FUNCTIONAL NEUROLOGY SEMINARS

Pre-Course Preparation – Case History #3
Part III Examination Findings

Exercise: Review the examination findings. Any abnormal findings are listed in red font. Compare this with the history in Part I and the localization of brain regions form the history in Part II. Try to identify the regions of the brain involved with comparing all of the information in parts I, II, and III.

Please note: Case #3 exam findings, treatments, and outcomes will be presented Sunday afternoon during Module Two

Examination Findings

General Survey

- Mental status examination demonstrated the patient was responsive, orientated (person, place and time), cooperative, and alert.
- Speech and language demonstrated no memory lapses or dysarthria initially but as the exam and history continued the patient began to struggle with memory and word finding.

Gait Analysis and Posture

- Visual inspection of body posturing demonstrated a normal posture without any angulations. There were no signs of spasticity, neglect, weakness, hypotonia, scoliosis, kyphosis, or antalgic posturing.
- Gait presented with reduced right arm swing during all phases of gait.

Facial Inspection

- Facial examination demonstrated alternating lower 2/3 facial paresis throughout the examination. This was documented with photography.

Cerebellum /Motor Coordination Tests – Standing

- Romberg's testing demonstrated moderate titubations
- Pointed Romberg's testing demonstrated moderate titubations

- Tandem walking eyes open demonstrated moderate ataxia.
- Tandem walking eyes closed demonstrated moderate ataxia.
- Supination/pronation arms out demonstrated left dyspraxia and left dysdiadochokinesia.
- Finger-to-nose was equivocal.
- Finger-to-examiner's-fingers demonstrated left dyspraxia and left dysdiadochokinesia.
- Repeated finger-to-thumb demonstrated left dyspraxia and left dysdiadochokinesia.
- Repeated piano playing demonstrated left dyspraxia and left dysdiadochokinesia.
- Clasp test (applause sign) was equivocal.
- Pull test was equivocal.
- Heel-to-shin was equivocal.
- Tone assessment demonstrated increased tone on the left arm and left leg.
- Deep tendon reflexes were graded 3+ with L4 on the left and 2+ in all other reflexes.
- Hypothenar percussion was equivocal.
- Myotomes – C5, C6, C7, T1, L4, L5, SI were all graded +5.
- Chovstk's test was negative.
- Planter stroking demonstrated exaggerated flexor withdrawal response on the left.
- Positive startle reflex.
- Palmer stroking was equivocal.
- Clonus was present on the left foot with 7 beats.
- Hoffman/Tromner/Gonda were negative.
- Myerson's sign was negative.

Ocular Movement Examination

- Cardinal fields of gaze was equivocal.
- Pursuit testing was equivocal.
- Saccade testing demonstrated reduced velocities in all directions.
- Optikinetic tape testing demonstrated hypokinetic activity and impaired saccades in left right, up, and down directions.
- Convergence testing was equivocal.
- Confrontation testing was equivocal.
- Funduscopic panoptic examination demonstrated a red reflex with no signs of pathology to the optic disc, arteries, veins, retina, lens, or macula. Sensitivity to light was noted.
- Panoptic eye cover was equivocal.

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Vestibular Laboratory Evaluation

4-Channel Visual Electronystagmogram Test was conducted and evaluated for various tests:

- **Pupil Inspection** was evaluated in both light and darkness. The pupil demonstrated no signs of lesions on the retina or cornea. Pupil anisocoria was noted during the examination.
- **Pupil Light Response** indicated normal direct and indirect responses to light. Additionally, there were no pupil afferent or efferent defects noted during the examination.
- **Pupil Reaction Time** was intact with both pupils. Comparative evaluation between the right and left pupil demonstrated asymmetrical hippus with slower response time on the left with corectasia.
- **Cilliospinal Reflex** was conducted and demonstrated normal pupil dilation reaction.
- **Vergence and Accommodation** evaluation demonstrated intact accommodation. Pupil convergence demonstrated equal and symmetrical tracking of the target. Pupil divergence demonstrated equal and symmetrical tracking of the target.
- **Lateral Gaze** was conducted for 10 seconds to evaluate for end-stage nystagmus. Examination demonstrated intact gaze.
- **Head Positioning Vestibular-Ocular-Reflexes** were performed by moving the patient's head in positions for all six vestibular canals. Vestibular-ocular-reflexes were intact for all canals.
- **Head Positioning for Cycloversion** was performed by moving the patient's head in both right and left lateral bending and evaluating for proper intorsion and extorsion. Examination demonstrated normal ocular torsional movements with head positions.
- **Head Thrust Test** was performed to evaluate for ocular overshooting with lateral head thrust. Examination findings demonstrated intact responses.
- **Tullio Phenomenon and Tragal Compression** were conducted to evaluate for abnormal sound or pressured nystagmus associated with perilympahtic fistula and superior canal dehiscence. Examination findings were normal.
- **Rotational Chair Vestibular-Ocular-Reflexes** were performed. The VOR reflexes demonstrated no vertical deviation and proper reflexive responses.
- **Rotational Chair Vestibular-Ocular-Reflex Cancelation** was performed. Visual fixation did not appropriately cancel VOR reflexes in both right and left directions.
- **Head Shaking Test** was performed and did not induce abnormal patterns of nystagmus.

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Examination of the Ear and Tympanic Membranes

Visual Inspection and Palpation of the External Ear was performed. The patient did not demonstrate abnormal size, shape, symmetry, color, position, deformity or lesions of the external ears or mastoids. There were no signs of cellulitic skin changes, erythema, dermatitis, pruritus or discharge from the external auditory canal. Palpation of the tragus, auricle, and mastoid did not elicit any pain or discomfort.

