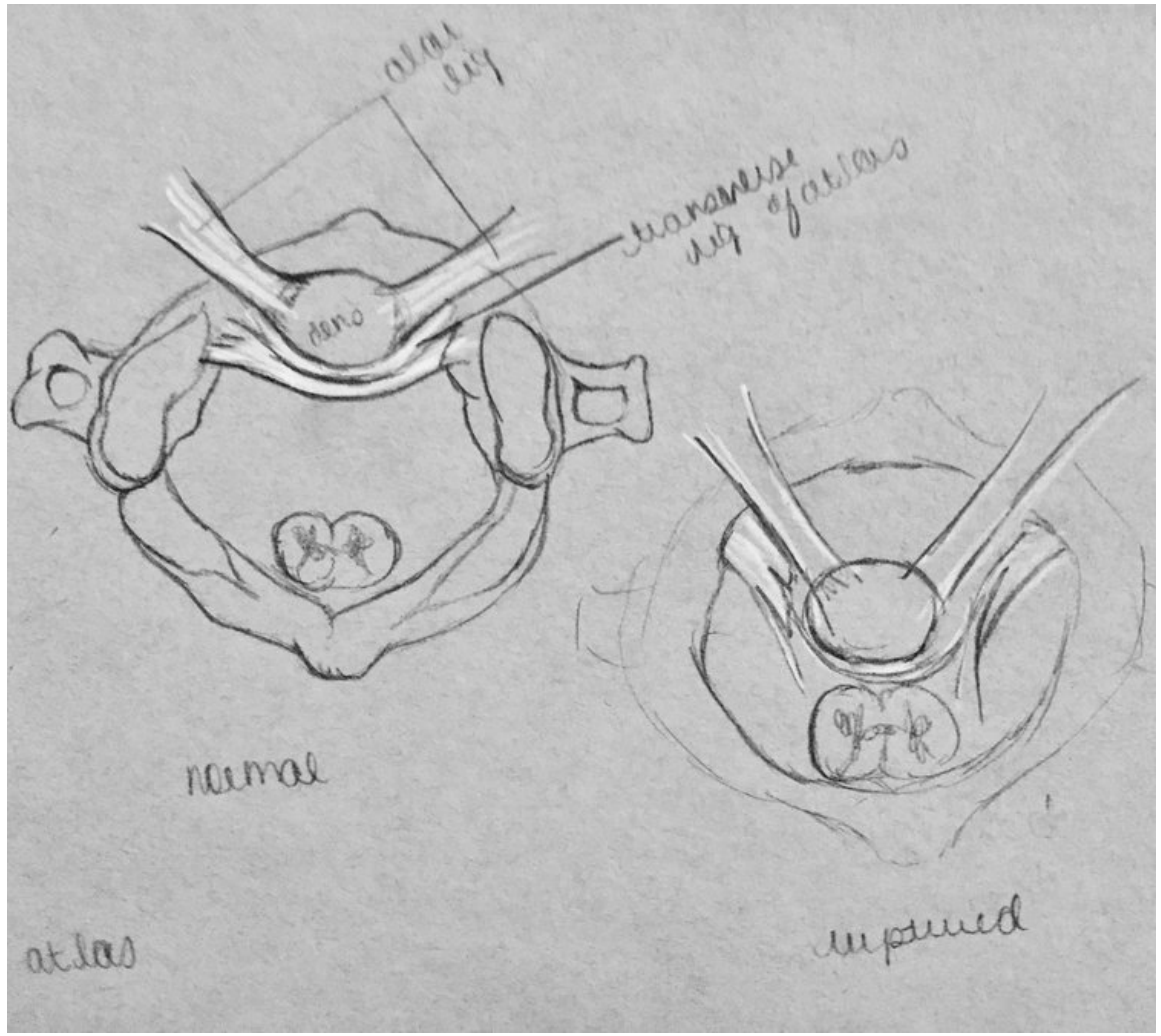


Pathophysiology of C1-C2 instability

- Excessive movement at the upper cervical spine
- Can be the result of bony fracture, ligamentous laxity or rupture or neuromuscular deficits
- Can result in pain, neurological or vascular compromise



