Radiology Pathology Conference

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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 Paraganglioma**
  - 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
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.

Carotid body tumor (some branches ligated already)

ECA

CCA

ICA
Tumor
Carotid bifurcation after tumor removal

ECA

CCA

ICA
MICROSCOPY

H&E, 4X

H&E, 10X
DIAGNOSIS

- Left Carotid Body Tumor, Excision:
- Paraganglioma, completely excised

- Immunohistochemical studies
  - POSITIVE - Chromogranin A, Synaptophysin, S100 (sustentacular cells)
  - Negative - CK-AE1/AE3