

# STROKE EDUCATION MODULE

Anil Kumar MD, PhD  
Chastity Orr MSN, RN

# No Disclosures

# Stroke Facts

The AHA estimates

- 795,000 strokes/year
  - 1 in 4 are 1<sup>st</sup> time strokes
  - 1 every 40 seconds
  - taking a life every 4 minutes
- 5th leading cause of death in the U.S., killing nearly 130,000 people/year or 1 in 20
  - Leading cause of long-term disability
- Women have more Strokes than Men each year



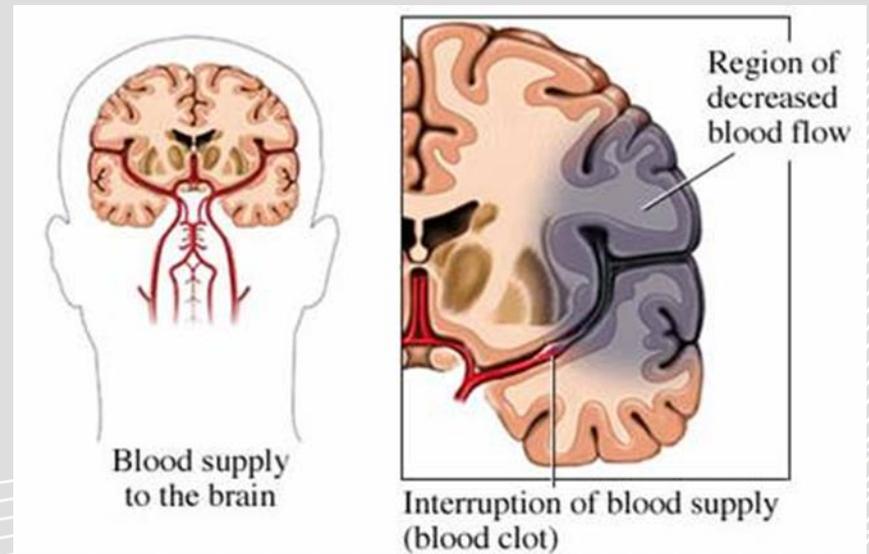
# Stroke Definition

## STROKE:

Sudden death of brain cells in a localized area due to inadequate blood flow.

Within seconds, brain cells begin to die.

- 32,000 every second
- 120 million every hour
- 1.2 billion after 10 hours



# Save the Penumbra!

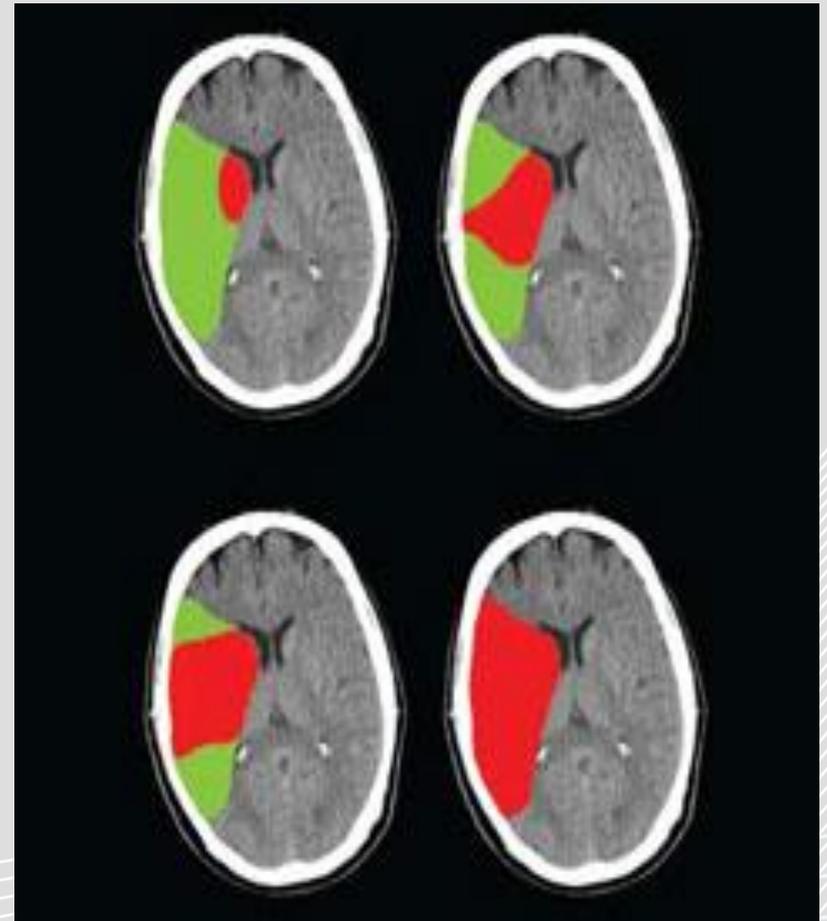
GOAL:

