



Radiology Pathology Conference

Bill Parkhurst, MD
Pallavi Galera, MD

Disclosure

- I have no financial interests other than UMass, unfortunately.

Case #1

- **80 year old male presented to the ED for multiple episodes of “head pressure” and dizziness with head movement.**

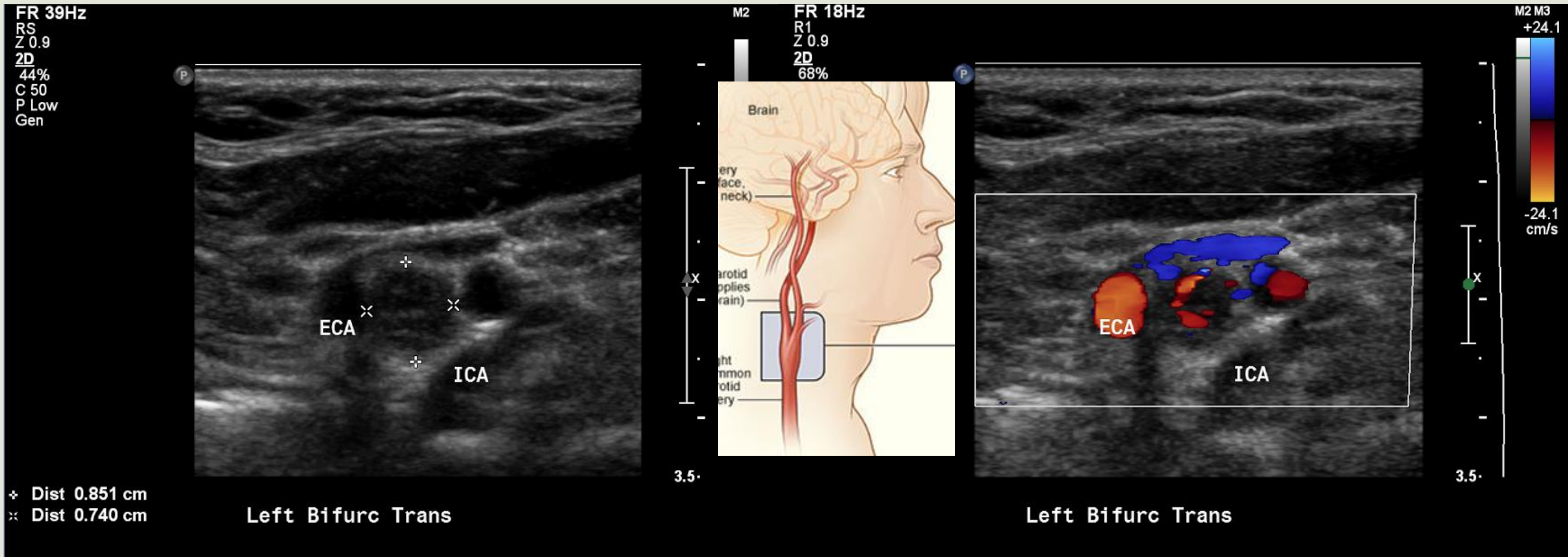


Carotid Body Tumor

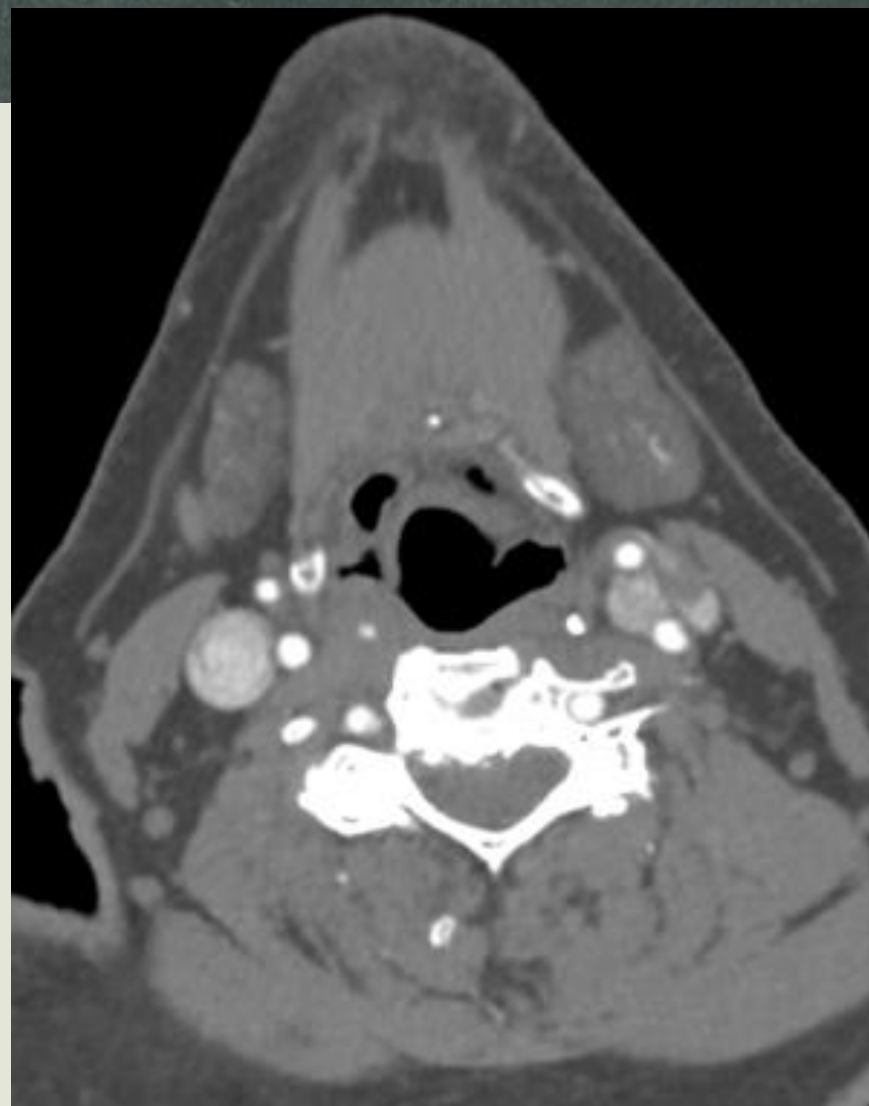
Differential Diagnosis

- **Carotid Space Schwannoma**
 - Associated with NF2
 - Fusiform enhancing mass in carotid space
 - Does not splay carotid bifurcation
 - May have intramural cysts
- **Carotid space neurofibroma**
 - Associated with NF1
 - Circumscribed mass in carotid space
 - Does not splay carotid bifurcation
- **Glomus vagale Paraganlioma**
 - Posterolateral high oropharyngeal mass
 - Centered higher, below the skull base
 - Does have high velocity flow voids
- **Carotid Artery Pseudoaneurysm**
 - History of Trauma, pulsatile mass
 - Complex carotid artery mass

US of neck



Key Images



Carotid Body Tumor

- **General Features**
 - **Vascular splaying of the ECA and ICA**
 - **Mass Centered in crux of carotid bifurcation**
 - **Typically Unilateral – 90-95%**
 - **Usually between 1-6 cm**
 - **Ovoid mass with broad lobular surface contour**
- **Circumferential contact of tumor to ICA predicts surgical classification**
 - **Type I: <180**
 - **Type II: >180 and <270**
 - **Type II: >270**

Carotid Body Tumor

- **CT findings:**
 - **NECT density similar to muscles**
 - **Avidly enhancing**
 - **Extends cephalad from carotid bifurcation**
 - **Rapid enhancement when compared to nerve sheath tumors**
- **MRI**
 - **Signal similar to muscle**
 - **Salt and pepper appearance – only in larger tumors and limited diagnostic value**
 - **Salt**
 - **High signal areas within tumor**
 - **Secondary to hemorrhage**
 - **Pepper – serpentine or punctate vascular channels (flow void)**
 - **Expected in tumors greater than 2 cm**

