CERVICAL SPINE
ORTHOPEDIC
EVALUATION
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### HISTORY

- **OPQRST**
  - **O**=ONSET
  - **P**=PALLIATIVE/PROVACATIVE
  - **Q**=QUALITY
  - **R**=RADIATING
  - **S**=SEVERITY
  - **T**=TIMING

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### HISTORY

- **FOAMASHL**
  - **F**=FAMILY
  - **O**=OTHER DOCTORS
  - **A**=ACCIDENTS
  - **M**=MEDICATIONS/VITAMINS/HERBS
  - **A**=ALLERGIES
  - **S**=SURGERIES
  - **H**=HOSPITALIZATION
  - **L**=LIFESTYLE
PHYSICAL EXAMINATION

OBSERVATION

- SKIN LESIONS
- ASYMMETRY
- ANTALGIA
- SIGNS OF INFLAMMATION/BRUISING
- MUSCLE GUARDING
- POSTURAL
PALPATION

- SUPERFICIAL/DEEP
- TENDERNESS
- TEMPERATURE CHANGES (use back of hands)
- EDEMA
- MUSCLE SPLINTING/SPASMS
- PERCUSSION (spinous process/brachial plexus)

RANGE OF MOTION

- SIT PATIENT UP STRAIGHT
- FLEXION=60-70 degrees
- EXTENSION=50 degrees
- RIGHT/LEFT LATERAL FLEXION=45 degree
- RIGHT/LEFT ROTATION=70-90 degrees
- USE INCLINOMETER OR Goniometer
- PASSIVE VERSUS ACTIVE
ORTHOPEDIC TESTS

DEKLEIJN’S/MAIGNE’S TEST
AXIAL COMPRESSION (JACKSON’S)

- POSTIVE TEST IS REPRODUCTION OF RADICULAR PAIN.
- PAIN IS LOCAL TEST IS NEGATIVE BUT CHART WHERE PAIN IS.

MAXIMAL FORMINAL COMPRESSION

- NECK IN EXTENSION, IPSILATERAL LATERAL FLEXION, IPSILATERAL ROTATION.
DISTRACTION TEST

• CONTACT UNDERNEATH MASTOID PROCESS
• POSITIVE=RELIEF OF PAIN OR EXACERBATION OF PAIN

SHOULDER DEPRESSION TEST

• POSITIVE IS RADICULAR PAIN
• COMPRESSON AND OR ADHESIONS OF DURAL SLEEVE
• BRACHIAL PLEXUS STRETCH INJURY
**SWALLOW TEST**

- Ask patient to swallow
- Observe how procedure is accomplished
- Try to ascertain whether they are having problems with solids, liquids, or both
- Positive can mean dysphagia or aphagia
- Non specific test

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**VALSALVA TEST**

- Take deep breath, hold it, and bear down as though having bowel movement.
- Looking for radicular pain
SWIVEL TEST

• Patient sits on chair or stool that swivels
• Patient asked to rotate chair to see if vertigo is produced
• If patient exhibits vertigo, test is repeated when vertigo ceases, but this time the examiner holds the patient’s head in neutral.
• Cervicogenic vertigo if vertigo is reproduced with head held

NEUROLOGIC TEST
REFLEX EXAMINATION

- C5 = BICEPS
- C6 = BRACHIORADIALIS
- C7 = TRICEPS
- GRADED = 0, +1, +2, +3, +4
- +5 = CLONUS (upper motor neuron lesion or extrapyramidal disease)

SENSORY EXAMINATION

- PINWHEEL EXAM
- DERMATOME PATTERNS
- C5, C6, C7, C8, T1
- COMPARE BILATERALLY
- PATIENT EYES CLOSED
- IF NEED FURTHER TESTING USE TEMPERATURE, VIBRATION, LIGHT TOUCH.
MOTOR EXAMINATION

• RESISTED MANUAL MUSCLE TESTING
• CERVICAL SPINE=FLEXION/EXTENSION/LATERAL BENDING/ROTATION
• MYOTOME TESTING

MYOTOME TESTING

• C5= SHOULDER ABDUCTION/ELBOW FLEXION WITH SUPINATION
• C6=ELBOW FLEXION NO SPINATION/WRIST EXTENSION
• C7=ELBOW EXTENSION/WRIST FLEXION/ FINGER EXTENSION
• C8= FINGER FLEXION
• T1=FINGER ABDUCTION
### MYOTOME GRADING SCALE

- **0/5 ABSENT**
- **+/- 1/5 TRACE**
- **+/- 2/5 ACTIVE MOVEMENT FULL RANGE WITHOUT GRAVITY**
- **+/- 3/5 ACTIVE MOVEMENT FULL RANGE WITH GRAVITY**
- **+/- 4/5 ACTIVE MOVEMENT FULL RANGE WITH GRAVITY AND SOME RESISTANCE**
- **5/5 ACTIVE MOVEMENT FULL RANGE WITH FULL RESISTANCE**