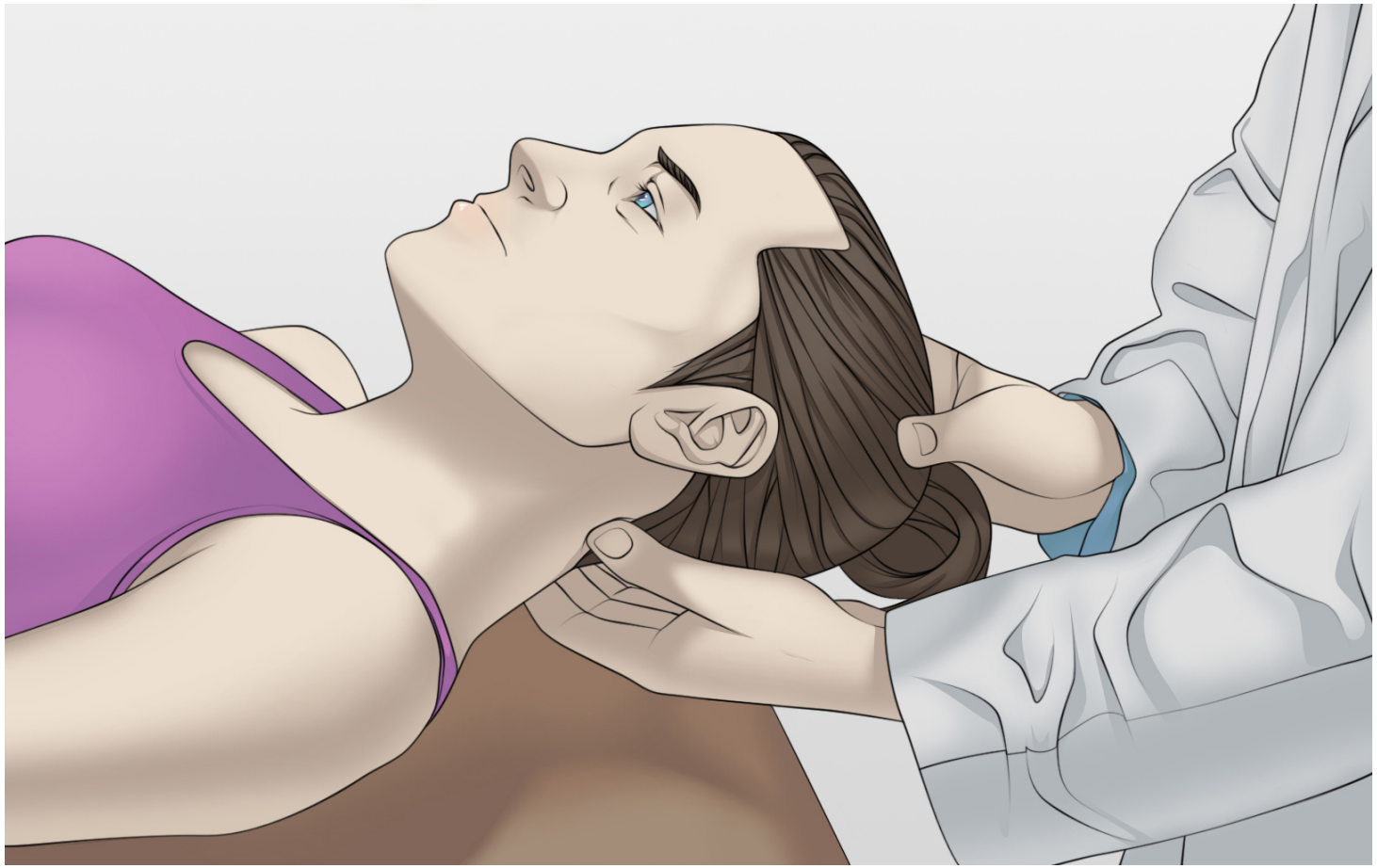
Sharp Purse test (C1-C2 instability) (transverse ligament injury)