- Early diagnosis
- Decrease negative affects

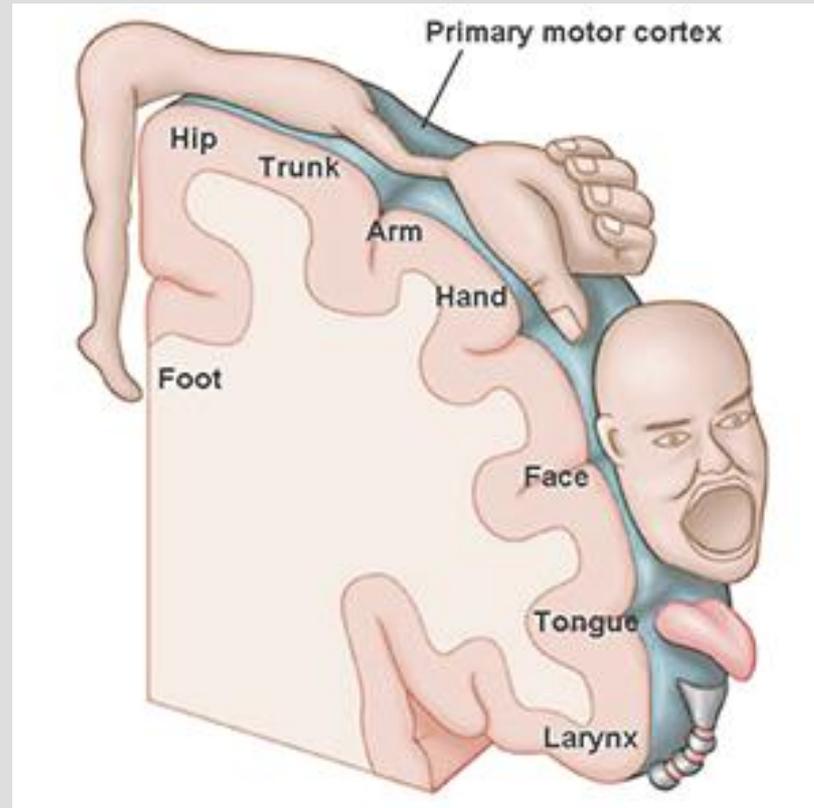
Area of infarct

vs.

Area of ischemia



# The Homunculus



# Sudden symptoms of a stroke

- Numbness on one side of the body
- Confusion
- Weakness of face, arm or leg on one side of the body
- Trouble speaking
- Trouble understanding others speech
- Trouble seeing or vision loss
- Headache with no known cause
- Trouble walking
- Loss of balance or coordination
- Dizziness

