Posterior Strokes – Improved EMS Recognition

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EMSAC Conference

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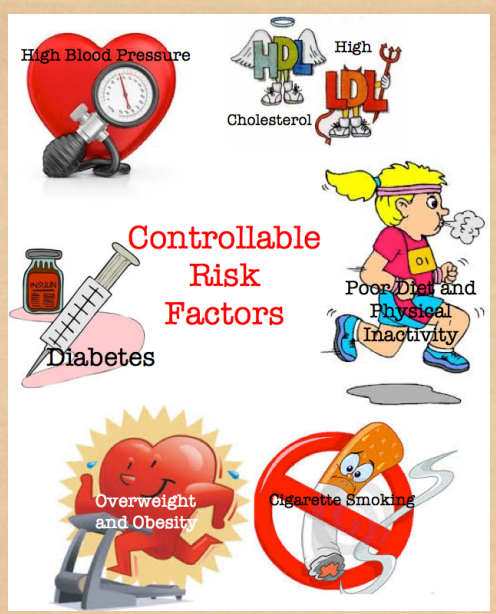
What is a stroke?

Risk Factors

- Preventable
  - HTN
  - Smoking
  - DM
  - Obesity



- UN-Preventable
  - Gender
  - Age
  - Race
  - Genetics

TYPES OF STROKE

ISCHEMIC

- Most common
- Atherosclerosis
- Gradual Onset

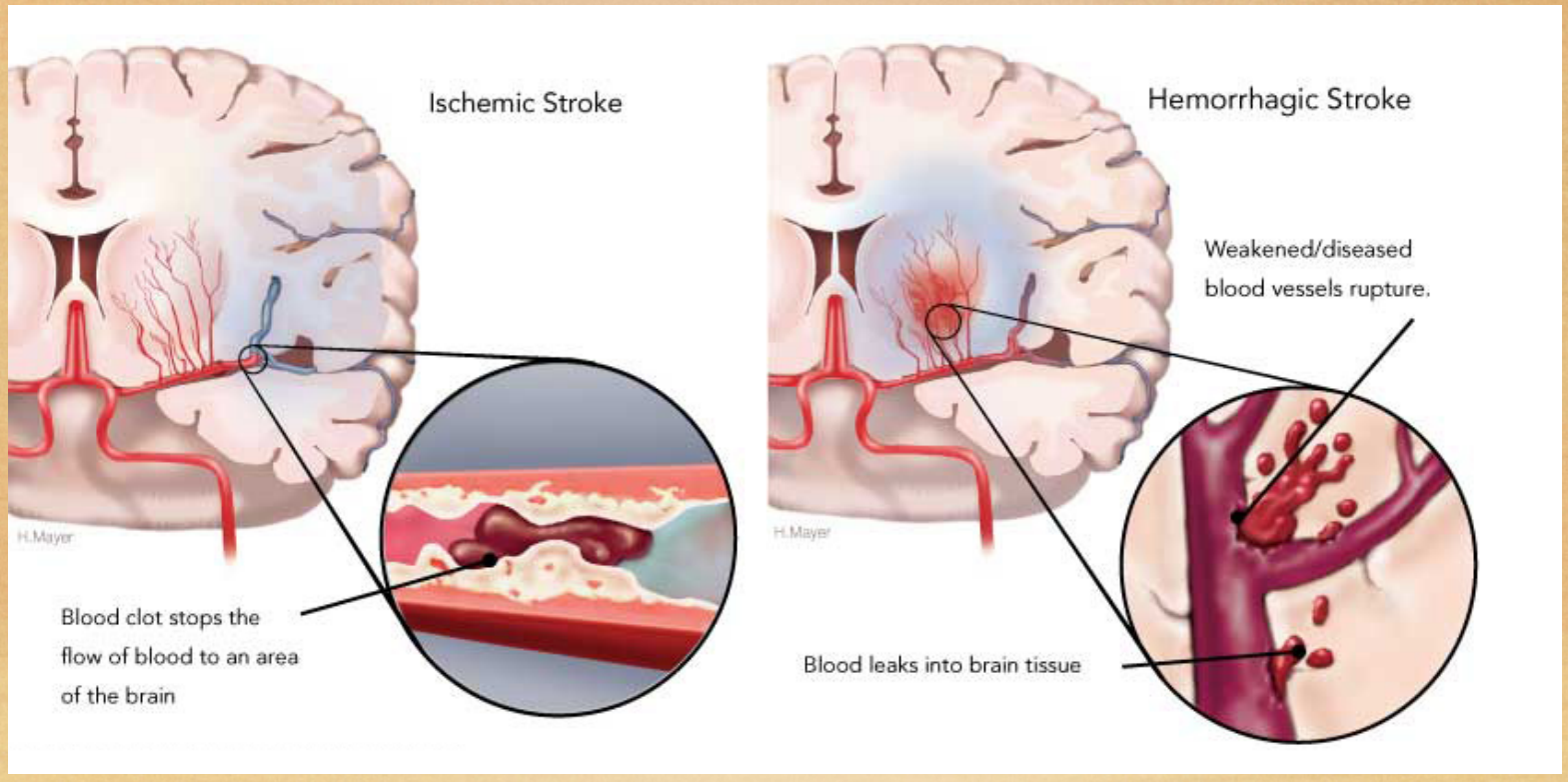
- Common causes
  - Atrial Fibrillation
  - Valvular HD

