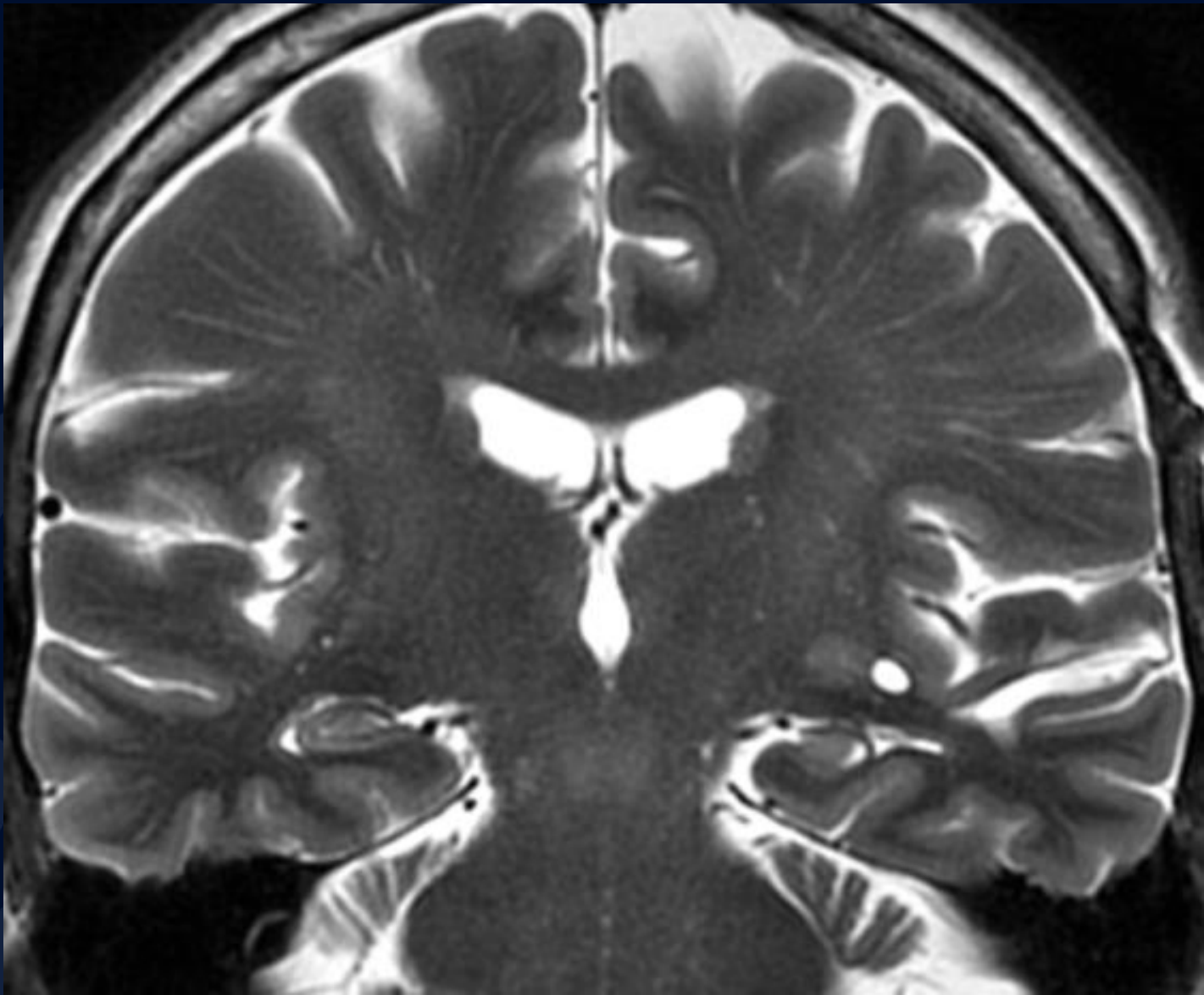


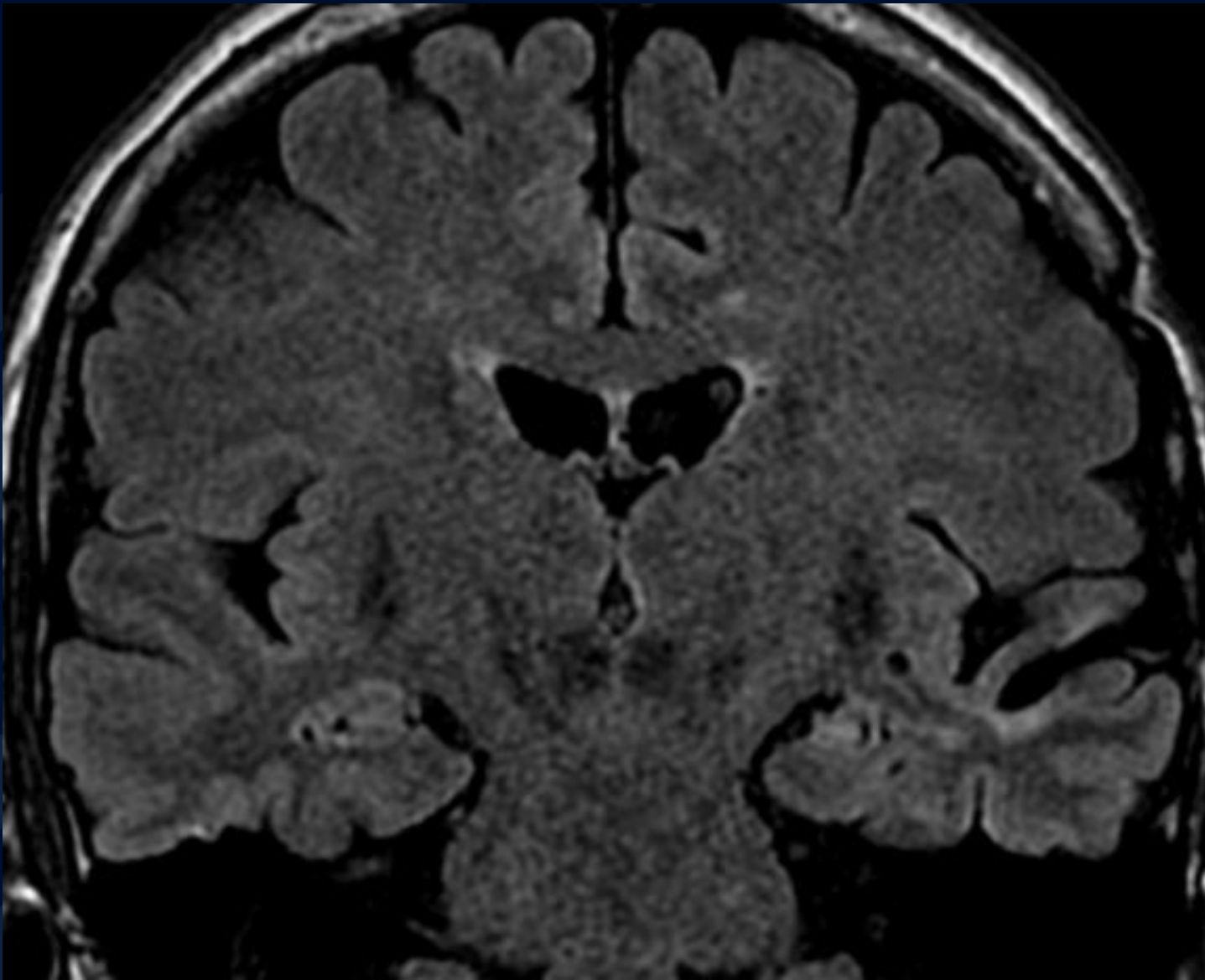
A large, stylized oak leaf graphic in a dark blue color, positioned on the left side of the slide. The leaf has a prominent central vein and several smaller veins branching off it. The leaf's edge is serrated.

