cally increased pelvic I-131 activity, as in the current case, underscores the utility of SPECT/CT for precise localization, the importance of retaining a broad differential diagnosis and the need to pursue histologic correlation for definitive diagnosis.

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### Disclosure of Financial Interests

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# Stroke Salvage Using a Suction Thrombectomy Device and Tissue Plasminogen Activator


***Chad Thompson, MD, Timothy Murphy, MD, and Chris Hampson, MD***


**A 68-year-old female who presented to** the emergency department 45 minutes after the witnessed onset of slurred speech and right- sided weakness. On physical exam, she was unable to repeat her name, read, or follow commands. She had a left gaze preference and flaccid right upper and lower extremities. Her NIH Stroke Scale Score was 20. A non-contrast CT scan of the head showed a "dense" left middle cerebral artery sign indicative of acute thrombus.[1] She was immediately brought to the Interventional Radiology department for cerebral angiography and possible acute stroke intervention. Arterial access was achieved at 1.5 hours after onset of symptoms. After endovascular stroke intervention, the patient was discharged three days later with 4/5 right upper extremity strength, 3/5 right lower extremity strength and a mild residual

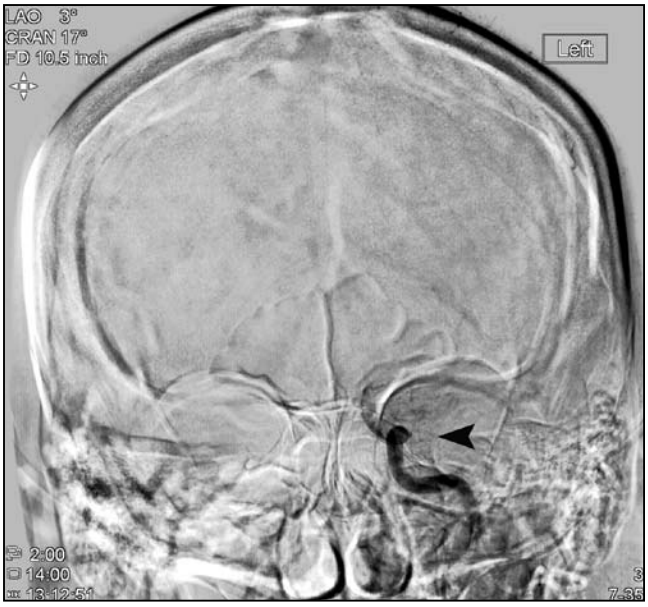


Figure 1. Left internal carotid artery (ICA) angiogram shows stasis of contrast and an extensive filling defect (arrowhead) within the left ICA consistent with acute clot.


Figure 2. Left internal carotid artery angiogram after suction thrombectomy of the ICA and left middle cerebral artery (MCA) with the Penumbra catheter (arrow). Flow is re-established within the left ICA and proximal middle cerebral artery with residual clot in the distal M1 segment of the MCA causing a cutoff appearance of the vessel.


Figure 3. Flow is reestablished within the left MCA after infusion of tPa. There is some residual clot indicated by filling defects (arrowhead) that resolved after continued thrombolytic infusion.

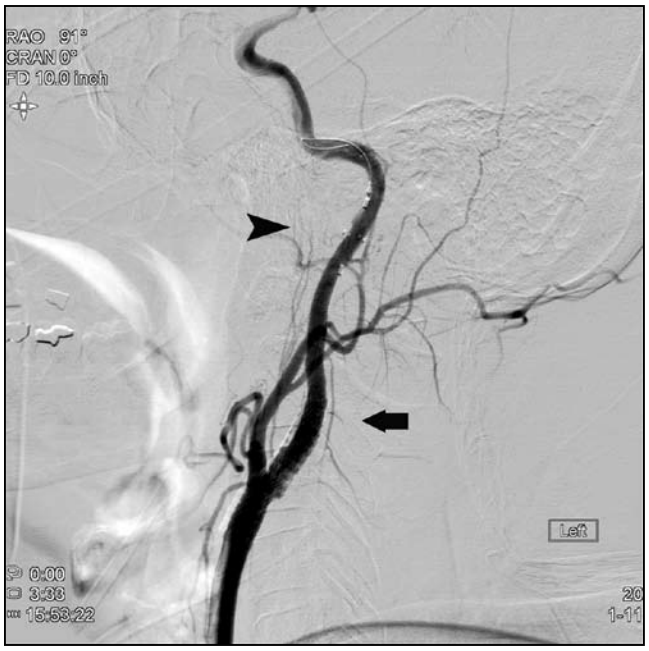


Figure 5. Successful deployment of a self-expanding stent (arrow) utilizing a distal protection device to preclude distal embolization of atheroma (arrowhead).