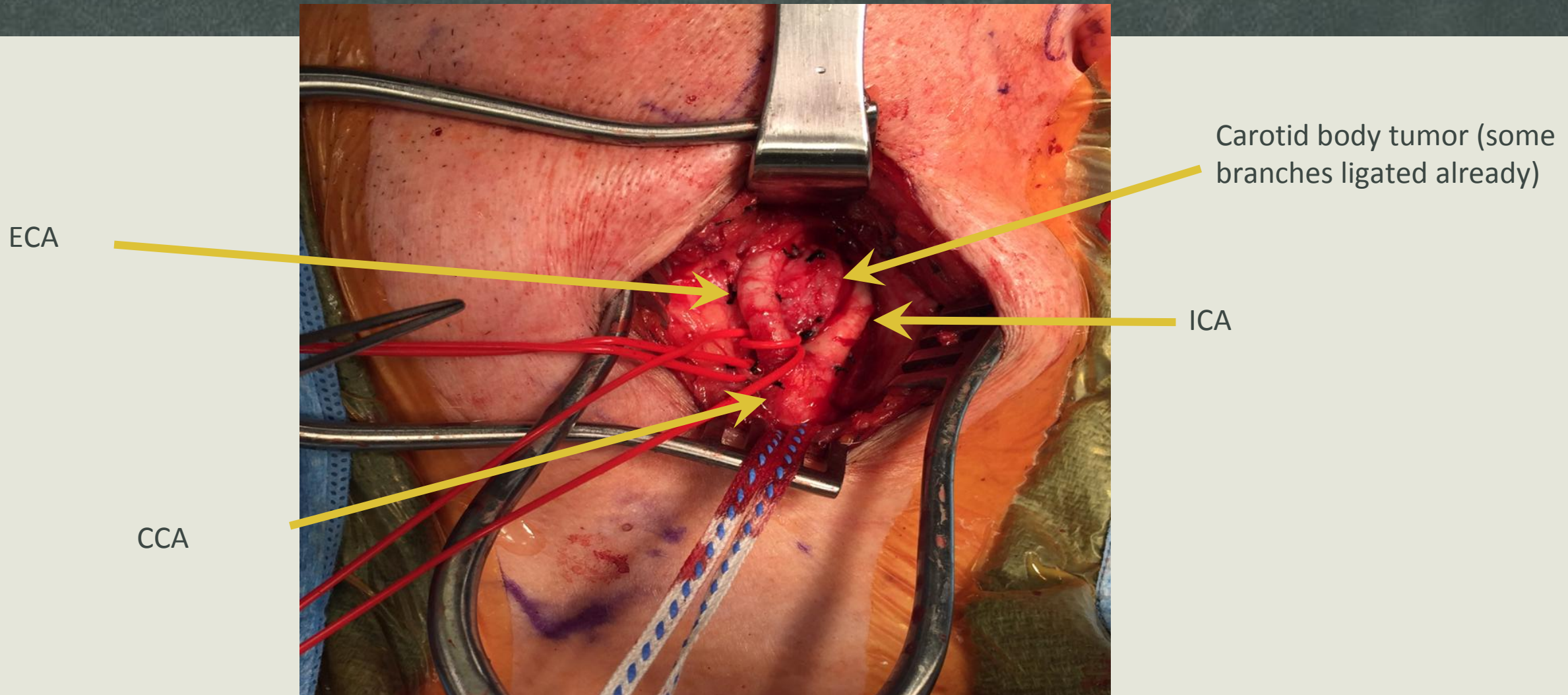
Carotid Body Tumor

- **Ultrasound**
 - **Hypoechoic**
 - **Extensive vascularity**
 - **Low resistance waveform**

