

Foundations Curriculum

2015-2016

Oral Board Review Cases

Case 108: Neck Pain

❖ Chief complaint

- 37-year-old female presents with headache, neck pain, and visual changes

❖ Vital signs

- BP: 114/62 HR: 84 RR: 18 T: 36.5°C Sat: 99% on RA

❖ What does the patient look like?

- Patient appears stated age, uncomfortable appearing secondary to pain, holding head, in mild distress, lying still supine on stretcher.

❖ Primary survey

- Airway: speaking in full sentences
- Breathing: no apparent respiratory distress, no cyanosis
- Circulation: dry and cool skin, normal capillary refill

❖ Action

- Place patient on the monitor
- Oxygen via NC (optional)
- Two large-bore peripheral IV lines (draw rainbow top or order labs now)
- Labs
 - CBC, BMP, LFT, coagulation studies, type and screen, urine pregnancy
- EKG (optional)

❖ History

- Source: patient
- HPI: a 37-year-old female status post motor vehicle accident 2 days ago presents with persistent right-sided headache and neck pain since the accident. Today she had an episode of darkening of the vision in her right eye, lasting 10 minutes. Her vision is now back to baseline. Two days ago the patient was a restrained passenger in a vehicle that rear-ended another. She was seen at an outside hospital at that time and had a normal head CT. Patient denies slurred speech, weakness, numbness, nausea, vomiting, bowel or bladder changes, neck stiffness, photophobia, or fever.
- PMHx: none
- PSHx: none
- Allergies: NKDA
- Meds: none
- Social: occasional alcohol use, denies tobacco or drugs
- FHx: noncontributory
- PMD: none

❖ Nurse

- EKG (Figure 108.1)
- Urine pregnancy test negative

❖ **Physical examination**

- General: alert, oriented × 3, comfortable
- Head: normocephalic, atraumatic
- **Eyes:** mild right ptosis, right pupil 3 mm, left pupil 5 mm, extraocular movements intact, visual acuity normal, full visual fields
- Ears: normal tympanic membranes
- Nose: no discharge
- **Neck:** right paraspinal neck tenderness, right carotid bruit (must ask), no midline C-spine tenderness
- Pharynx: normal dentition, no lesions, no swelling
- Chest: nontender
- Lungs: clear bilaterally
- Heart: rate and rhythm regular, no murmurs, rubs, or gallops
- Abdomen: normal bowel sounds, soft, non tender or distended
- Rectal: deferred
- Urogenital: deferred
- Extremities: full range of motion, no deformity, normal pulses
- Back: nontender
- **Neuro:** alert and oriented × 3, mild right ptosis, right pupil 3 mm, left pupil 5 mm, extraocular movements intact, no facial droop, sensation intact, 5/5 motor in all extremities, no cerebellar findings, normal DTRs, downgoing toes, normal gait
- Skin: warm and dry
- Lymph: no lymphadenopathy

❖ **Action**

- Meds
 - Morphine or oxycodone
- Consult neurology
- Imaging
 - CT head
 - CT C spine
 - CT neck with angiography OR MRA neck

❖ **Nurse**

- Patient: pain improves with pain medications
- Vitals unchanged

❖ **Results**

- Lab Results table
- CT head (negative)
- CT C-spine (negative for fracture)
- CTA of the neck (call from radiology- Figure 108.2)

❖ **Action**

- Consult Vascular Surgery
- Neurology consult: evaluates patient and admits her to the stroke unit
- Start heparin drip (per neurology and vascular surgery recs)

❖ **Diagnosis**

- Carotid artery dissection

❖ **Critical actions**

- Pain control
- CT head without IV contrast
- CT neck angiography or MRA
- Neurology consult
- Heparin

❖ **Examiner instructions**

- This is a case of carotid artery dissection secondary to injury from a recent motor vehicle accident. In our patient, the recent neck injury caused a tearing in the wall of the carotid artery that led to a stroke presenting with visual changes. Important actions in this case include imaging of the brain and of the carotid artery. If carotid artery dissection is not considered in the differential and the patient is not started on anticoagulation, the patient should develop signs of an acute stroke in the distribution of the right middle cerebral artery, with left-sided hemiparesis and slurred speech.

❖ **Teaching Points**

- Carotid artery dissection is rare, but it is a common cause of stroke in patients younger than 50 years old. This diagnosis should be considered in any young patient with new neurological deficits
- They can occur spontaneously or secondary to minor trauma, such as chiropractic manipulation, talking on the phone for long periods of time, coughing, weight lifting and motor vehicle accidents.
- Patients can present with headache, neck pain, facial pain, hypoageusia (decreased taste), transient episodic blindness (amaurosis fugax), pulsatile tinnitus or focal neurologic complaints. Some patients have a partial Horner syndrome on examination (ptosis, miosis, without anhidrosis).
- If the dissection is extracranial and a thrombus is present, then treatment involves anticoagulation with heparin to prevent thromboembolic events. Do not initiate anticoagulation in trauma patients without first ruling out intracranial hemorrhage (ICH) and extracranial sources of hemorrhage.
- Candidates for angioplasty and stent placement include patients with persistent ischemic symptoms despite adequate anticoagulation, contraindication to anticoagulant therapy, iatrogenic dissection developing during an intravascular procedure, and patients with significantly compromised cerebral blood flow.