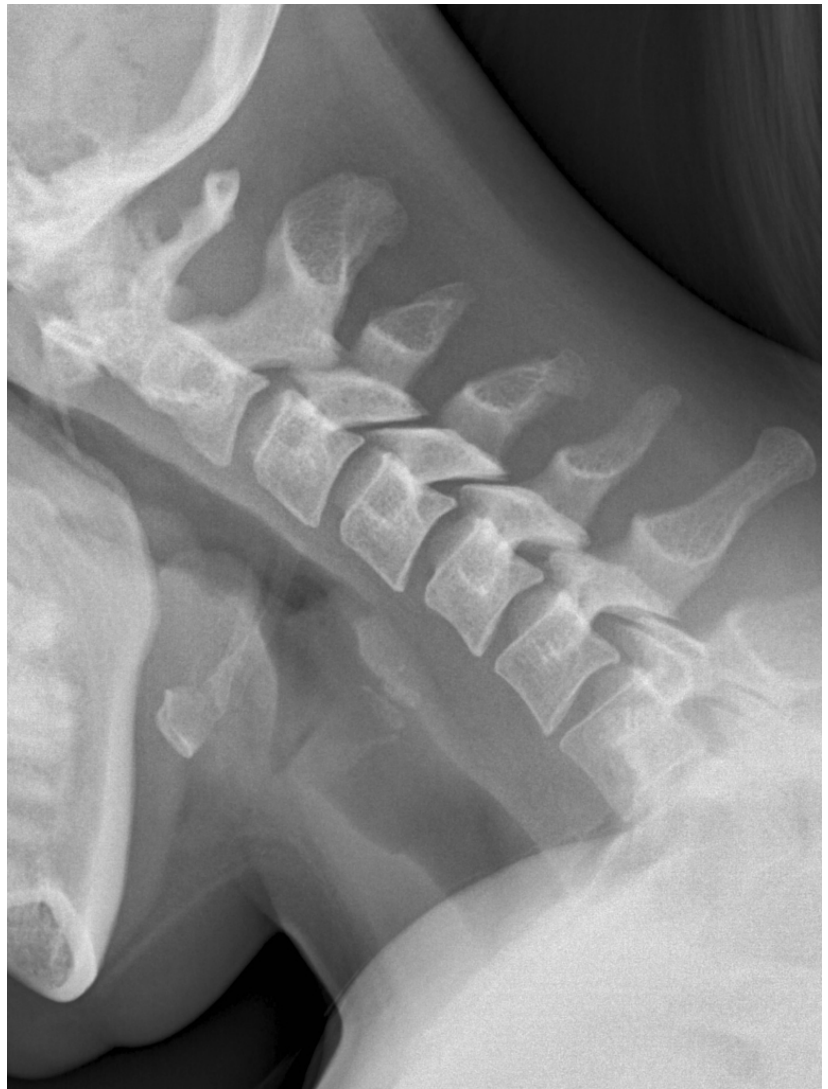
Alar ligament test

Procedure

1. Patient supine, examiner stabilizes C2 (axis) with a grip over the lamina.
2. Examiner then proceeds to laterally flex the head and Cl (atlas) to the left and right, noting the degree of joint motion and end feel



C-spine x-ray (lateral flexion and extension) r.o C-spine instability



Cervical Proprioception evaluation (cervical joint position error test)

