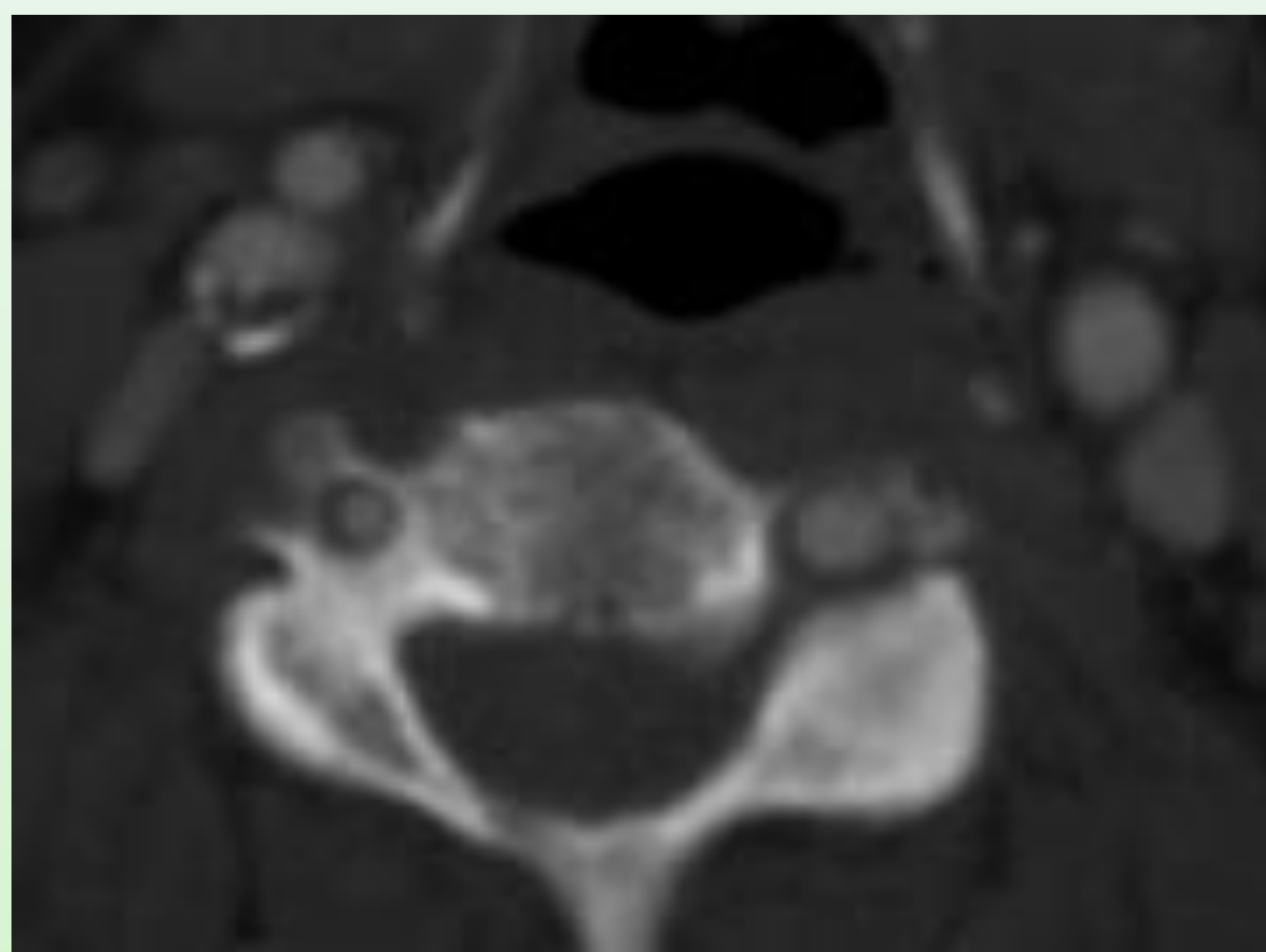


# Internal Carotid Artery Intramural Hematoma

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## BACKGROUND

52 year old female with history of Factor V Leiden, on Xarelto for history of pulmonary embolism, who initially presented status post fall from standing without reported loss of consciousness. The fall was suspicious of a syncopal episode from orthostasis due to polypharmacy. The patient had fallen on her right-side, striking her head and neck on a coffee table. She presented to the hospital with reports of persistent right-sided weakness and discomfort, without evidence of nausea, vomiting, or incontinence. She was subsequently assessed for stability and transfer to a facility with higher level care.



Axial (left) and Sagittal (right) images at the level of the carotid bifurcation suggest disruption of the vaso vasorum with calcification along the wall and more centrally within the lumen of the right internal carotid artery.

## IMAGING

Initial CT head and C-spine demonstrated no acute intraparenchymal hemorrhage or large vascular territorial infarct. No abnormal extra-axial fluid collection, mass effect, or midline shift. The grey-white matter differentiation was unremarkable. The calvarium was intact and no air-fluid levels seen within the sinuses. CT cervical spine showed no acute fracture or subluxation. Mild subcutaneous edema of the right neck was noted. Subsequent CT examination angiography of the neck demonstrated suggestive findings of intramural hematoma at the origin of the ICA and extending caudad approximately 1.3cm and measuring 0.5cm in depth with wall calcifications noted along outer and inner posterior lumen.

## DISCUSSION

The Internal Carotid Artery (ICA) branches posteriorly to the External Carotid Artery from the bifurcation of the Common Carotid Artery. The ICA enters the skull through the carotid canal where it undergoes a series of 90 degree turns and will terminate as the middle and anterior cerebral arteries. Intramural hematomas occur when there is disruption of the vessel intima, leading to a separation of the vessel wall layers, and extravasation of blood between them. Blood may accumulate between the intima and media and form a closed pocket or hematoma within the vessel. This can be due to trauma, dissection, or poor perfusion by the vaso vasorum which supply the blood vessel itself. Dissections occur when the intima is damaged and a continuous channel forms allowing open communication between the true lumen and a false lumen. Dissections may expand with further intimal separation as pressure from continued blood flow further divide the intima and media. Both intramural hematomas and dissections introduce risk for vessel occlusion or vessel rupture. Imaging to diagnose intramural hematomas include Doppler ultrasound and CT angiography.

Intramural Hematomas may be treated with endovascular surgery if the patient is symptomatic, however, it is expected for the hematoma to resorb over time, thus no treatment may be necessary. In patients with acute ICA trauma, it may be necessary for prompt endovascular repair or stenting depending on the severity of vascular damage. ICA dissection is a common cause of stroke in young patients. Dissection also cause lead to formation of intramural hematoma and is a frequent cause of mass effect and cranial nerve palsies. Additional symptoms may include, hemiplegia, visual acuity loss, or Horner's syndrome from mass effect or decreased or occlusion of blood flow from the intramural aneurysm.

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