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Muslin granuloma mimicking parenchymal hematoma in a patient with seizures 30 years after aneurysm wrapping

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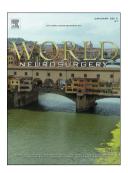
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**Title**: Muslin granuloma mimicking parenchymal hematoma in a patient with seizures 30 years after aneurysm wrapping

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**Abbreviations:** CT= Computed Tomography, MRI = Magnetic Resonance Imaging

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#### Case:

An 82-year-old woman was emergently transported to the Emergency Department (ED) of a tertiary-care institution for a witnessed convulsive seizure and fall. No prior imaging or history was available at the time of initial evaluation. Upon evaluation in the ED, she was confused and somnolent, but arousable. She had no focal neurologic deficits. Her vital signs were only notable for mild tachycardia. While undergoing evaluation in the ED, she had another witnessed convulsive seizure which was terminated after the intravenous administration of 5mg lorazepam. Postictally, she had a left facial droop and mild left pronator drift, raising concern for an acute stroke. An acute stroke alert was initiated, and she was transported to the ED CT scanner for a CT angiogram of the head and neck to rule out an intracranial large vessel occlusion. Immediately after the CT scan, she had another convulsive seizure without a return to her mental baseline. She was intubated for airway protection and started on antiseizure medications.

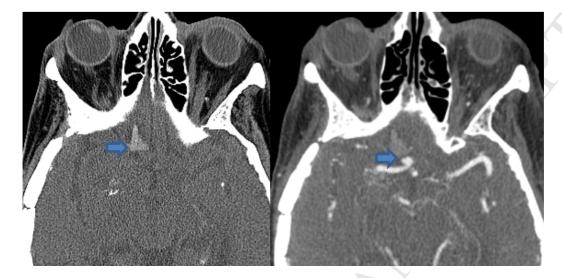
On the CT, there was a 13mm hyperdense intraparenchymal mass with mild surrounding vasogenic edema within the right anterobasal frontal lobe (see Figure 1), immediately adjacent to a broad-based 4mm anterior communicating artery aneurysm (AComm). The constellation of findings was concerning for early rupture of an AComm aneurysm, with a small acute intraparenchymal hematoma. She was taken emergently to the hybrid angiography suite-operating room, where the aneurysm was coiled successfully. Later during the hospital stay, her family brought in hospital records and images showing that she had muslin wrapping of her AComm aneurysm 30 years ago, with stable size and configuration of the right inferior frontal intraparenchymal mass for several years. Imaging findings on CT and MRI combined with the stability of the lesion over several years was consistent with the diagnosis of a muslin granuloma.

## **Discussion:**

Muslin foreign body granulomas are a known complication of muslin aneurysm wrapping, and have been associated with vision loss from optochiasmatic arachnoiditis [1,2]. In some instances, the inflammatory reaction surrounding the granuloma may be confused for an abscess as a result of ring-enhancement and/or edema [3,4]. Our case is unique and unusual because the imaging appearance of a hyperdense mass adjacent to an AComm aneurysm were highly suggestive of a ruptured aneurysm with an intraparenchymal hematoma, triggering the ruptured aneurysm pathway. In the absence of prior imaging, muslin granulomas can occasionally be mistaken for intraparenchymal hemorrhage. Careful comparison with prior imaging and knowledge of prior history of aneurysm wrapping can help distinguish a new hematoma from a foreign body granuloma.

# Figures:

# Figure 1:



The first image in figure 1 is a noncontrast CT showing a 13mm hyperdense intraparenchymal mass in the right anterobasal frontal lobe (blue arrow), with minimal surrounding low signal. The second image is a concurrently performed CT angiogram of the head, showing a 4mm anterior communicating artery aneurysm (blue arrow) adjacent to the hyperdense mass. These constellation of findings were interpreted by the neuroradiologist as concerning for early rupture of an AComm aneurysm, with a small adjacent intraparenchymal hematoma.

# Figure 2:



The first image in Figure 2 is a shaded 3D surface display reconstructed from the intraoperative conventional angiogram showing the 4mm AComm aneurysm (arrow). The second image is an intraoperative control angiogram showing interval coil embolization the AComm aneurysm (arrow), with no significant residual filling.

### **References:**

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# **Highlights:**

- Muslin wrapped aneurysms can convincingly mimic parenchymal hematomas on rare occasions
- Careful comparison with prior imaging and knowledge of aneurysm wrapping can suggest this diagnosis
- In the absence of prior imaging/history, a patient with acute neurologic symptoms and a hyperdense mass adjacent to an aneurysm should be presumed to have a ruptured aneurysm until proven otherwise