# Seizures

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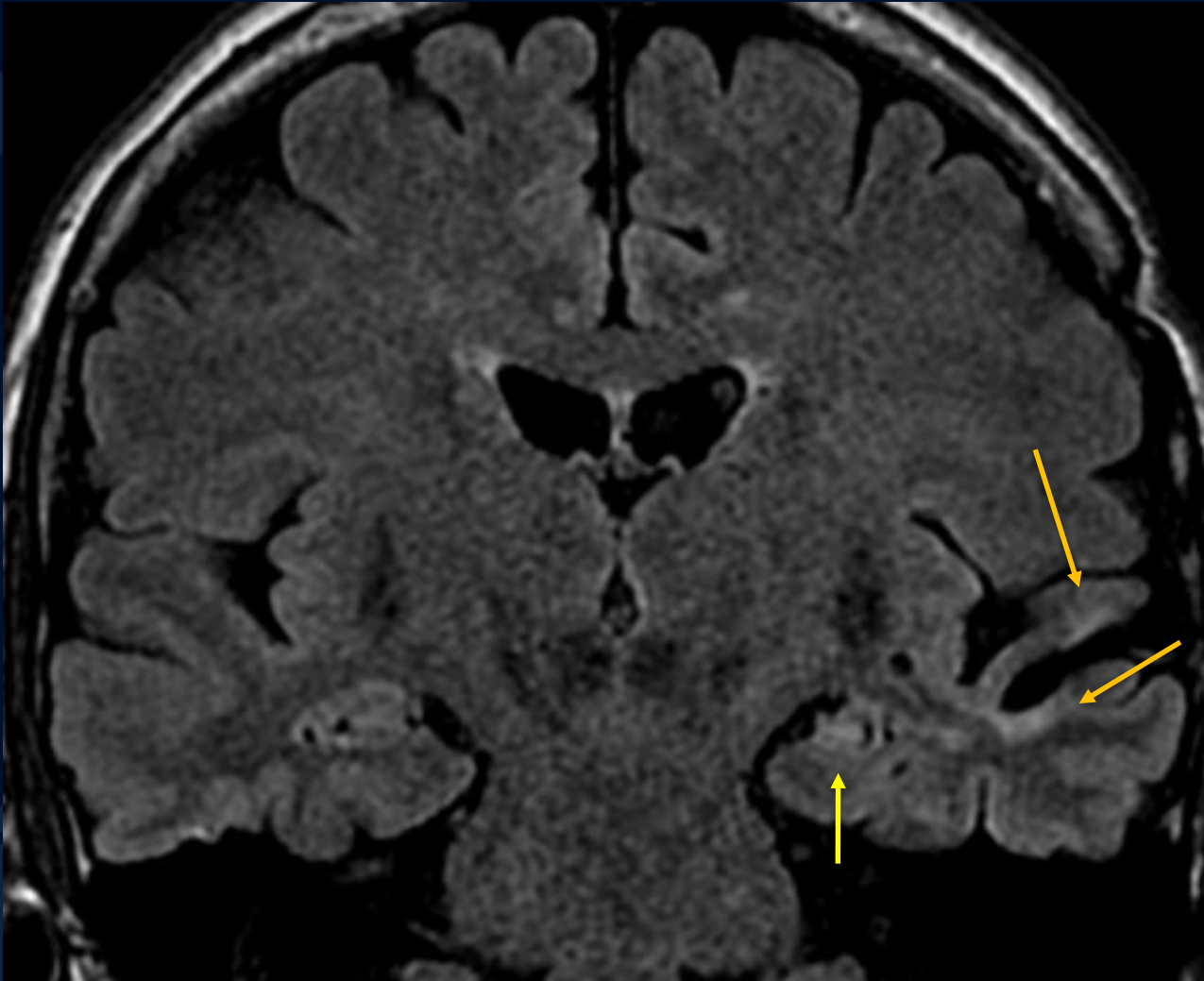


A large, stylized oak leaf graphic in a dark blue color, positioned on the left side of the slide. It features detailed vein patterns and a lobed edge.

?