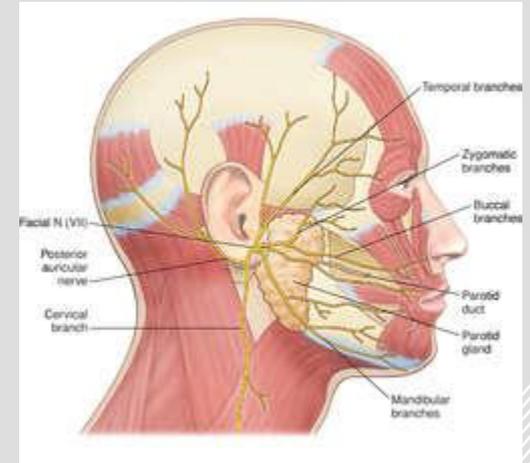
# Stroke Can Mimic Other Conditions

- Bell's Palsy
- Hypoglycemia
- Seizure
- Complicated Migraine
- Hypertensive Encephalopathy
- Drug toxicity



# How People Swallow

- Involves six cranial nerves
- CN. V- Trigeminal Nerve
- CN. VII- Facial Nerve
- CN. IX - Glossopharyngeal Nerve
- CN. X- Vagus Nerve
- CN. XI- Spinal Accessory Nerve
- CN. XII- Hypoglossal Nerve
- 55 muscles



# Dysphagia Screening Importance

- Aspiration occurs in as many as 45% of healthy individuals
- Aspiration can lead to Aspiration Pneumonia
- 73.9% of patients with dysphagia will be hospitalized for longer than 7 days
- “...the inability to eat and drink leaves those whom we care most about alone and isolated because they cannot commune with family and friends over a shared meal” (Casey, 2012).

# Blood Pressure Monitoring

- BP should be maintained below  $<220/120$  mmHg first 48 to 72 hours.
- BP can be treated by lowering the BP initially by 15 %.
- Carefully be lowered so that their BP is  $<185/110$  before IV Alteplase therapy is initiated.
- BP should be maintained  $<180/105$  mmHg for at least the first 24 hours after IV Alteplase treatment.



# Target Stroke

Below are the times we want to beat for rapid diagnosis and treatment!

Step	Minutes
Door to MD	10 minutes
Door to CT Scan	20 minutes
Door to CT Interpretation	45 minutes
Door to EKG/Lab Results	45 minutes
Door to tPA Treatment	60 minutes *



- **New 2018 Guidelines-For eligible patients, desired achievement of door to Alteplase in < 45 minutes at least 50% of the time.**

# Treatment

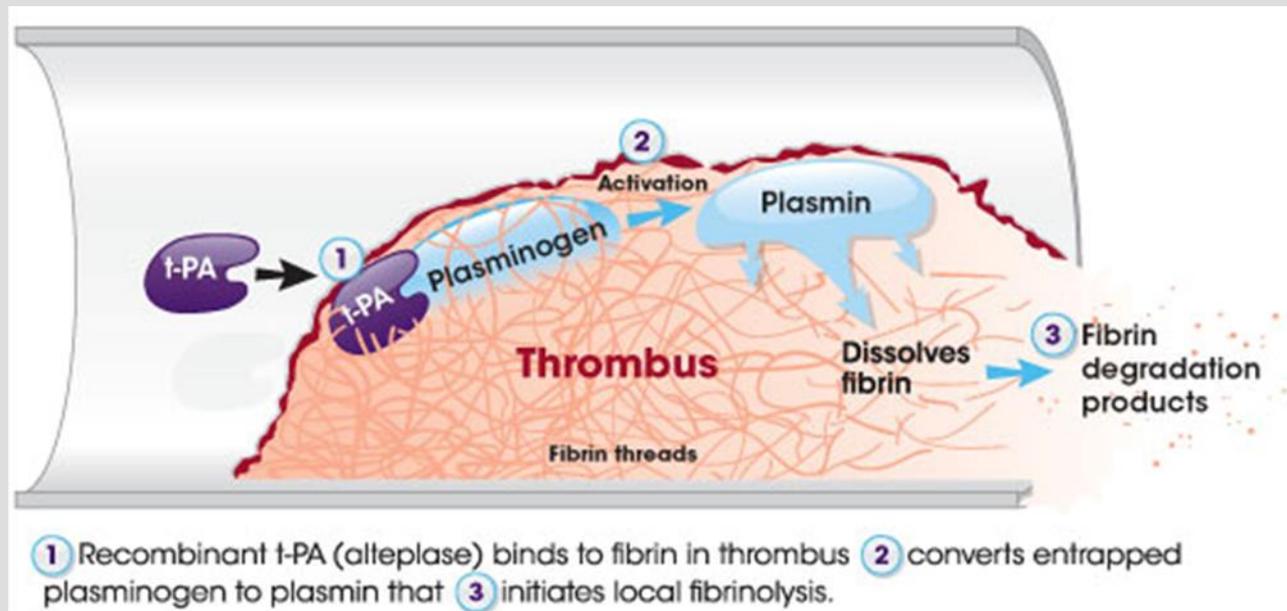
- Ischemic
  - Alteplase if eligible (Intravenous or Intra-arterial\*)
  - Antithrombotic
  - Antiplatelet
  - Endovascular Procedure\*
- Hemorrhagic
  - Surgical Intervention
  - Reversal of Anticoagulants if possible