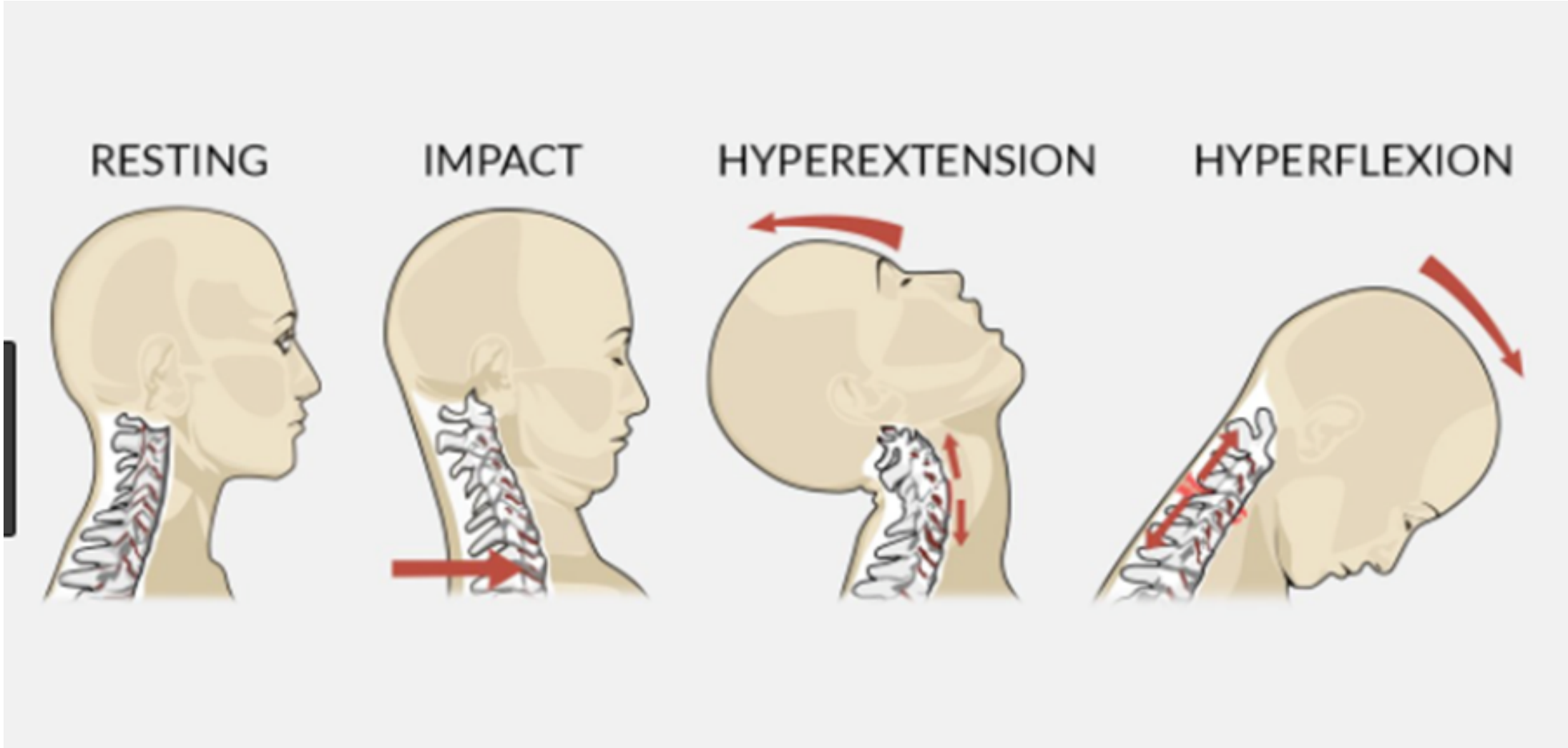
Abnormal > 4.5 degrees

Impaired cervical proprioception in patient with neck pain (whiplash injury, cervical spondylosis,);

- M. Uremovic et al.: Loss of Proprioception After Whiplash Injury, Coll. Antropol. 31 (2007) 3: 823-827
- Reddy et al. BMC Musculoskeletal Disorders (2019) 20:447
  - Proprioception is impaired in subjects with cervical spondylosis when compared to healthy control group.
  - Higher pain intensity was associated with greater cervical JPE in patients with cervical spondylosis.

Cervical Proprioception rehabilitation

Whiplash injury



Richard Brownlee

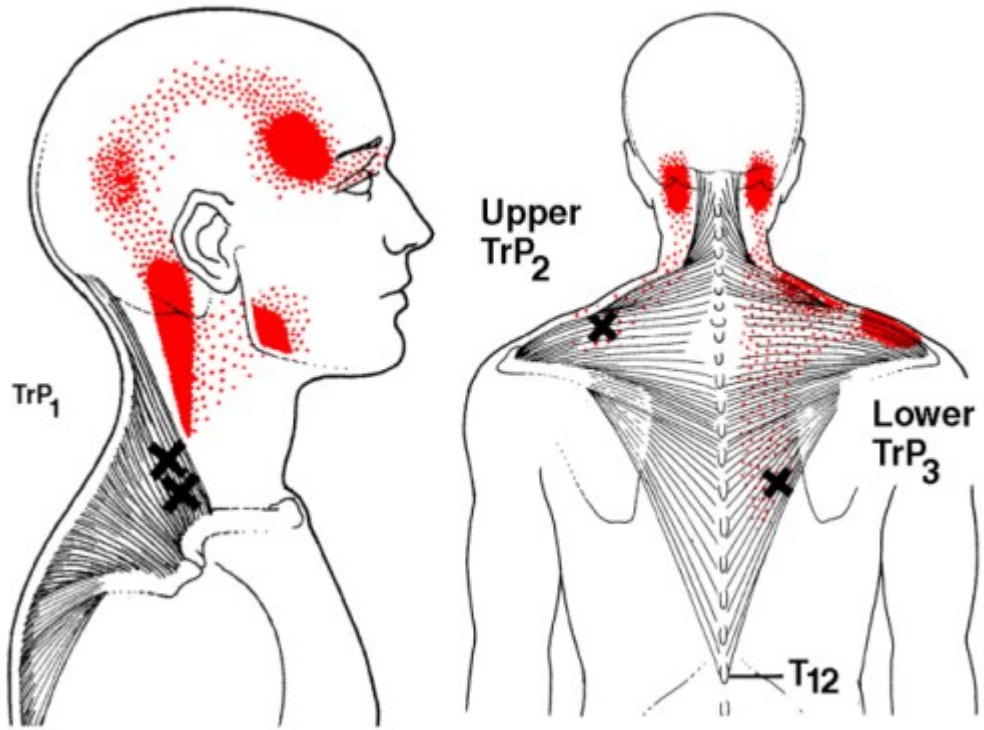
Dizziness caused by Myofascial pain syndrome (2018 Pain Med, Aydin T)

- prospective randomized clinical study.
- Aydin T, Dernek B, Senturk Ege T, Karan A, Aksoy C (2018)
- The effectiveness of dry needling and exercise therapy in patients
- with dizziness caused by cervical myofascial pain syndrome;

