Class 4 OAS Notes

Cervical spine II

Resting position – Midway between extension and flexion

Closed packed position – full extension

Capsular pattern – side flexion and rotation equally limited, extension less limited

Cervical lordosis – 30 to 40 degrees

Upper crossed syndrome (Caused by poking chin)

1. Tight upper trapezius and levator scapula and pectoralis major and minor
2. Weak lower trapezius, serratus anterior, rhomboids and deep neck flexors

AROM – Magee (AMA Guide to permanent evaluation of impairment)

1. Flexion – 80 degrees or greater, (50 degrees or greater)
2. Extension – 70 degrees or greater, (60 degrees or greater)
3. Lateral (Side) flexion – 20 to 45 degrees (45 degrees), mostly from C2 to C7
4. Rotation – 70 or greater, 70 to 90 degrees (80 degrees), 40 to 50 degrees between C1 and C2

PROM - Passive movements – if patient did not have full range and to determine the end feel (for all normal is tissue stretch)

Overpressure (Red)

1. Full extension -all cervical spine
2. Nodding head into extension pushing at 45-degree angle – upper cervical spine
3. Minimal extension pushing straight back – lower cervical spine

RIM

Peripheral joint scan – TMJ, shoulder, elbow, wrist, digits

Muscle referred pain

1. Trapezius – occiput, lateral aspects of head above ear to behind eye, tip of jaw. Spinous processes to medial border of scapula, lateral aspects of upper arm

2. SCM – back and top of head, front of ear over forehead to medial aspects of eye, back of ear to forehead, cheek
3. Splenius capitis – top of head
4. Splenius cervicis – posterior neck and shoulder angle, side of head to eye
5. Semispinalis cervicis – back of head
6. Semispinalis capitis – band around head at level of forehead
7. Multifidus – posterior neck to base of spine of scapula
8. Suboccipitals – lateral aspects of head to eye
9. Scalenes – medial border of scapula, anterior chest, posteriolateral aspects of arm

Cervical conditions

1. Cervical spondylosis – is cervical osteoarthritis causing stenosis of the canal and osteophyte development. Can lead to cervical myelopathy and/or cervical radiculopathy
    a. Cord compression – gradual spastic paresis, paresthesia in hands and feet, hyperreflexia. May be aggravated by Valsalva maneuver or cough. Can progress to muscle atrophy, flaccid paralysis above the level of the lesion and with spasticity below the level of the lesion
    b. Radiculopathy can cause, muscle atrophy, weakness and hyporeflexia
    c. Pain on extension increases and on flexion decreases
    d. Dg – MRI, or CT
    e. Tx- Cervical laminectomy in severe cases
2. Degenerative disc disease and herniated disc
    a. Central neck pain that can radiate to shoulder and head. Pain with stiffness that is worst in the morning , during activity, neck extesnion, coughing, sneezing. Cracking sound in the neck (osteoarthritis)
    b. AROM: stiffness in all directions, PROM – stiff end feel, RIM – normal, Palpation – diffuse tenderness over facet joints
    c. If affects nerve roots = radiculopathy – distribution of dermatomes (C5, C6). This pain increased on extension, better of flexion.
    d. If the discs herniate forward – difficulty swallowing, breathing
3. Cervical facet joint disorder
    a. Gradual onset of unknown cause
    b. Sharp pain on c-spine movement centrally. Discomfort looking up.

c. Observation – neck is kept in slight flexion. Grinding and cracking noise in face joints.
d. AROM: marked restriction in extension
e. PROM: muscle resistance, + overpressure
f. Palpation – tenderness over facet joints (C 4-5, 5-6, 6-7)

4. Brachial plexus lesion (Plexopathy)
   a. Cause – stretching of cervical spine, compression of cervical spine, depression of shoulder
   b. Pain in shoulder and neck
   c. Sharp, burning pain in all or most of arm dermatomes
   d. Numbness, pins, and needles in all or most of arm dermatomes
   e. Transient muscle weakness, myotomes affected
   f. Arm position has no effect on pain
   g. DTR – hypoactive
   h. Muscle atrophy
   i. Special tests - +ULTT, Brachial plexus tension test, Tinel test, Brachial plexus compression test, Shoulder depression test
5. Brachial plexus stinger or burner (Neuropraxia), transient lesion
   a. Temporary pain in dermatomes
   b. Pain on compression or stretch of brachial plexus
   c. DTR – not affected
6. Whiplash
   a. Acceleration/deceleration injury = hyperextension and hyperflexion
   b. Sudden onset after 1-2 hours up to 1-2 days after injury
   c. Jammed neck (for days or weeks)
   d. Pain is c-spine, shoulder, arm, anterior chest wall, sides of the face, down the back
   e. Visual disturbances, vertigo, nausea, dysphasia, paresthesia, dizziness, fatigue
   f. Observation (Inspection) – stiff neck, patient sits with arms supporting the head, muscle spasms
   g. AROM – limited
   h. PROM – limited
   i. RIM – pain in all direction, but more so during side flexion
   j. Special – normal

k. Most damaged structures – lig. Flavum and lig interspinali

7. Myelopathy
   a. Spinal cord disease, stenosis
   b. Grade 0-5
   c. Gradual spastic paresis, paresthesia in hands and feet, hyperreflexia. May be aggravated by Valsalva maneuver or cough. Can progress to muscle atrophy, flaccid paralysis above the level of the lesion and with spasticity below the level of the lesion
   d. Arm position has no effect on the pain
   e. Gait difficulties (ataxia), wide based gait
   f. Hyperactive DTR – upper and lower limbs
   g. Positive pathological reflexes
   h. Special tests – Lhermitte's sign, Romberg test
8. Radiculopathy
   a. Nerve root compression/inflammation/ damage
   b. Due to herniation, stenosis, osteophytes, swelling with trauma, tumor
   c. Sharp, burning pain in affected dermatomes
   d. Decreased AROM, PROM
   e. RM – weakness or transient paralysis
   f. Pain increases on rotation, extension, and side flexion
   g. Special tests – Spurling's test, Distraction test, shoulder abduction test
9. Spinal cord compression
   a. Acute – within minutes to hours due to trauma (acute disk herniation, fracture, hematoma formation)
   b. Subacute – over days to weeks due to metastatic tumors, hematoma, abscess
   c. Chronic – over month to hears due to osteophytes, spondylosis
   d. Atlantoaxial subluxation can cause acute, subacute or chronic
10. Spondylolysis
   a. Fracture of pars articularis, can lead cord or nerve root compression