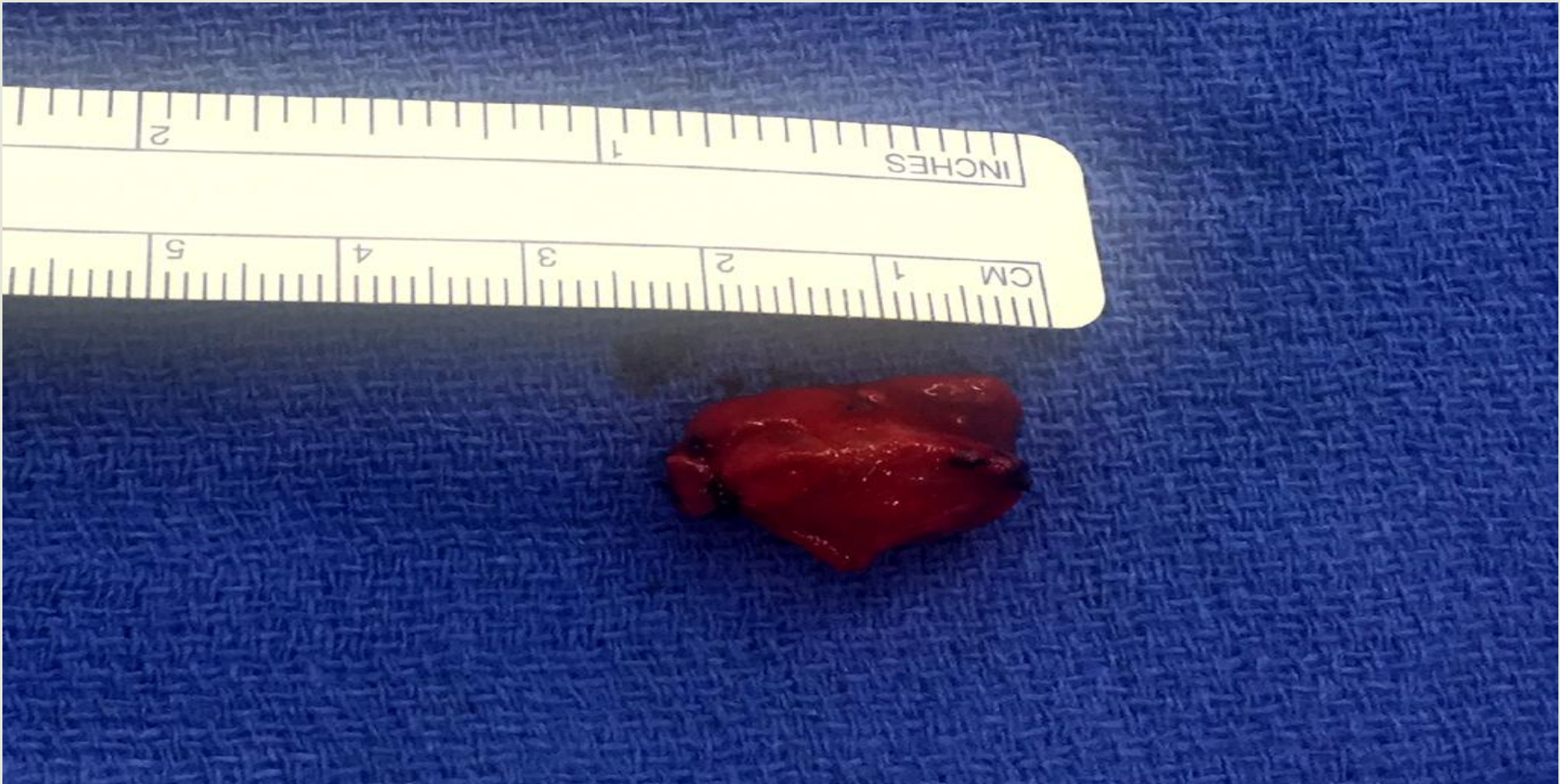


Pathology