HEMORRHAGIC

- Least common
- Vessel weakening
- Rapid Onset
- May be asymptomatic

- Common causes
  - HTN

Images reinforce concepts!!



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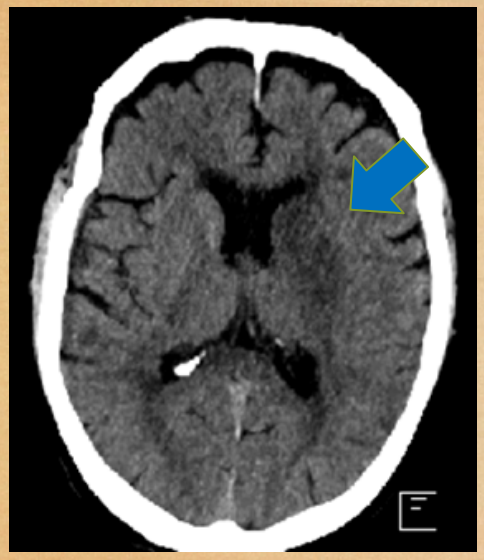
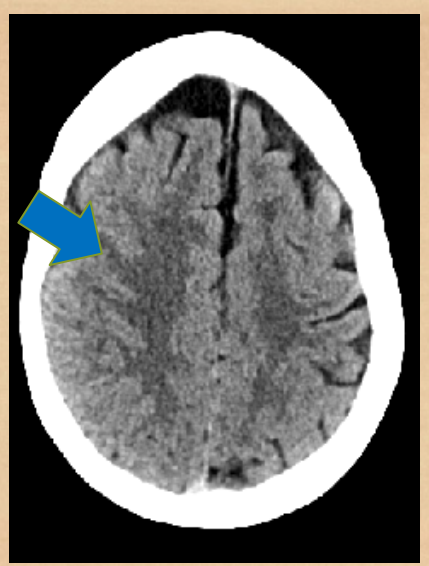
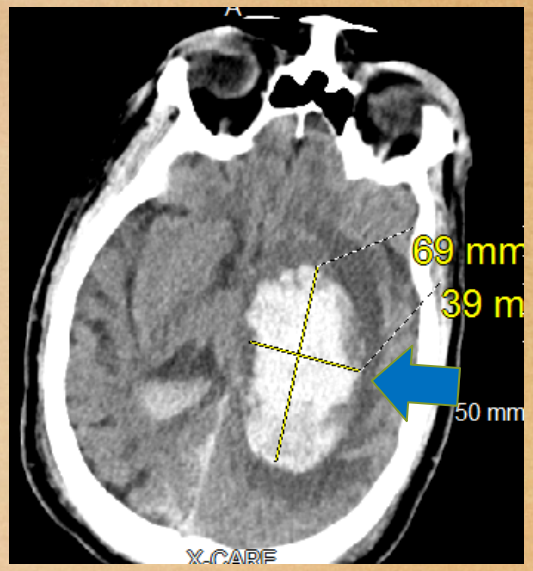
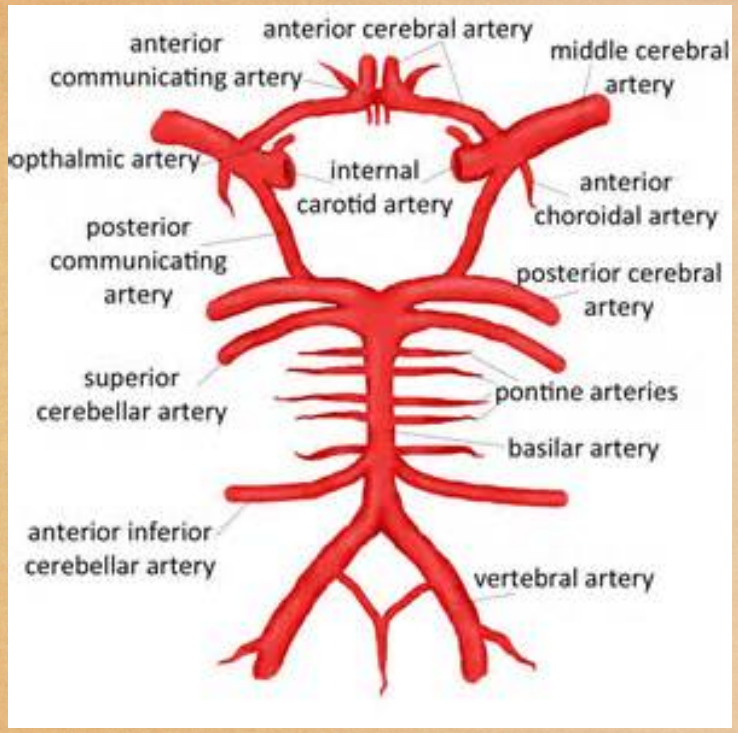