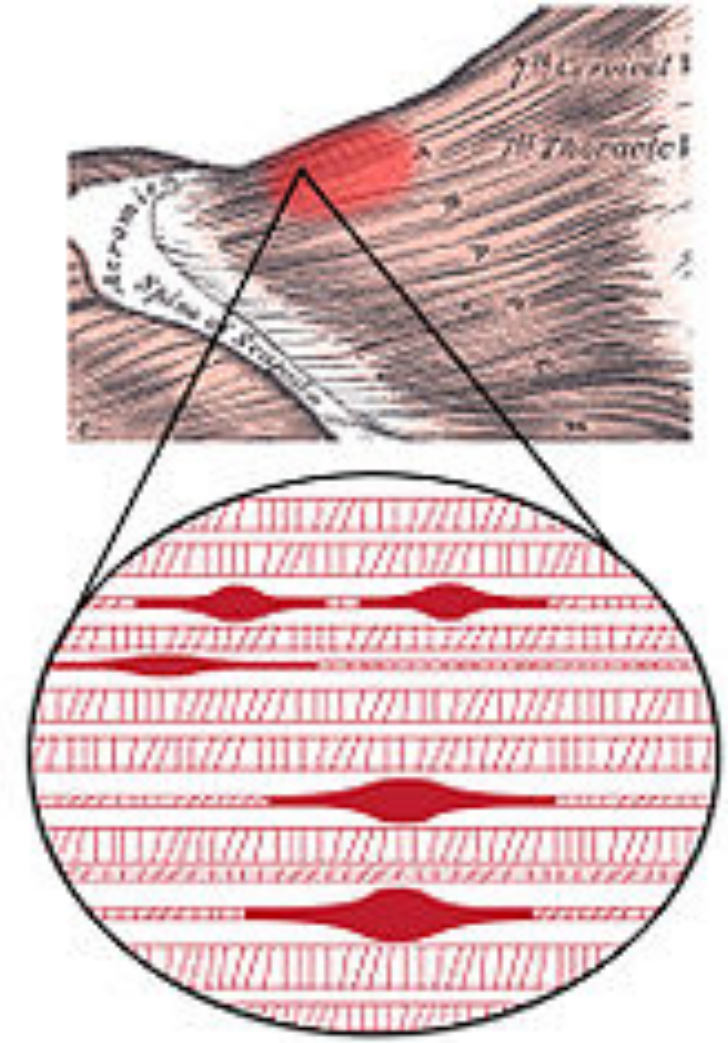
Cervical Myofascial pain syndrome

- Nilay Sahil, Agri 2008 Jul;20(3):14-9.
- The most affected muscles were trapezius (53.1%), M. sternoclaidomastoid, trapezius and paraspinalis (22.2%), sternoclavicular and trapezius (21.0%), M. trapezius and paraspinalis (3.7%).
- Autonomic symptoms with TP palpation were lacrimation (31.7%), skin reddening (58.8%), tinnitus (35.4%), and vertigo (35.1%).

Cervical myofascial pain syndrome

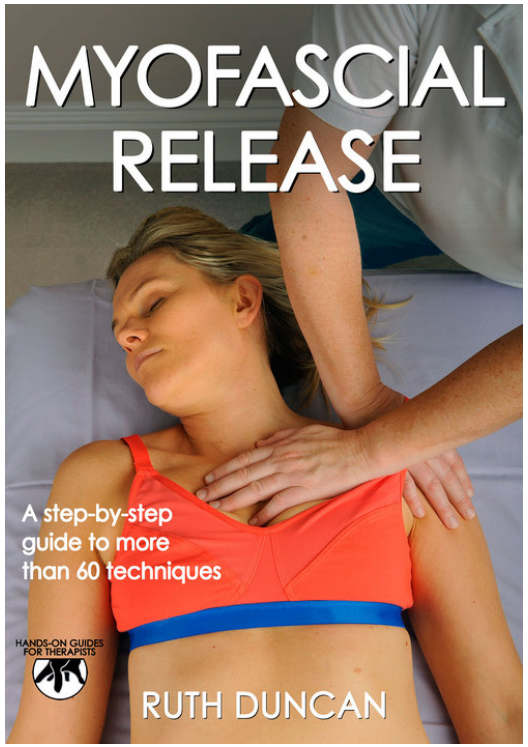


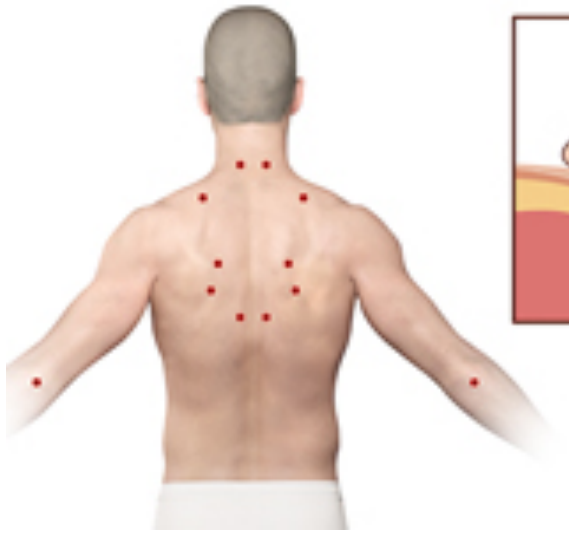
Trigger point of myofascial pain syndrome