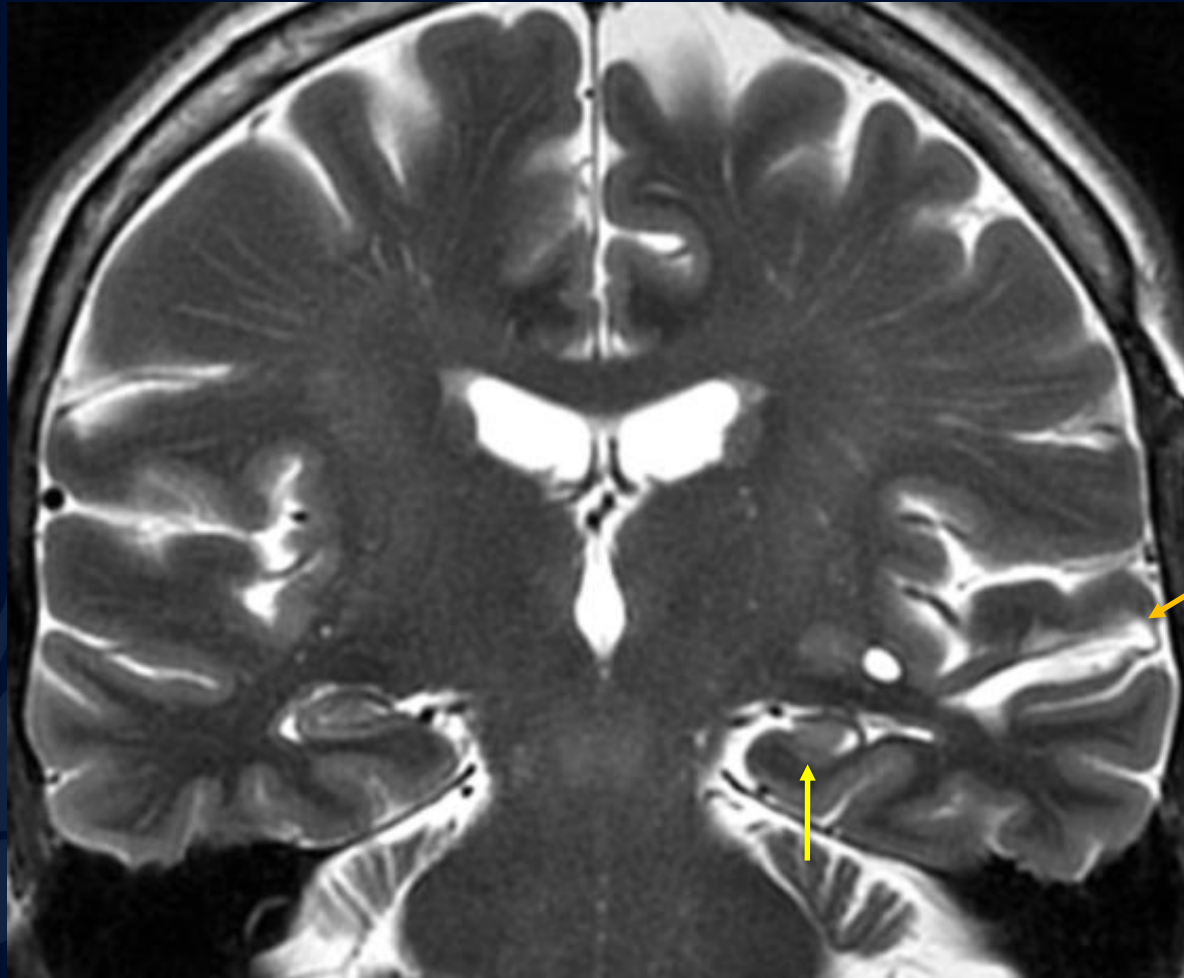
# Mesial Temporal (Hippocampal) Sclerosis (& temporal lobe encephalomalacia)

Hippocampal Atrophy (yellow arrow)  
Temporal lobe encephalomalacia (orange arrows)