\* Patients requiring intra-arterial tPA or Endovascular treatment will be sent to a Comprehensive Stroke Center

# Alteplase(tPA)

- The only FDA approved medication for treating acute ischemic stroke
- IV alteplase (0.9 mg/kg, maximum dose 90 mg over 60 minutes with initial 10% of dose given as bolus over 1 minute)
- Can only be administered
  - if last known normal was < 4.5 hours ago
  - if no hemorrhage is seen on the head CT
  - if patient meets inclusion/exclusion criteria

# How Alteplase works



# Monitoring the Alteplase Patient

- Watch for Angioedema
  - swelling of mucous membranes
    - (lips, tongue, oropharynx, upper respiratory tract)
  - change in vital signs
  - respiratory compromise (stridor)
- Frequency of assessment and charting on angioedema and stridor
  - Post tPA 30 min 1 time
  - Post tPA 45min 1 time
  - Post tPA 60 min 1 time
  - Post tPA 75 min 1 time

# Monitoring the Alteplase Patient

- Anticipate following medication administration
  - methylprednisolone (Solu Medrol) 125 mg IV
  - famotidine (Pepcid) 20-40 mg IV
  - diphenhydramine (Benadryl) 50 mg IV
- Anticipate intubation



For stroke code calls, remember

## BCGLMNT

B- BLOOD PRESSURE

C- CT SCAN

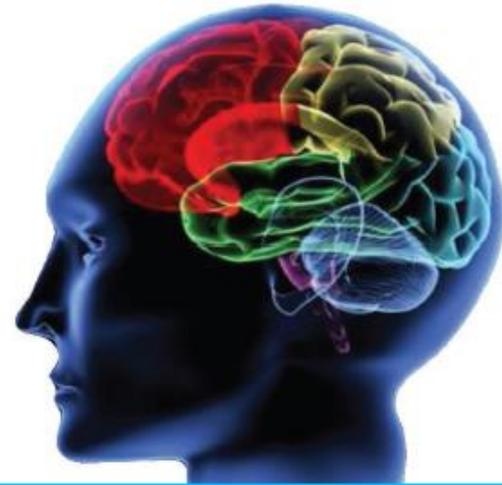
G- GLUCOSE

L- LAB

M- MEDICAL CONDITIONS

N- NIH STROKE SCALE

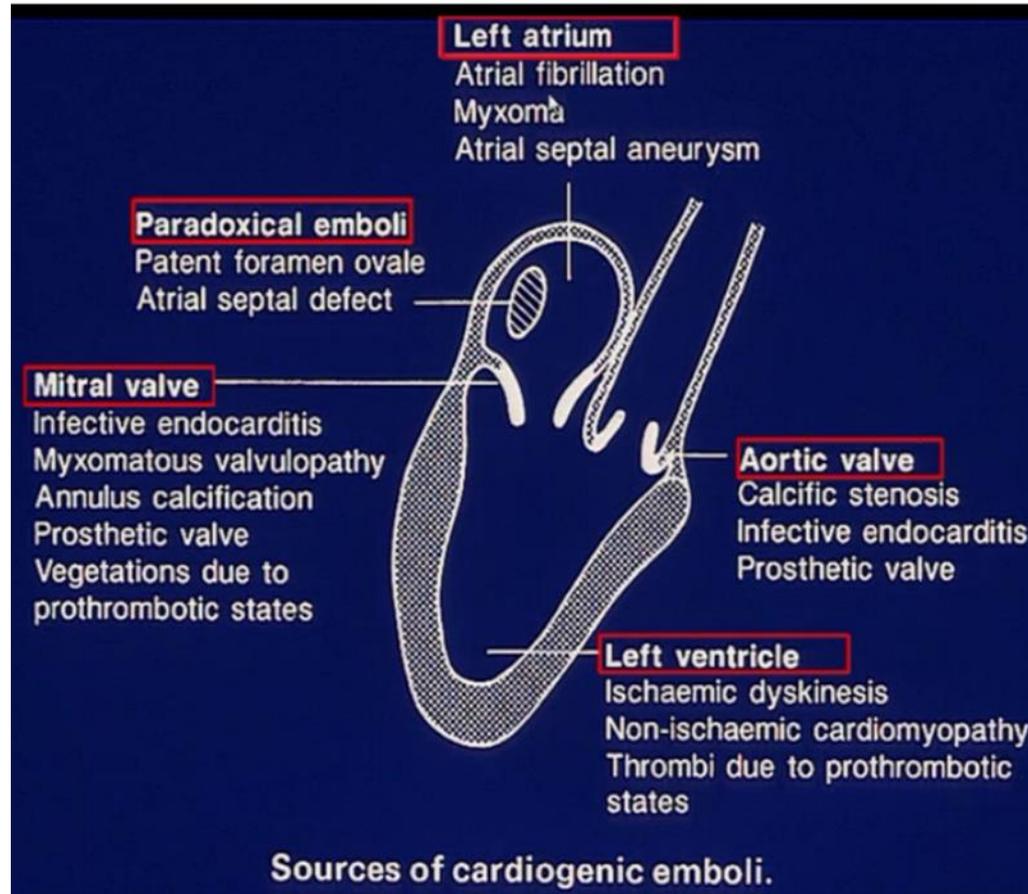
T- TIME OF ONSET



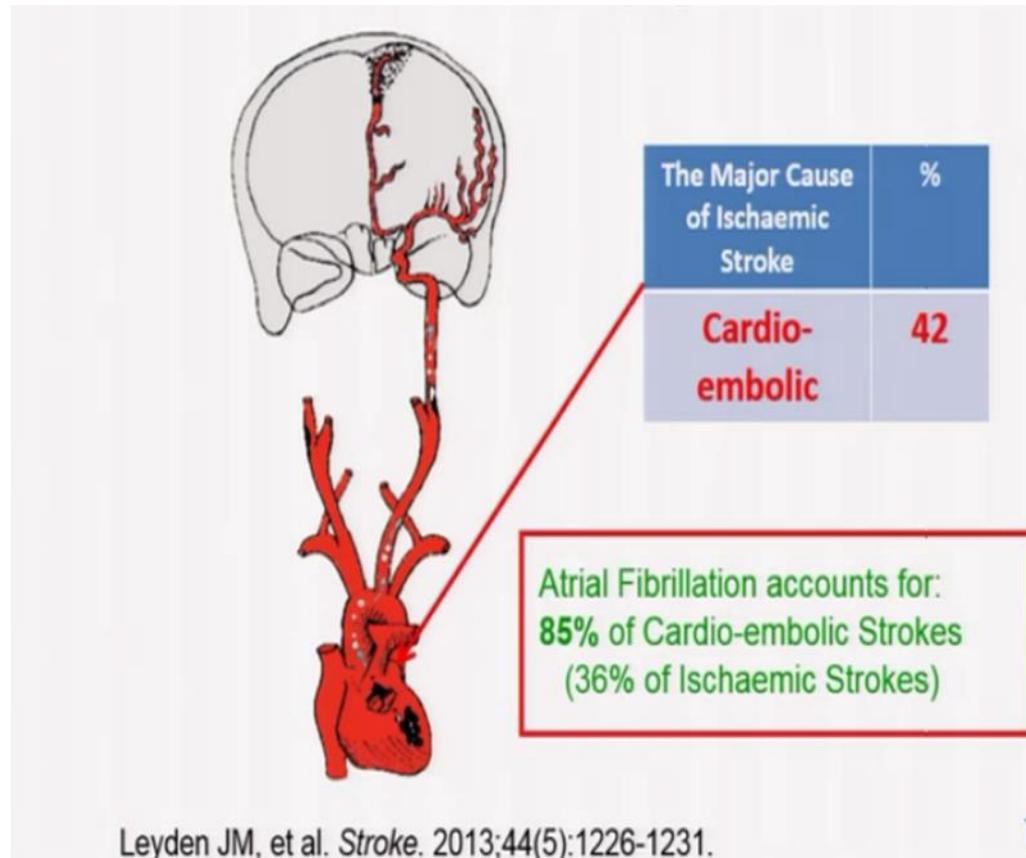
**The purple items** are those that the neurologist will want you to be ready to respond with upon his or her arrival to all stroke code calls.