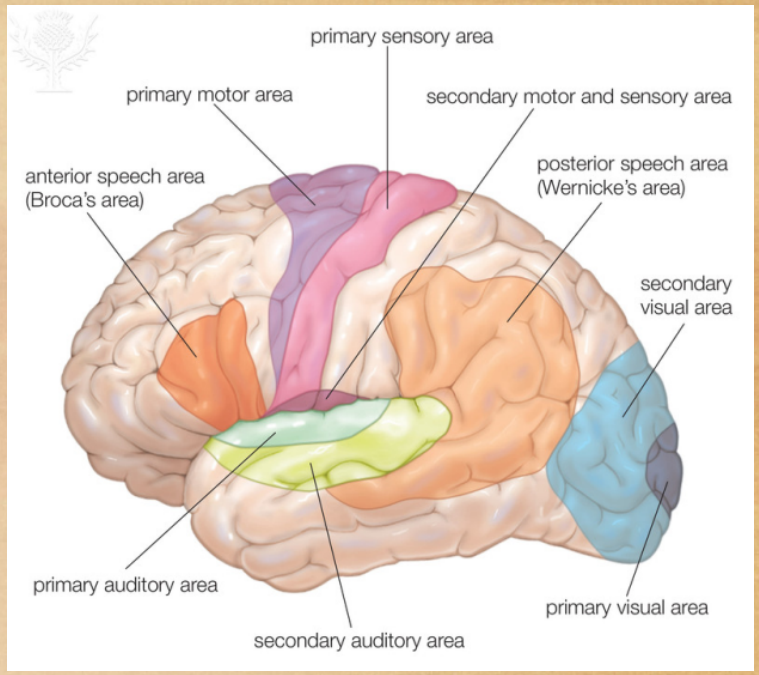
Cerebral Circulation

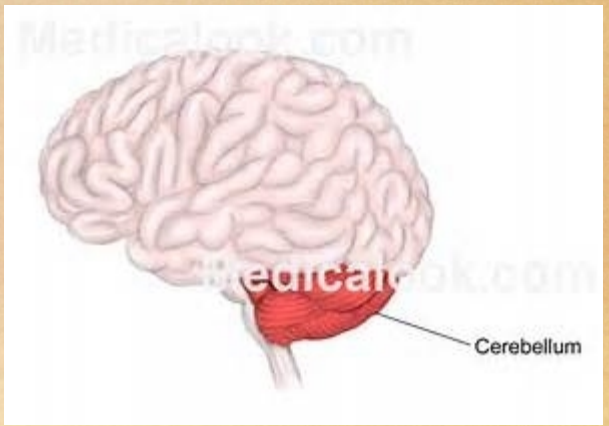


- Brain accounts for 2% of TBW
- 20% of the bodies oxygen and 25% of bodies glucose devoted to brain metabolism
- Circle of Willis (redundancy)
- Basilar artery occlusion carries 90% mortality rate

POSTERIOR STROKE

- Account for 20% of ALL strokes
- Account for 20-60% of unfavorable outcomes
- Cardiogenic embolization
- This is an elusive stroke – DON'T MISS IT!!!
- Not all headaches are migraine; not all LOC is simple syncope





5 D's Of Posterior Strokes

- Dizziness - SUDDEN
- Diplopia (double vision)
- Dysarthria (trouble vocalizing words)
- Dysphagia (trouble swallowing)
- Dystaxia (unsteady gait, lack of coordinated muscle movements)

- Are there limitations to the current pre-hospital screening methods??
- 2016 Study in California states nearly 40% of posterior strokes were missed with CPSS!!

Interpretation: if any of these 3 signs is abnormal, the probability of a stroke is 72%

Arm Drift

The patient closes eyes and extends both arms straight out, with palms up for 10 seconds

- Normal – both arms move the same or both arms do not move at all (other findings, such as pronator drift, may be helpful)
- **Abnormal – one arm does not move or one arm drifts downward**

Facial Droop

The patient shows teeth or smile

- Normal – both sides of the face move equally
- **Abnormal – one side of the face does not move as well as the other side**

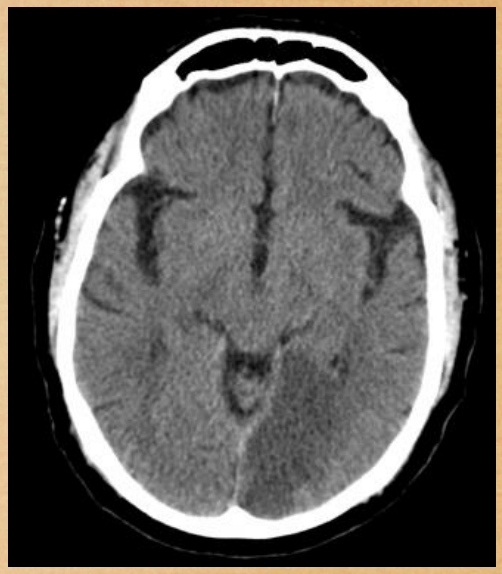
Abnormal Speech

The patient repeats "you can't teach an old dog new tricks"

- Normal – patient uses correct words with no slurring
- **Abnormal – patient slurs words, uses the wrong words, or is unable to speak**

