Room 3: Basilar Occlusion and Coma

Clinical Objectives:

[ ] Recognize acute onset coma with focal findings as potentially signifying a basilar thrombus.
[ ] Perform a comprehensive coma exam
[ ] Order and interpret the CT / CTA
[ ] Correctly administer IV tPA
[ ] Contact endovascular team for acute basilar thrombosis

Environment and Persons:
Environment: ED
Persons: Manikin, ED RN (Embedded Person)

Patient Demographics/PMH :

Age	75	Allergies	None	Social	Retired, history of smoking
Gender	M			PMH	HTN TIA DM2 GI bleed
Height/Weight		Ethnicity		Medication	Insulin Glargine Carvedilol Losartan Amlodipine
Labs	None	X-ray		Other History	

Room Setup:

- Medical Record available on computer
- Patient will already have IV access
- Patient is intubated
- Patient is hooked up to the monitor
- Need cotton swabs or gauze or saline drops
- Drugs needed: Propofol drip, nicardipine/labetalol/hydralazine
- Images needed:
  - Normal NCHCT
  - CTA with basilar thrombosis
- Videos needed (alternatively can be described by the ED RN)
  - Pinpoint pupils
  - Oculomotor exam
  - Corneal reflex
- Aspects of exam to be described by RN
  - LUE Withdrawing – RN to say “He moved that arm away”
  - RUE extensor posturing – RN will demonstrate arm in extensor posturing
  - Triple flexion RLE – RN to say “Looks like his toe, ankle and knee all flexed, for both sides.”

CASE SCENARIO:
Case begins with resident being paged:
"**75 yo M w/ AMS - ?seizure, intubated in field for airway protection**"

PART ONE: H&P
RN at bedside relays the EMS passoff. "Patient" is an intubated SimMan.

HISTORY
RN: "Per the EMS report, family reported that the patient had been up for breakfast, appeared normal. Then he complained of being dizzy, then they heard a crash upstairs and they found him unresponsive. The family said they saw some jerking movements prior to when EMS arrived. EMS reported that he was noted to have a pulse the whole time during their evaluation. He was intubated with RSI with etomidate and succinylcholine about 25 mins prior to arrival in the ED. He is still on Propofol. We haven't examined him yet, because we thought he might be seizing."

If a resident asks any further questions, should answer "I'm not sure, but I found the patient's chart in Epic if you want to look at that."

[Resident should request Propofol be paused]

RN: "Are you really sure we should stop Propofol? I think because he could be seizing, we should wait until he is admitted. How about I just send off some labs instead, what do you want me to send?"

- Resident should still request to have the Propofol weaned
- Depending on how quickly the case is going, RN can either continue to give push back or suggest they get more information from the patient's chart [which is available in the room.]
- RN can eventually agree to hold sedation for an exam
- This is a debriefing point about in which cases is it unsafe to wean sedation

Other data:
- LSW: this morning (3 hours prior)
- Not on coumadin or A/C because of a severe GI bleed two months ago

PHYSICAL:
Vitals: HR 70, BP 190/98, in atrial fibrillation, Afebrile
COMA EXAM:
MS: Despite escalating noxious stim there will be no communication or ability to follow command. ED RN will say, "It looks like he moved his left arm a little bit, but otherwise he didn't react at all"
CN:
- Pupils: pinpoint and non-reactive [displayed with video]
- Corneal Reflex: Present bilaterally [displayed with video]
- Oculomotor exam: patient's eyes do not move in the horizontal plane in either direction of horizontal head turn, but there is motion of the eyes when head is tilted in the vertical direction [displayed with video]
- Cough / Gag: ED RN will note a very weak gag and cough when the resident asks them to test

Motor:
- RUE: Extensor posturing – demonstrated by RN
- LLE: withdraws – described by RN as "he looks like he pulled away"
- LLE/RLE: Triple flexion bilaterally – described by RN as "I think that was triple flexion!"

Reflexes:

- Babinski reported bilaterally; RN describes “his toes go up.”

TRAINEE TASK CHECKLIST:

- Request that sedation be held
- Request workup for new coma, possible seizure
  - BMP, CBC, LFT, Urine tox, serum tox, blood cultures, UA, ABG, fingerstick glucose, coags
- Confirm LSW (3 hours prior)
- Mental status: Neuro residents speaks loudly, escalates to sternal rub / nasal irritation / nailbed pressure / supra-oribital ridge pressure
- Pupillary reflex
- Oculomotor exam
- Corneal reflex
- Cough, gag
- Motor exam in all four extremities
- Communicate that focal findings and AMS are highly concerning for a structural etiology of coma
- Request stat neuro-imaging
  - CT
  - CTA, CTP is optional
- Requests propofol be restarted

PART TWO: DISCOVERY AND MANAGEMENT OF BASILAR THROMBOSIS

Case should move to the CT Scanner for CT/CTA

FINDINGS: Normal parenchymal Head CT, but with hyperdense basilar clot
CTA with basilar drop out

1) **Patient:**
   a. Continues to be intubated and sedated
   b. **VITALS: HR: 71, BP: 200/92, SpO2 99%**
2) **ED RN:**
   a. Ask if resident want vessel imaging if the resident does not specify; we will let them get just a NCHCT and then talk about what to do, if after getting a normal head CT they do not think about vessel imaging, suggest it.
   c. LSW is this morning (about ~3 hours ago) before he complained of being dizzy

TRAINEE BEHAVIOR CHECKLIST:

- Once basilar thrombosis identified, recognize the need to involve the NeuroIR team
- Resident should consent for tPA, screen for eligibility, and maintain BP<185/95
- Call family and review tPA screening checklist (GI bleed was almost 1 year ago)
- Correctly administer tPA with weight-based dosing
- Provide pass-off to the NIR team

Case ends after the patient has been passed off to the NeuroICU fellow.

Case 3: COMPREHENSIVE BEHAVIORAL CHECKLIST

- Request that sedation be held
- Request workup for new coma, possible seizure
  - BMP, CBC, LFT, Urine tox, serum tox, blood cultures, UA, ABG, fingerstick glucose, coags
- Mental status: Neuro residents speaks loudly, escalates to sternal rub / nasal irritation / nailbed pressure / supra-oribital ridge pressure
- Pupillary reflex
- Oculomotor exam
- Corneal reflex
- Cough, gag
- Motor exam in all four extremities
- Calculate an NIHSS, which will be very high given coma
- Communicate that focal findings and AMS are highly concerning for a structural etiology of coma
- Request stat neuro-imaging
  - CT
  - AND CTA (CTP optional)
- Blood pressure control to BP < 185/105
- Consent family for tPA over phone after reviewing contraindications
- Page endovascular for thrombectomy

Major points for Debriefing:

- **How long do paralytics and sedatives for intubation affect the neuro exam**
- **Why is it important to get a non-sedated neuro exam**
- **How to approach a coma exam**
- **Any questions about tPA administration (review tPA dosing, inclusion/exclusion) and the LVO pathways**
- **Residents should have an opportunity to practice exam components they are uncertain of**