### DIFFERENTIAL DX

- **CERVICAL SPONYLOSIS**
- **VERTEBROBASILAR INSUFFICIENCY**
- **TORTOCOLLIS**
- **DISC HERNIATION**
- **CERVICAL SPRAIN/STRAIN**
- **TUMORS/CANCERS**
- **FACET JOINT DYSFUNCTION**
- **CERVICAL RADICULITIS**
- **THORACIC OUTLET SYNDROME**
### DIFFERENTIAL DX

- COSTOCLAVICULAR SYNDROME
- PECTORALIS MINOR SYNDROME
- BRACHIAL PLEXUS STRETCH INJURY
- CERVICAL STENOSIS (central canal vs lateral canal)
- RHEUMATOID ARTHRITIS
- ANKYLOSING SPONDYLITIS
- DISH/FORESTIER’S DISEASE
- CERVICOGENIC VERTIGO

### SPECIAL STUDIES

- MRI WITH/WITHOUT CONTRAST
- CT SCAN
- EMG/NCV
- DIAGNOSTIC ULTRASOUND
- LUMBAR PUNCTURE
- RADIOGRAPH
PLAN OF CARE

• SPECIAL STUDIES
• MEDICATIONS
• PHYSICAL THERAPY
• CHIROPRACTIC
• INJECTION THERAPIES
• RHEUMATOLOGIST
• PAIN MANAGEMENT
• ACUPUNCTURE

CASE STUDY

• 44 YEAR OLD MALE WITH LEFT ARM WEAKNESS AND ATROPHY AFTER WORKING AS A DRYWALLER FOR 8 HOURS.
• PATIENT WOKE UP NEXT MORNING COULD NOT LIFT LEFT ARM
• OPQRST
### CASE STUDY

- **O= 24 HOURS AGO**
- **P=REST MAKES IT BETTER/USAGE MAKES IT WORSE**
- **Q=NO PAIN JUST WEAKNESS SOME ACHYNESS IN NECK**
- **R=NO PAIN BUT WEAKNESS SOME PAIN INTO LEFT MID BACK AREA**
- **S=4/10 MORE WEAKNESS IN LEFT ARM**
- **T=CONSTANT**

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### CASE STUDY

- **F=HISTORY OF HEART DISEASE/DIABETES**
- **O=REFERRED BY PRIMARY PHYSICIAN**
- **A=2000 MVA WITH NO RESIDUALS**
- **M=NSAIDS/MULTIVITAMINS/GLUCOSAMINE**
- **A=NONE**
- **S=2005 RIGHT KNEE ACL**
- **H=NONE**
- **L=SMOKER 1 PACK PER DAY/ALCOHOL 1-2 DRINKS PER DAY/SINGLE/NO CHILDREN**
CASE STUDY

OBSERVATION

• ATROPHY OF LEFT DELTOID/BICEP BRACHII
• FORWARD HEAD POSTURE
• NO SWELLING/BRUISING
• ASYMMETRIC HEAD TILT TO RIGHT
• RIGHT SHOULDER ELEVATION

CASE STUDY

PALPATION

• TENDERNESS OF CERVICAL SPINE
• POINT TENDERNESS TRIGGER POINTS LEFT TRAPEZIUS/BILATERAL SUBOCCIPITALS/RIGHT RHOMBOIDS/ BILATERAL LEVATOR SCAPULAE
### CASE STUDY
#### RANGE OF MOTION

- FLEXION = 43 DEGREES
- EXTENSION = 23 DEGREES
- RIGHT LATERAL FLEXION = WNL
- LEFT LATERAL FLEXION = WNL
- RIGHT ROTATION = WNL
- LEFT ROTATION = 59 DEGREES

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### CASE STUDY
#### ORTHOPEDIC TESTS

- DEKLEIJN’S TEST (-) BILATERAL
- JACKSON’S COMPRESSION (-) BILATERAL LOCAL PAIN
- MAXIMAL FORAMINAL COMPRESSION (-) BILATERAL LOCAL PAIN
- DISTRACTION TEST (+) BILATERAL FOR PAIN
- SHOULDER DEPRESSION TEST (-) BILATERAL
- VALSALVA (-)
### CASE STUDY
#### NEUROLOGIC TESTS

- **INTACT PINWHEEL SENSATION**
- **5/5 ALL RIGHT UPPER EXTREMITY**
- **0/5 LEFT C5 SHOULDER ABDUCTION/ELBOW FLEXION WITH SUPINATION**
- **-4/5 LEFT C6**
- **5/5 LEFT C7/C8/T1**

### CASE STUDY
#### SPECIAL STUDIES

- **RADIOGRAPH NEGATIVE FOR FRACTURES, DISLOCATIONS, INFECTIONS, TUMORS**
- **MRI WITHOUT CONTRAST REVEALED MINIMAL DISC BULGING AT C4/C5/C6 WITH NO NEURAL ROOT COMPRESSION**
DIFFERENTIAL DX

PARSONAGE-TURNER SYNDROME AKA BRACHIAL NEURITIS
REFERENCES

1. AMA Guides 5th edition