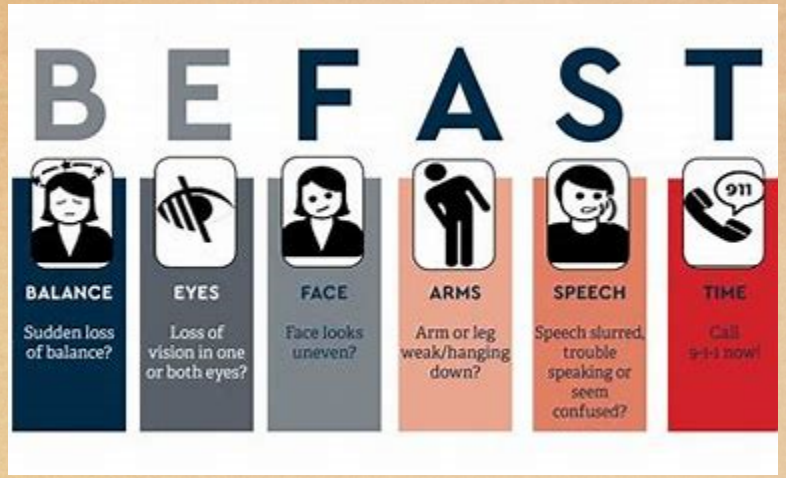
ADDITIONAL FINDINGS

- Asymptomatic – to – comatose
- Neck pain
- Crossed findings
  - Ipsilateral face + contralateral body
- Neck trauma – vertebral artery dissection
- CT may be negative – r/o bleed or LVO
- Finger to nose and/or heel to shin
- Droopy eyelid (Horner's syndrome)
- Higher brain function is preserved – frontal lobe



Stoke Management (8 D's)

- Detection
- Dispatch
- Delivery
- Door
- Data
- Decisions
- Drugs
- Disposition



Transport Decisions

- **Comprehensive Stroke Center**
  - Availability of advanced imaging techniques, including MRI/MRA, CTA,
  - Availability of personnel trained in vascular neurology, neurosurgery and endovascular procedures
  - 24/7 availability of personnel, imaging, operating room and endovascular facilities
  - ICU/neuroscience ICU facilities and capabilities
  - Experience and expertise treating patients with large ischemic strokes, intracerebral hemorrhage and subarachnoid hemorrhage

Transport Decisions

- **Primary Stroke Center**
  - Able to care for the acute stroke Patient through medical management.
  - Cannot perform surgery
  - Does not have Neurosurgery ICU

Transport Decisions

- **Acute Stroke Ready Hospital**
- A dedicated stroke-focused program
- Staffing by qualified medical professionals trained in stroke care
- A qualified practitioner assesses a suspected stroke patient within 15 minutes of arrival
- Diagnostic imaging and laboratory testing is done quickly to facilitate the administration of IV thrombolytics in eligible patients

Transport Decisions

The Joint Commission®

American Heart Association®

American Stroke Association®

STROKE CERTIFICATION

uchealth

DENVER HEALTH™
est. 1860
FOR LIFE'S JOURNEY

Centura Health®

Case Study # 1

Time of Call: 10PM

- Dizziness for 2 HRS
- A/O x 3
- BP: 190/110, HR: 80, RR:14
- No headache
- No facial droop
- Mild nausea
- No vision changes
- No speech changes
- Gait – unsteady prefers to sit down

63 y.o. male

- Additional history
  - HTN, ETOH abuse, Smoker
  - CPSS Screen results?
  - Can vertigo be the sole complaint in posterior circulation ischemia?
  - Hospital destination?

Case Study # 1

ED Presentations

- Prodromal Findings
- TIA's occurred in 50% patients two weeks prior
- Vertigo/Nausea (30%)
- Headache, Neck pain (20%)
- Dysarthria, Diplopia (10%)

Posterior Strokes

- Awaiting D/C from local ED
- Developed altered mental status with decreased gag reflex, intubated. VS worse
- Transferred to Stroke Center via aeromedical
- MRA brain – cerebellar arteries were occluded, IV tPA
- Transferred to rehab on coumadin