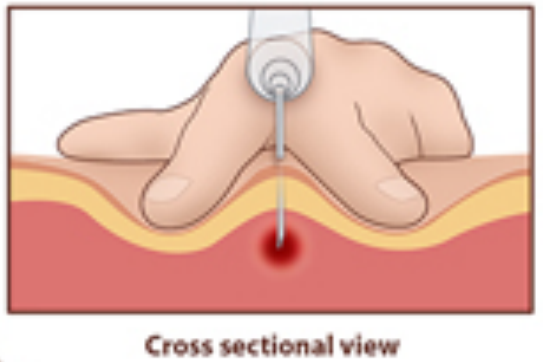


Taut bands

Cervical myofascial pain management







physiotherapy for cervicogenic dizziness

C1 SNAG FOR CERVICAL ROTATION DIZZINESS

TECHNIQUE AT A GLANCE

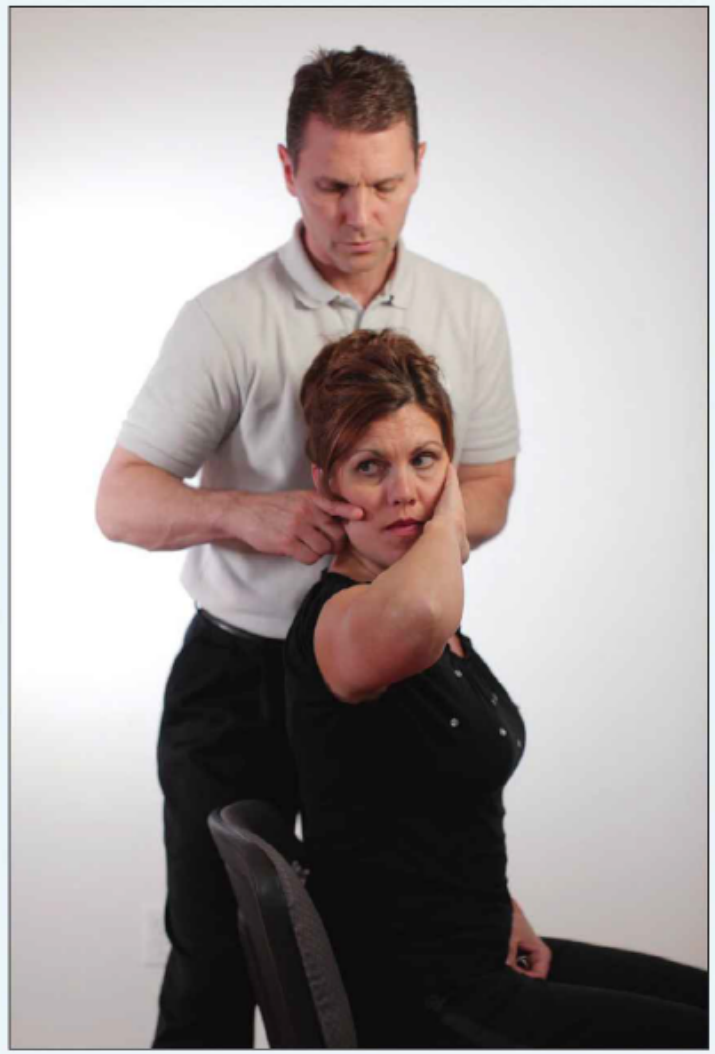


Figure 2.1
Cervicogenic dizziness: C1 right rotation SNAG with over-pressure

Figure 2.2
Cervicogenic dizziness: model C1 PA glide

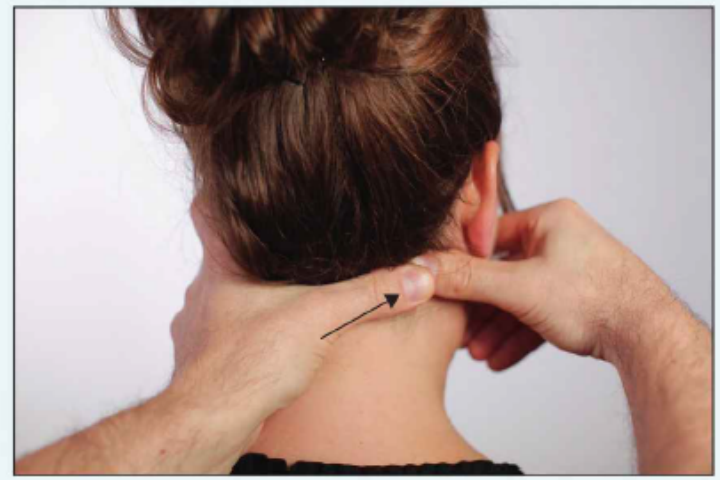


Figure 2.3
Cervicogenic dizziness: C1 PA glide

C1 SELF-SNAG FOR CERVICAL ROTATION DIZZINESS

TECHNIQUE AT A GLANCE

Figure 2.6A
Self C1 PA glide rear view

Figure 2.6B
Self C1 PA glide side view

Figure 2.7