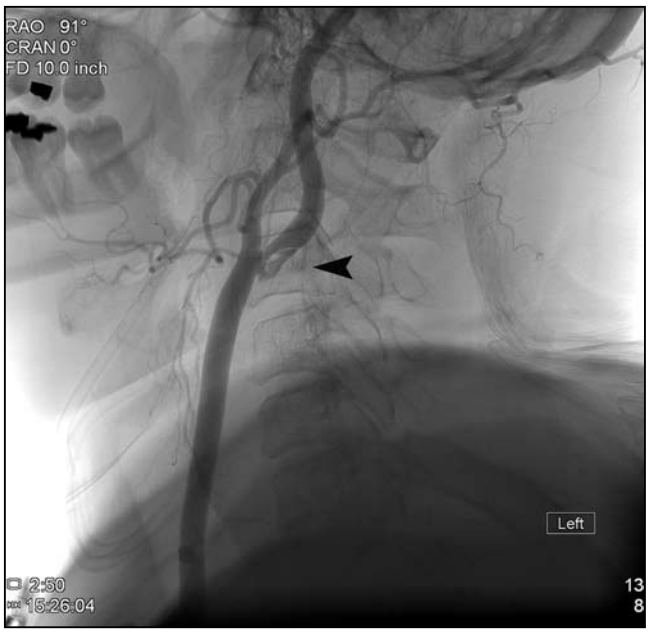


Figure 4. Abnormal appearance of the proximal left ICA consistent with ruptured atherosclerotic plaque (arrowhead).

expressive aphasia. She will undergo rehabilitation and be seen in follow-up at three months. A modified Rankin score of 3 or less (after rehabilitation) is expected.

Her angiogram showed acute clot extending from the proximal internal carotid artery to the proximal left middle cerebral artery (Figure 1). Mechanical thrombectomy of the left internal carotid artery and proximal M1 segment of the middle cerebral artery was performed using the Penumbra suction thrombectomy device (Figure 2). This was followed by infusion of tPA into the distal left middle cerebral artery to lyse residual clot (Figure 3). In this way, flow was re-established to the left cerebral hemisphere. Upon completion angiography following left ICA and MCA thrombectomy and thrombolysis, a ruptured proximal left ICA atherosclerotic plaque (thought to be the cause of the embolus) was discovered (Figure 4) and successfully treated with a self-expanding metallic stent (Figure 5).

The goal of stroke intervention is to minimize tissue infarction by quickly restoring blood flow to ischemic brain tissue. This patient had a very high pre-treatment morbidity and mortality given the proximal location and extent of the thrombus.[1] If treated with intravenous tPa alone, the current standard of care, one would expect a 70% chance of failure in recanalizing such a large vessel occlusion.[1-3] Endovascular stroke intervention is employed at our institution in patients with large vessel occlusions who meet defined inclusion criteria to increase the rate of recanalization above that expected with IV tPa alone, in an attempt to improve long term clinical outcomes. The mainstay of endovascular stroke intervention is infusion of intra-arterial thrombolytic agent directly into the thrombus.[4] Mechanical thrombectomy devices are increasingly being utilized in addition to or as an adjunct to infusion of thrombolytic agents.[5] Carotid and cerebral artery stent placement is also utilized when appropriate. All of these methods were employed successfully to recanalize this patients occluded vessels and resulted in an excellent clinical outcome.

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# Atypical Insufficiency Type Femoral Stress Fractures in Patient on Bisphosphonates

***Peter T. Evangelista, MD, and Scott M. Levine, MD***

**An 86 year-old woman with history of** inflammatory breast cancer and osteoporosis presented with progressive right leg weakness and discomfort. Her medication regimen included monthly Zometa (zoledronate) infusion. She was not on corticosteroids.

The patient underwent a right thigh MR imaging examination which demonstrated an incomplete mid femoral diaphyseal insufficiency-type stress fracture with lateral cortical thickening and triangular ridging (cortical beaking), incomplete transverse fracture line and associated periosteal and endosteal marrow edema (Figure 1). Six days later on her way to her orthopedic appointment her leg gave out and she fell from standing. Radiographs at that time (Figure 2) demonstrated a complete transverse lateral to oblique medial femoral diaphyseal fracture at the site of the insufficiency-type stress fracture. This was treated with intramedullary nailing. Radiographs of the left femur (Figure 3) were obtained two weeks later and demonstrated a focal area of lateral cortical thickening in the proximal femoral diaphysis suspicious for stress reaction. The patient subsequently underwent prophylactic nailing of the left femur.

Figure 1. Coronal STIR image of the right thigh demonstrates incomplete right mid femoral diaphyseal insufficiency type stress fracture with lateral cortical thickening and triangular ridging (black arrow), incomplete transverse fracture line (white arrow) and periosteal and endosteal marrow edema (arrowheads).

Figure 2. Radiograph of the right proximal femur demonstrates a complete transverse lateral to oblique medial femoral diaphyseal fracture (arrow).

## Discussion

Osteoporotic fractures are typically low in energy and involve the wrist, proximal humerus or tibia, pelvis, and hip; they do not typically occur in the subtrochanteric or proximal femoral diaphyseal region as this area requires the application of considerable force to fracture.[1] There have been several case reports describing patients who develop fractures of the subtrochanteric or diaphyseal region