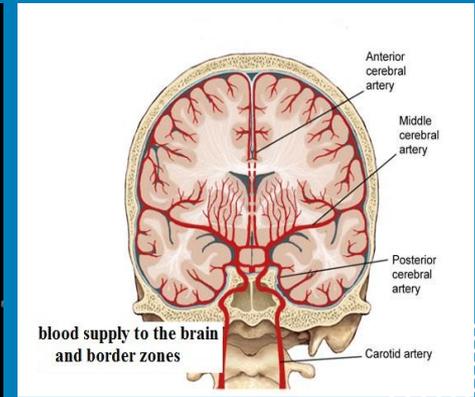
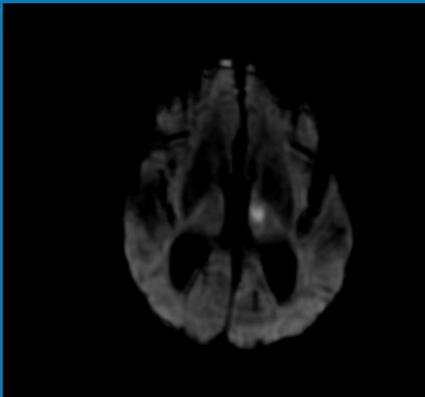
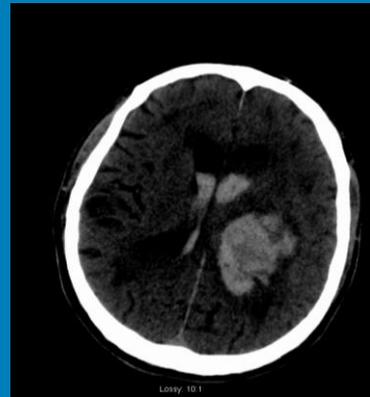
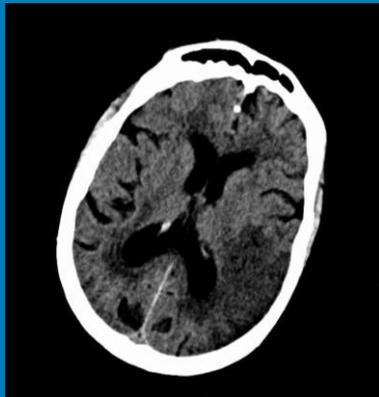
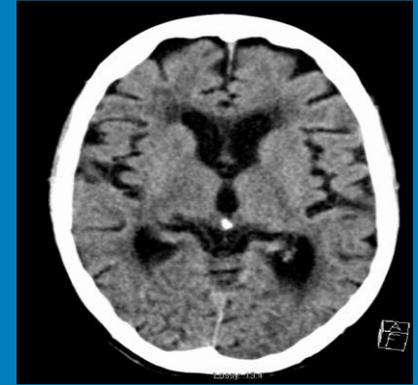
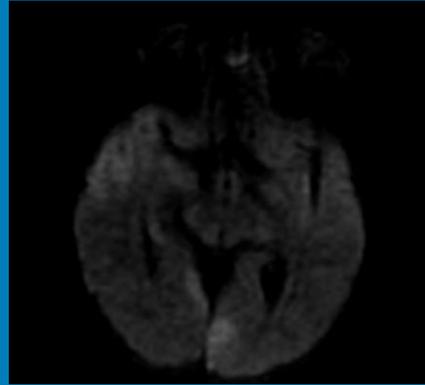
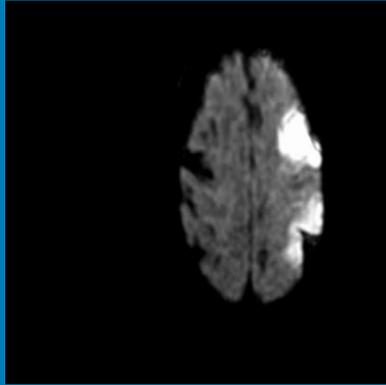
By remembering BCGLMNT,  
we can deliver better, faster stroke care  
to our patients.

