Ocular melanoma; metastatic to Liver
A study in Radiology Pathology Correlation

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Case Presentation

- Pt was a 73 yo M with PMH of HTN and T2DM who presented to UVA Ophtho with concern for choroidal melanoma
- Examination confirmed the diagnosis
- CT Abdo/Pelvis showed 3 low attenuation lesions in liver concerning for metastasis
- Pt underwent enucleation of R eye
  - Path: MALIGNANT UVEAL MELANOMA, EPITHELIOID TYPE, 16 mm x 8 mm mass, noted involvement of sclera, choroid, ciliary body, iris and retina with + extrascleral extension
- MRI confirmed metastatic involvement of Liver
- Pt underwent U/S-guided biopsy of Liver lesions
Imaging of Liver Lesions

At least 3 subtle low attenuation lesions are appreciated in the liver
Imaging of Liver Lesions

There are multiple T1 hyperintense enhancing lesions scattered mostly in the right lobe consistent with metastasis.
U/S-guided biopsy of Liver lesions
Pathology Analysis
Future Directions

- Genomics studies of the biopsy sample still pending
- Pt will follow up with local Heme Onc group, starting on the first-line immunotherapy of Ipilimumab and Nivolumab
Imaging of Ocular Melanoma Metastasis

- Most common intraocular malignancy in adults
- < 1% have metastatic disease at time of Dx, many will develop
- 10-year rate is 34% - identified on avg 3 year after Dx
- Most frequent site of metastasis is the liver (90%), followed by the lung (30%), bone (23%) and skin (17%)
CT

- **Pros:** available, cheap, consistent quality
- **Cons:** radiation – insensitive to smaller Liver lesions

CT features: nonspecific; hypervascular lesions; hypodense and contrast-enhancing;
PET - CT

- **Pros:** FDG-avid lesions; can see LNs and bone and lung mets
- **Cons:** radiation – insensitive to smaller lesions (normal uptake – respiratory motion artifacts)

Both pictures from ref. 3
**Pros:** more specific – equally sensitive as CT

**Imaging features:** melanin bright on unenhanced T1 however predominance of T1 hypointense metastatic lesions

*Figure 6. T1 weighted pre-contrast image showing multiple metastatic lesions, very few of which are T1 bright. The T1 bright lesion as indicated by an arrow is in the right lobe. Most melanoma metastases are not bright on T1 weighted sequences.*

Picture from ref. 3
MRI – part 1

Other features of MRI imaging of ocular melanoma liver metastasis

- Hepatocyte-avid agents cause small lesions to stand out in delayed hepatobiliary phase
- Diffusion-weighted sequences are sensitive for melanoma mets; useful in severe kidney disease

Both pictures from ref. 3
1- Chapter 5 (Pathology of the liver, biliary system, and the exocrine pancreas) of the book: Atlas of Anatomic Pathology with Imaging A Correlative Diagnostic Companion