❖ **Associated Teaching Points** (time permitting)

- Vertebral artery dissection can occur in a similar patient population and with similar mechanisms to carotid artery dissections.
- The typical patient with VAD is a young person who experiences severe occipital headache and posterior nuchal pain following a head or neck injury and subsequently develops focal neurologic signs attributable to ischemia of the brainstem or cerebellum.
- Focal neurological deficits most commonly include CN deficits including facial pain, facial numbness, dysarthria and hoarseness, diplopia, dysphagia, vertigo, disequilibrium, contralateral pain and temperature loss
- Treatment is similar to above, often requiring anticoagulation

❖ **References**

- Tintinalli: Chapters 227, 228
- Rosen's: Chapter 97
- Medscape, emedicine, "Carotid Artery Dissection"
- **Original Case Source:** Emergency Medicine Oral Board Review Illustrated (1st Edition), Dr. Yasuharu Okuda, Dr. Bret Nelson
- Modified by: Dr. Kristen Grabow Moore

Case Imaging

Imaging Answer Key:

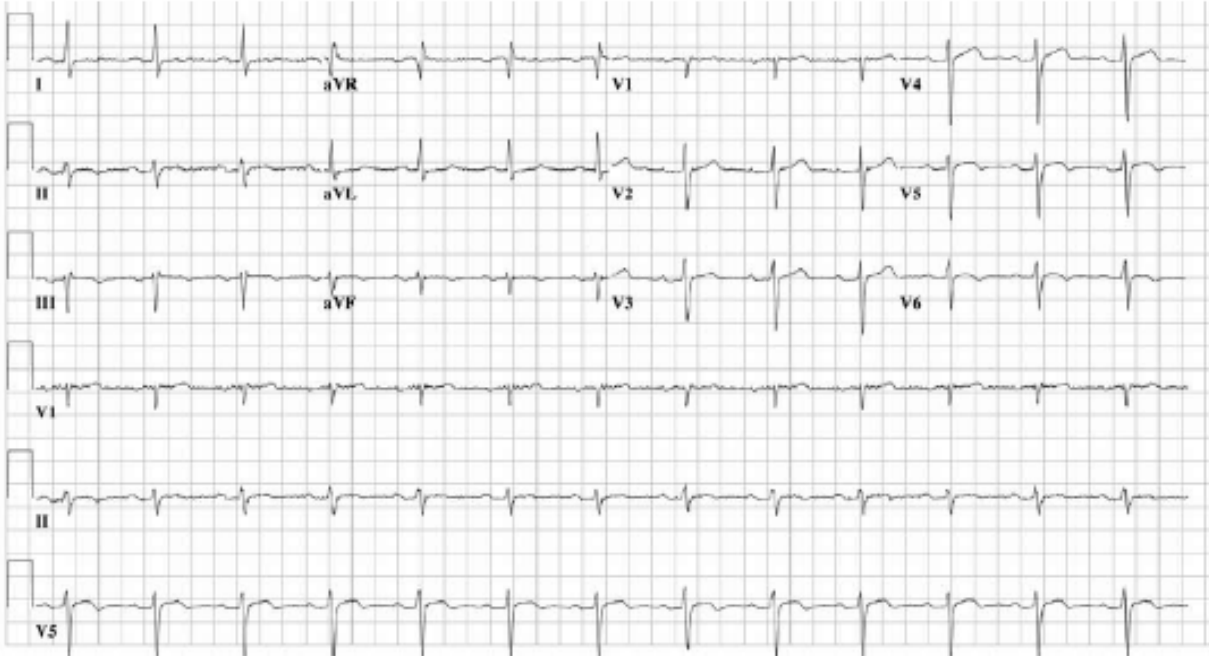
Figure 108.1 – EKG – NSR

Figure 108.2 – CTA brain – dissection of carotid artery on right side

Lab Results

Complete blood count:		Liver function panel:	
WBC	6.5 × 10 ³ /uL	AST	23 U/L
Hct	41.5%	ALT	26 U/L
Plt	350 × 10 ³ /uL	Alk Phos	42 U/L
Basic metabolic panel:		T bili	1.0 mg/dL
Na	138 mEq/L	D bili	0.3 mg/dL
K	4.3 mEq/L	Amylase	50 U/L
Cl	105 mEq/L	Lipase	25 U/L
CO ₂	30 mEq/L	Albumin	4.7 g/dL
BUN	12 mEq/dL	Urinalysis:	
Cr	1.1 mg/dL%	SG	1.0.20
Gluc	100 mg/dL	pH	7
Coagulation panel:		Prot	Neg mg/dL
PT	12.6 sec	Gluc	Neg mg/dL
PTT	26.0 sec	Ketones	Neg mg/dL
INR	1.0	Bili	Neg
		Blood	Neg
		LE	Neg
		Nitrite	Neg
		Color	Yellow

EKG



CTA Neck