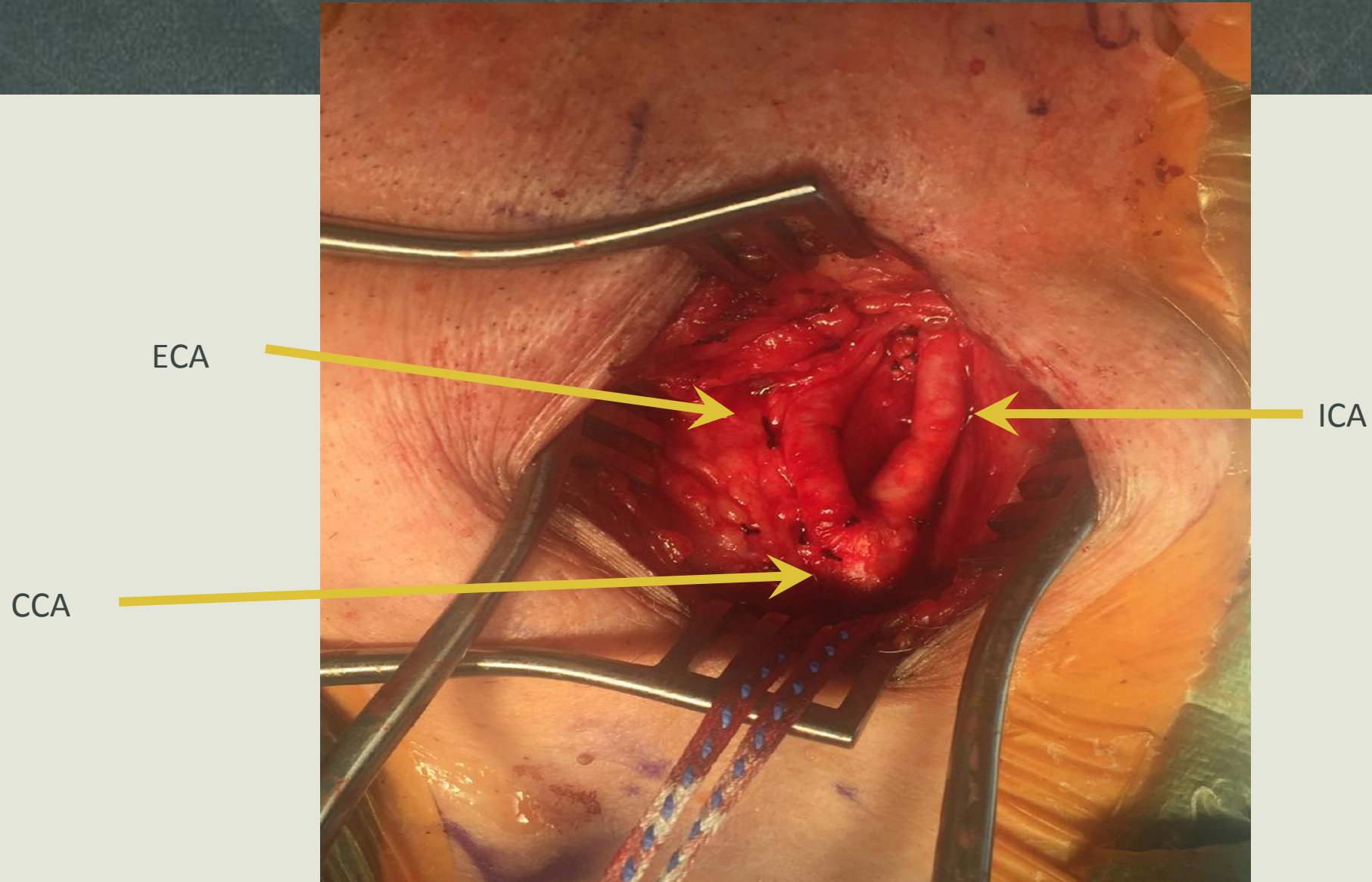
Carotid bifurcation before tumor removal.