Case Study # 2

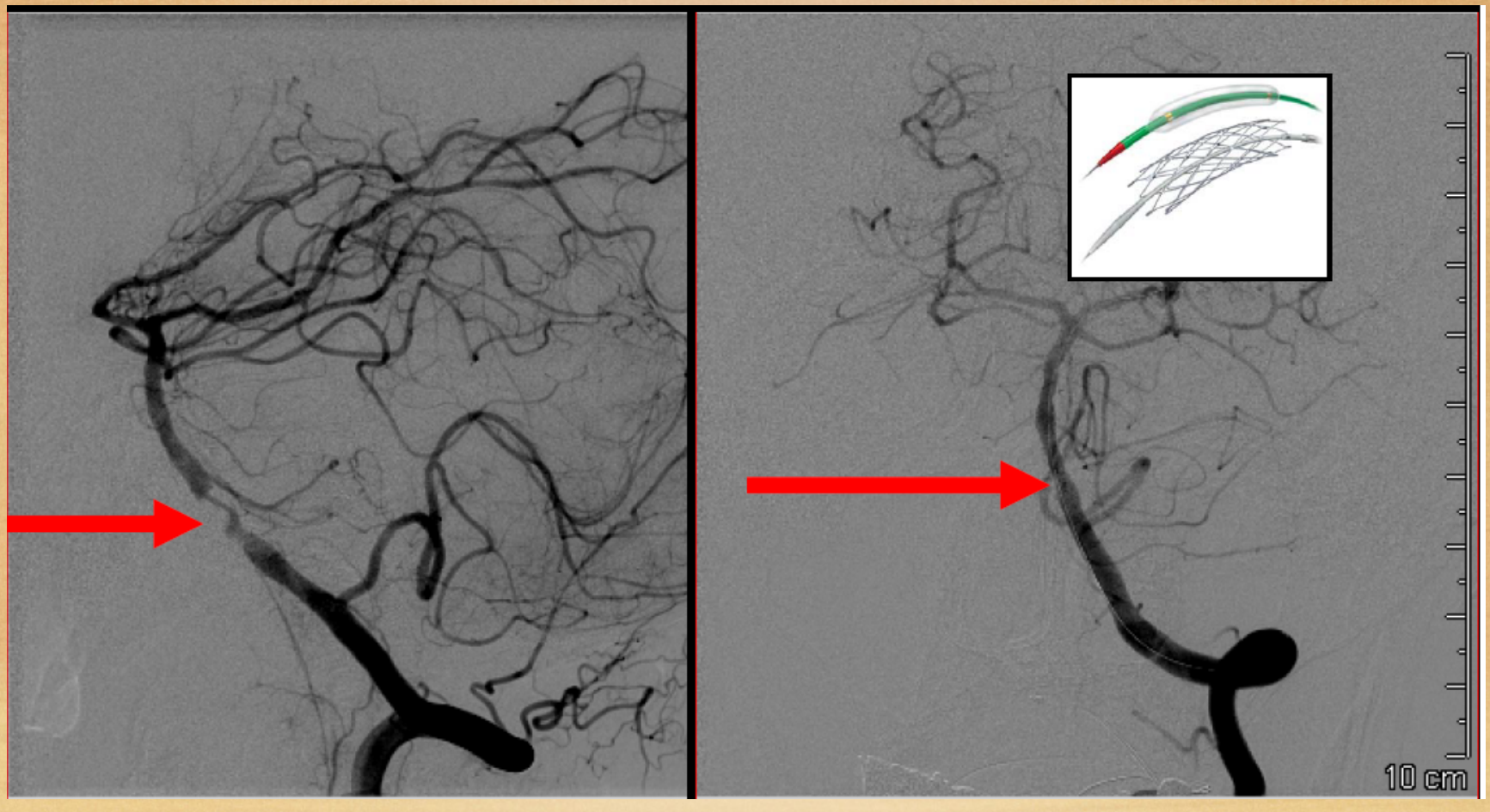
Time of Call: 3AM

- Generalized bilateral weakness with dizziness
- Dizziness worse when sitting up
- No facial droop
- No pronator drift
- Stumbled into stretcher
- Falling off cot (truncal ataxia)

74 y.o. female

- Additional history
  - Atrial Fibrillation, HTN, Hyperlipidemia, Smoker
  - HTN treated in ED, symptoms worsened, w/ pinpoint pupils???
  - Vertigo – Benign
  - Stroke - Serious

Case Study # 2



THANK YOU

- **If you have any questions or would like to see another lecture please contact me:**

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