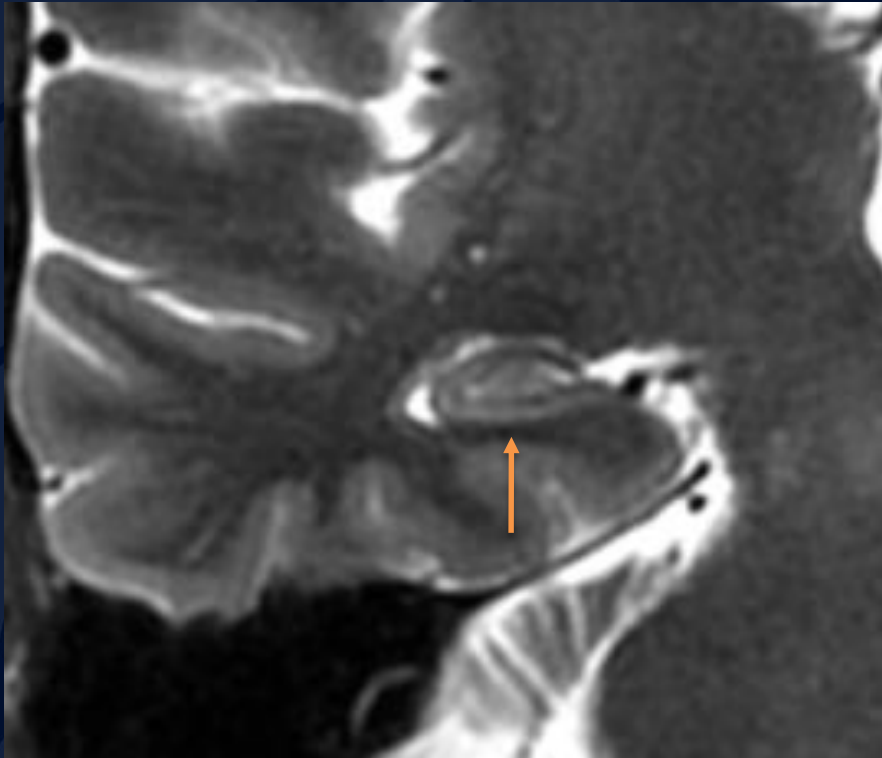
FLAIR MRI image, coronal

Hippocampal Atrophy with increased T2 signal (yellow arrow)  
Temporal lobe encephalomalacia (orange arrow)



T2-weighted MRI image, coronal

Hippocampal sclerosis with increased T2 signal and loss of gray-white tissue contrast of the left hippocampus (yellow arrow) as opposed to right hippocampus where gray-white lamina are preserved (orange arrow)



T2-weighted merged MRI image, coronal



# Mesial Temporal Sclerosis

- Presentation:
  - Intractable temporal lobe epilepsy.
- Etiology:
  - Does mesial temporal sclerosis cause temporal lobe epilepsy or vice versa?
  - Theory that hippocampal sclerosis is both cause & result of Sz, being damaged by Sz (excitotoxic) & becomes an amplifier, eventually the cause of seizures

# Mesial Temporal Sclerosis

- MRI (modality of choice):
  - Dedicated temporal lobe epilepsy protocol needs to be performed to achieve good sensitivity & specificity.
  - Thin section coronals preferably angled perpendicular to the hippocampal long axis to minimize volume averaging.
- MRI Findings:
  - Reduced hippocampal volume; hippocampal atrophy
  - Increased T2 signal
  - Loss of internal architecture/abnormal morphology of the hippocampus
  - Look for second seizure focus,  
e.g. cortical migration disorder  
hemosiderin, or encephalomalacia

# Mesial Temporal Sclerosis

- MRI findings associated with severe or long-standing disease:
  - Atrophy of the ipsilateral fornix and mammillary body.
  - Atrophy of the cingulate gyrus.
  - Dilation of the temporal horn of the lateral ventricle.
  - Temporal lobe atrophy.
  - Increased signal and/or reduction in the volume of the amygdala.
  - Thalamic and caudate atrophy.
  - Limbic lobe: Papez circuit

# Mesial Temporal Sclerosis

- Treatment:
  - Anti-epileptic medical therapies.
  - Temporal lobectomy or selective (hippocampectomy, amygdalohippocampectomy) in patients who fail medical management.
  - Anterior temporal lobectomy successful in 75-90% of patients with mesial temporal sclerosis.

# References:

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2. Ko DY, Sahai-Srivastava S. Temporal Lobe Epilepsy. eMedicine website. Last updated: December 22, 2017. Accessed April 16, 2018.
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4. King D, Baltuch GH. Magnetic resonance imaging and temporal lobe epilepsy. *Acta Neurol Scand*. 1998; 98(4): 217-223.
5. Chan S, Erikson JK, Yoon SS. Limbic system abnormalities associated with mesial temporal sclerosis; a model of chronic cerebral changes due to seizures. *Radiographics*. 1997; 17(5): 1095-1110.