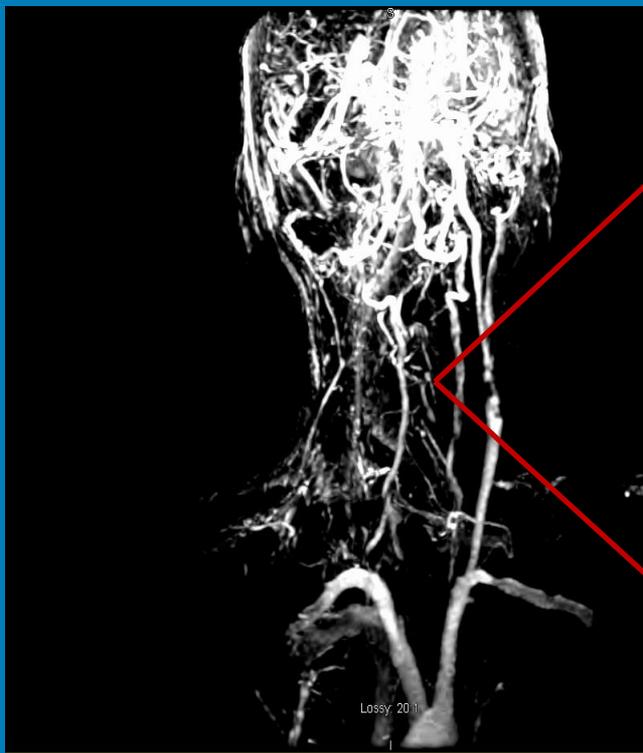
# Cardio Embolic



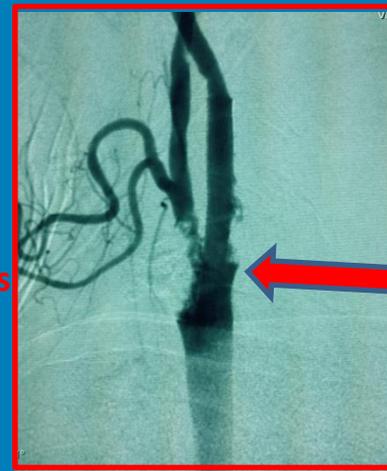
# Cardio Embolic







Carotid Stenosis



Carotid Stent



# Questions

**Anil Kumar MD, PhD**  
**Great Plains Health**  
**Stroke Program Director, Neurologist**

611 West Francis  
Suite #200  
North Platte, Neb.

[kumara@gphealth.org](mailto:kumara@gphealth.org)

308.568.3300