Self C1 SNAG right rotation

Figure 2.8
Self C1 SNAG with over-pressure

C2 SNAG FOR CERVICAL EXTENSION DIZZINESS

TECHNIQUE AT A GLANCE

Figure 2.9
Cervicogenic dizziness: model C2 PA glide

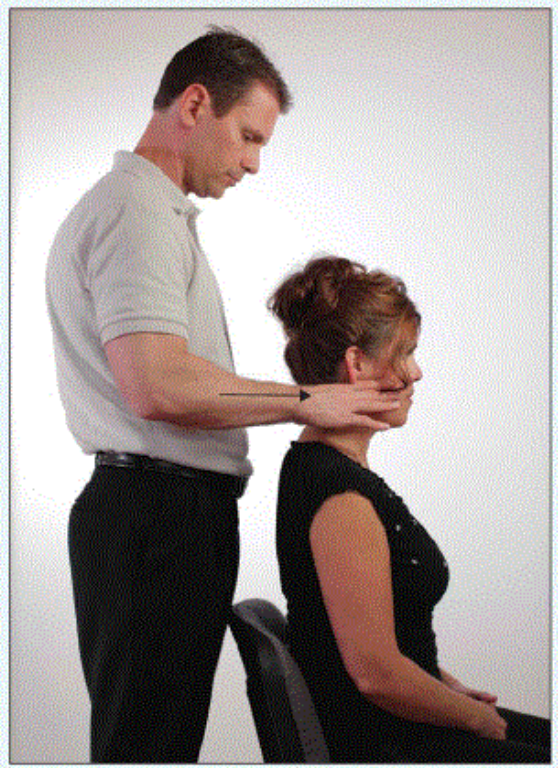


Figure 2.10
Cervicogenic dizziness: C2 PA glide starting position

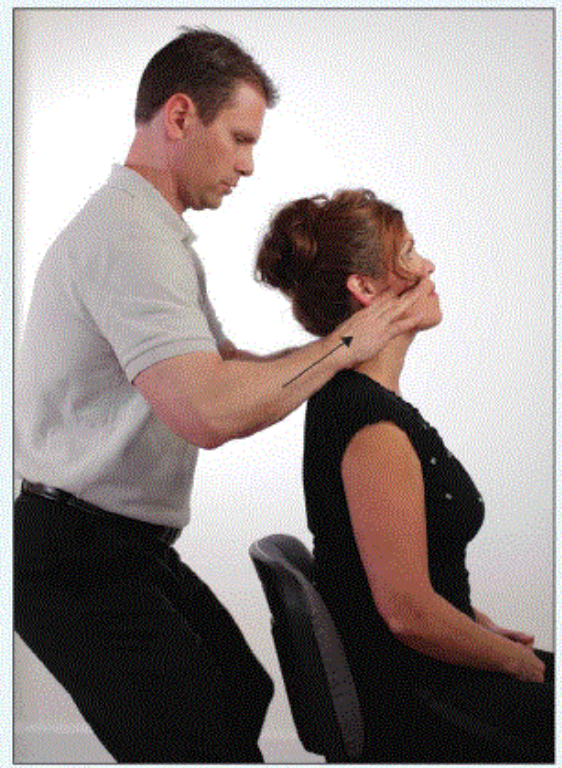


Figure 2.11
Cervicogenic dizziness: C2 extension SNAG seated

C2 SELF-SNAG FOR CERVICAL EXTENSION DIZZINESS

TECHNIQUE AT A GLANCE

Figure 2.15A
Self C2 PA glide (rear view) start position

Figure 2.15B
Self C2 PA glide (side view) end position

Figure 2.16
Self C2 extension SNAG with a towel