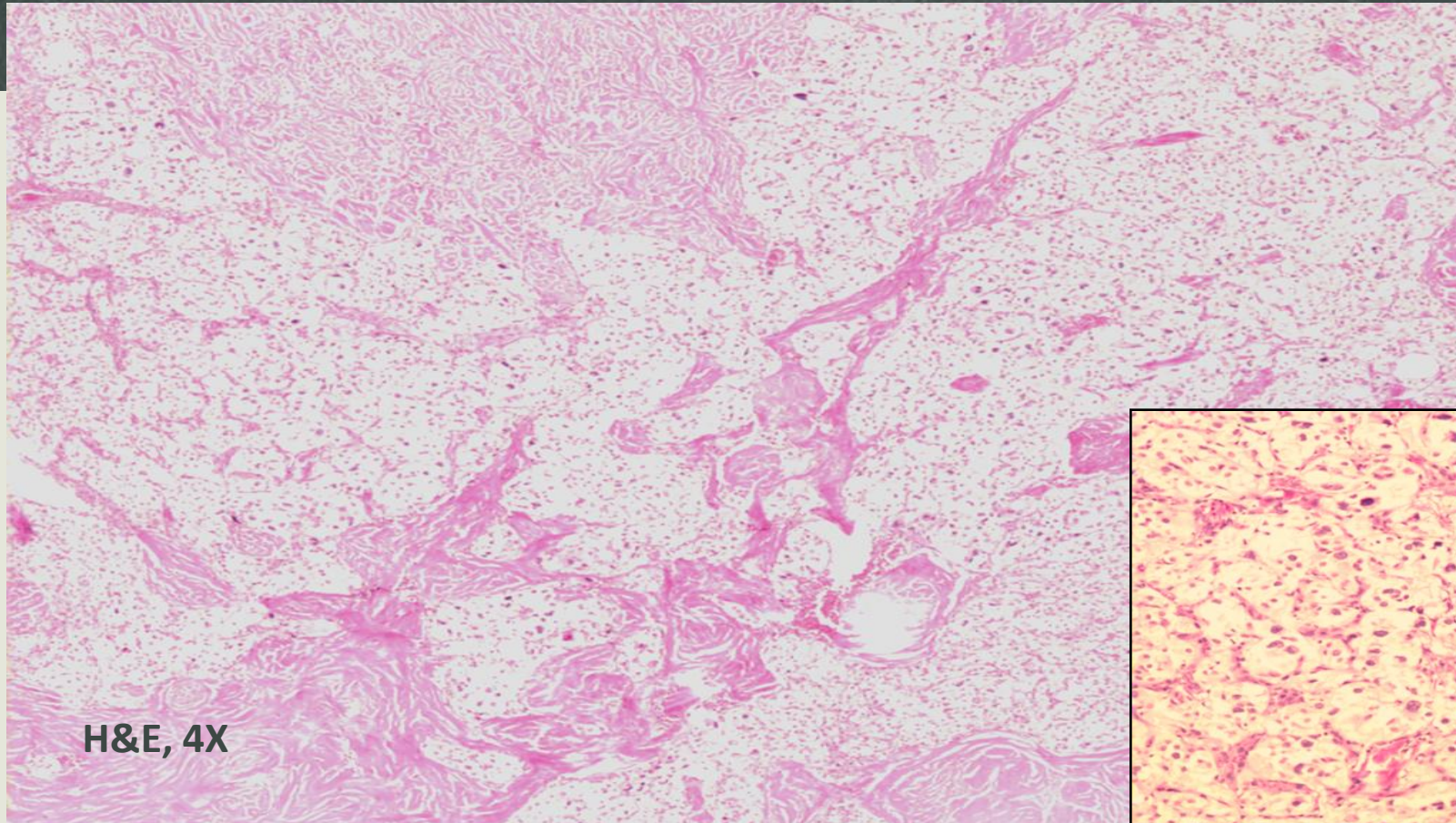
Tumor



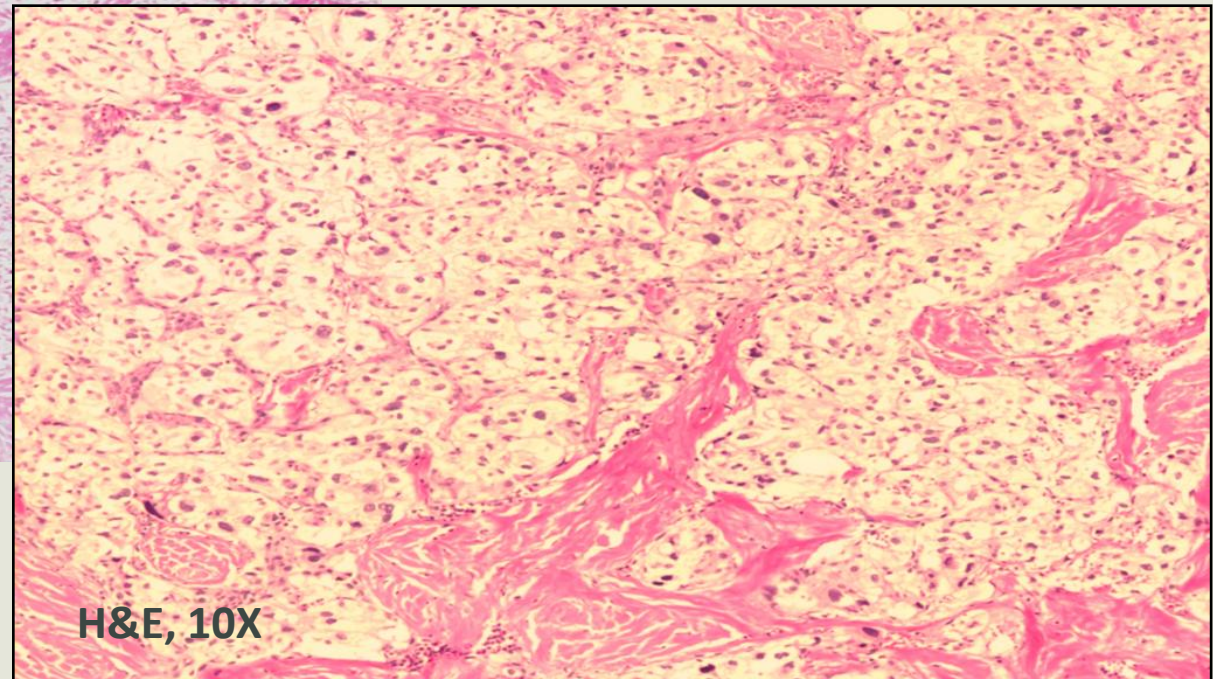
Carotid bifurcation after tumor removal



MICROSCOPY

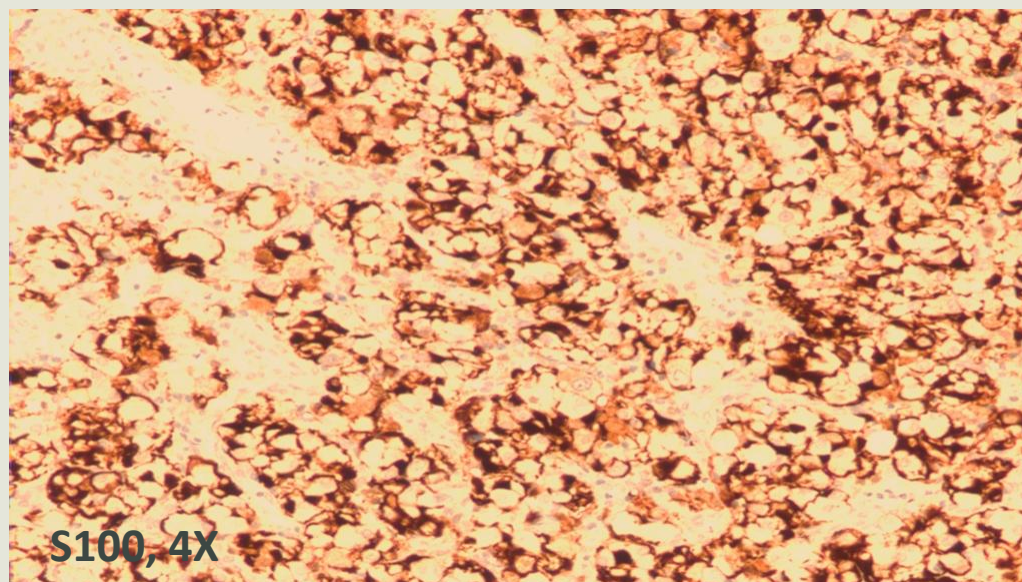