Otoscopic Examination was performed using a macroview optic fiber otoscope to examine both the external ear and the tympanic membrane. The external ear did not demonstrate any signs of swelling, deformity, or erythema. There were no foreign bodies or exostosis in the external canal. There were no signs of cerumen impaction. The tympanic membranes were pinkish-grey in color and in a neutral position with no signs of retraction or bulge. A visible cone of light was present with no signs of perforation. The tympanic membranes did not present with any signs of redness or discharge.

Pneumatic Otoscopy was conducted using air against the tympanic membrane. Normal eardrum mobility was observed.

Tymphanometery was conducted using a Grason-Stadler GSI.39. Ear canal volume (EVC), compliance peak (cm3), tymphanometric peak pressure (daPa), and tympanic membrane width gradients were tested. Examination findings demonstrated normal middle ear pressure and static compliance.

Tymphanometric Reflex Testing was conducted using a Grason-Stadler GSI.39 was conducted at 500, 1000, 2000, and 4000 Hz.

Gross Hearing and Audiometric Evaluation

Gross Hearing to evaluate low frequency hearing loss was performed by rubbing fingers 12 inches away from the patient's left and right ear individually The test was also repeated using a 512 Hz tuning fork. The patient was able to perceive the noise. A startle response was induced on the right side with greater sound perception with air conduction on the right.

Rinne Test was formed with a 512 Hz tuning fork. Examination findings demonstrated normal air and bone conduction hearing.

Weber's Test was conducted with a 512 Hz tuning fork. Sound did not lateralize to the left.

Audiometric Examination was conducted using a Grason-Stadler GSI.39 at various measuring a full range of frequencies fro 500 to 8000Hz and intensity levels from -10 to 100 dB HL. The results demonstrated normal high and low frequency hearing bilaterally.

Inspection of the Skin, Extremities, Hair, and Nails

- Skin inspection was equivocal. There were no signs of cyanosis, pallor, flushing, jaundice, hirsutism, pigmentation, infection, cuts, psoriasis, papule, macule, plaques, wheals, or bulla.
- Skin turgor test demonstrated normal motility.
- Temperature palpation of the extremities with a thermal temperature demonstrated a drop of 4-8 degrees Fahrenheit between proximal and distal limbs.
- Nail beds in the hands were pallor and in the feet were cyanotic with lines.
- Hair inspection was equivocal and did not demonstrate any forms of alopecia, scalp dermatitis, brittle hair, fine hair, or coarse hair.

Palpation Extremities and Pulses

- Inspection of the distal pulses were equivocal without any pitting edema or swelling
- Pulses (carotid, tibial, radial) were equivocal.

Lung, Heart, Lymph, Abdominal and Thyroid Exam

- Carotid auscultation was equivocal without bruit.
- Thyroid auscultation was equivocal with any sounds of increased blood flow.
- Thyroid palpation was equivocal without swelling, tissue enlargement, nodules or pain.
- Heart auscultation was equivocal without any splits, murmurs, or extra hear sounds in neutral posture, with positional change, or with changes is respiration.
- Thorax expansion was equivocal with symmetrical expansion of the thorax with inspiration.
- Lung palpation was equivocal without dullness or hyper-resonant sounds.
- Lung auscultation was equivocal without any wheezes, crackles, rales, ronchi, or egophany.
- Respiration rate was equivocal with no signs of dyspnea.
- Accessory respiratory muscles were relaxed and not labored with respiration.
- Lymph node palpation was equivocal and did not demonstrate any enlarged, swollen or painful lymph nodes.

- Abdominal auscultation was equivocal and demonstrated equal and regular bowl sounds in all four quadrants. No bruits were observed during the examination.
- Abdominal percussion and palpation was equivocal and demonstrated no findings of hepatomegally, splenomegally, hyper-resonance, pancreatitis, or ascites. Murphy's sign and rebound tenderness testing were negative.
- Abdominal reflex was equivocal.

Throat, Mouth, and Temperature, and Tongue Examination

- Visual inspection was the throat and mouth was equivocal. Inspection of the lips, oral mucosa, gingival, teeth, tongue, tonsils, palate, floor of the mouth and pharynx demonstrated no sores, ulcers, white patches, or masses.
- Examination of salivary glands was equivocal.
- Gag reflex was intact.
- Palate contracture upon vocal challenge demonstrated intact contracture.
- Tongue inspection was equivocal and did not demonstrate fasiculations, sores, patches or exudates.
- Tongue protrusion was midline, did not deviate and was able to be retracted without effort.
- Sinus palpation and transillumination were equivocal and did not demonstrate any signs of fluid within the sinus.
- Temperature was 98.3.
- Examination of the nasal septum demonstrated significant septum deviation and almost complete obstruction.

Pulse Oximeter Testing – Bilateral and Simultaneously

- Right SPO2 – 94% Left SPO2 – 94%
- Resting hear rate was variable between 80-90 bpm.

Head and Face Motor Tests

- Facial expressions were equivocal.
- Levator palpabre was graded 5/5.
- Tongue resistance was equivocal.
- Jaw deviation and resistance was equivocal.

Sensory Testing

- Corneal reflexes were intact but evoked exaggerated startle reflex.
- Light touch was equivocal.
- Pinwheel testing demonstrated hyperalgesia on the right.

- Vibration was equivocal.
- Temperature was equivocal.
- 2-point was equivocal.
- Graphesthesia was equivocal.
- Sterognosis was equivocal.
- Parietal extinction was equivocal.