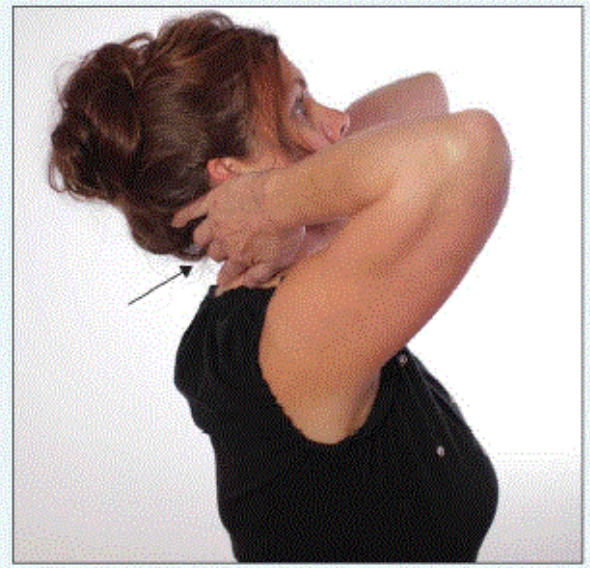


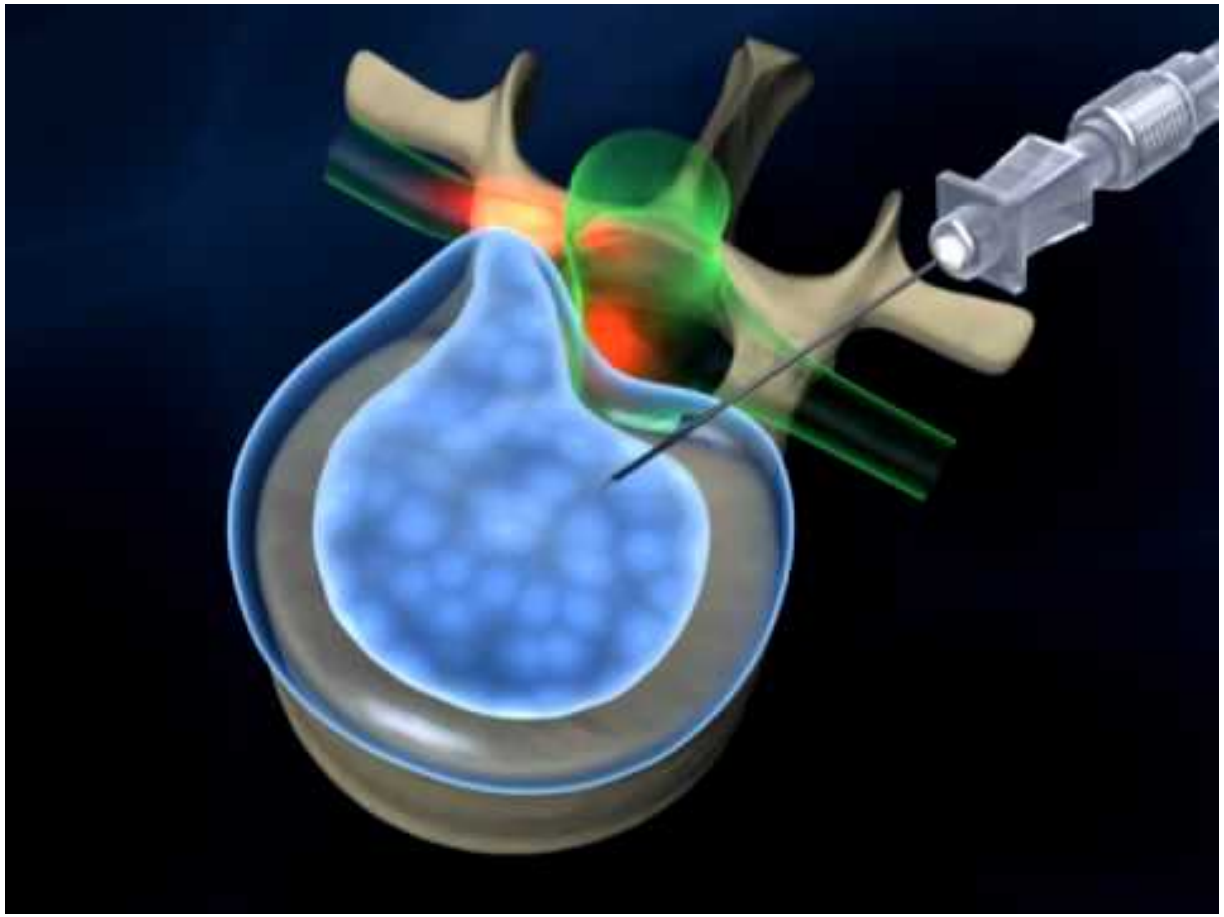
Figure 2.17
Self C2 extension SNAG end position

Acupuncture for cervical vertigo

Zhuanzhuan Hou, Evidence-Based Complementary and Alternative Medicine, Volume 2017

- Acupuncture was more effective than conventional medicine therapy (CMT) in effectiveness, improvement rate of vertigo and headache, and increased average blood flow velocity of vertebral-basilar artery

radiofrequency ablation nucleoplasty



Yin H-D, Br J Radiol 2017

Radiofrequency ablation nucleoplasty improves the blood flow in the narrow-side vertebral artery