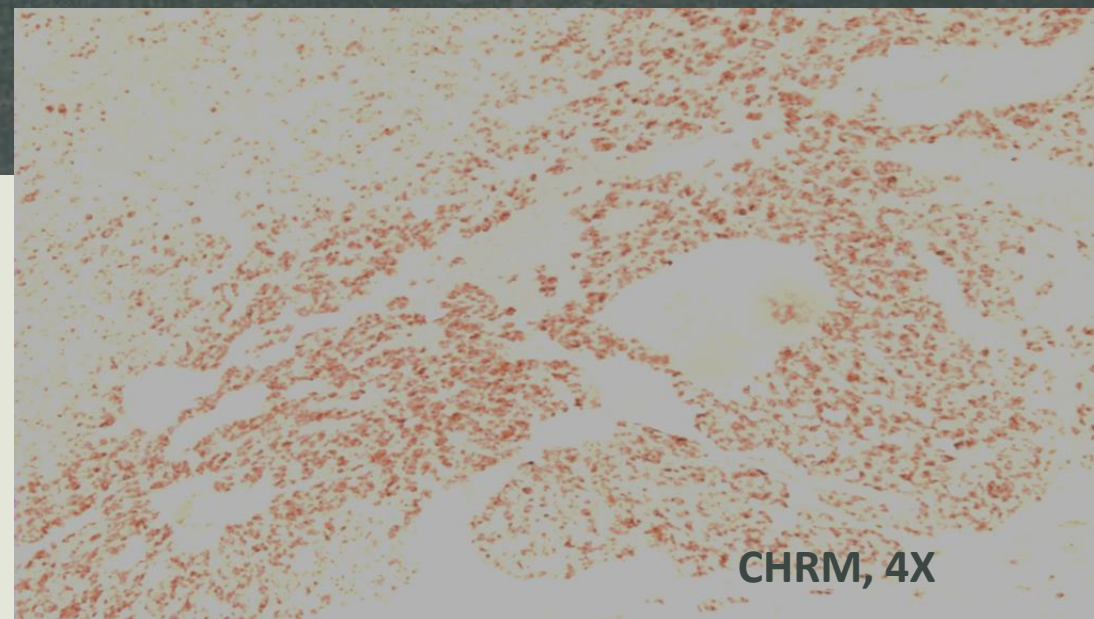
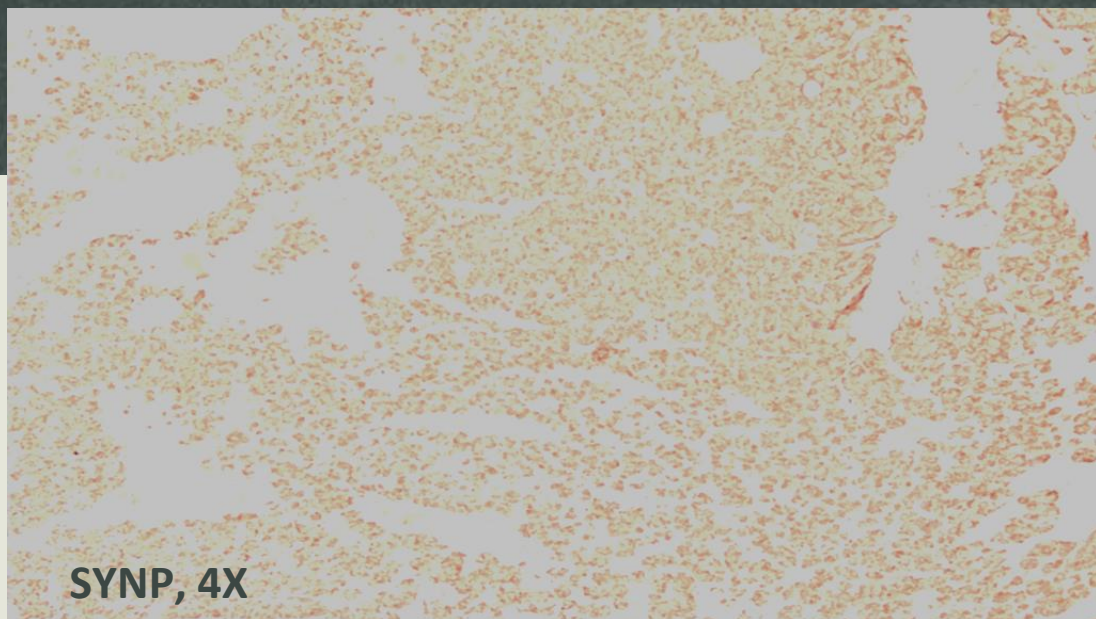


H&E, 4X



H&E, 10X

MICROSCOPY



DIAGNOSIS

- Left Carotid Body Tumor, Excision:
- Paraganglioma, completely excised
- Immunohistochemical studies
 - POSITIVE - Chromogranin A, Synaptophysin, S100 (sustentacular cells)
 - Negative - CK-AE1/AE3