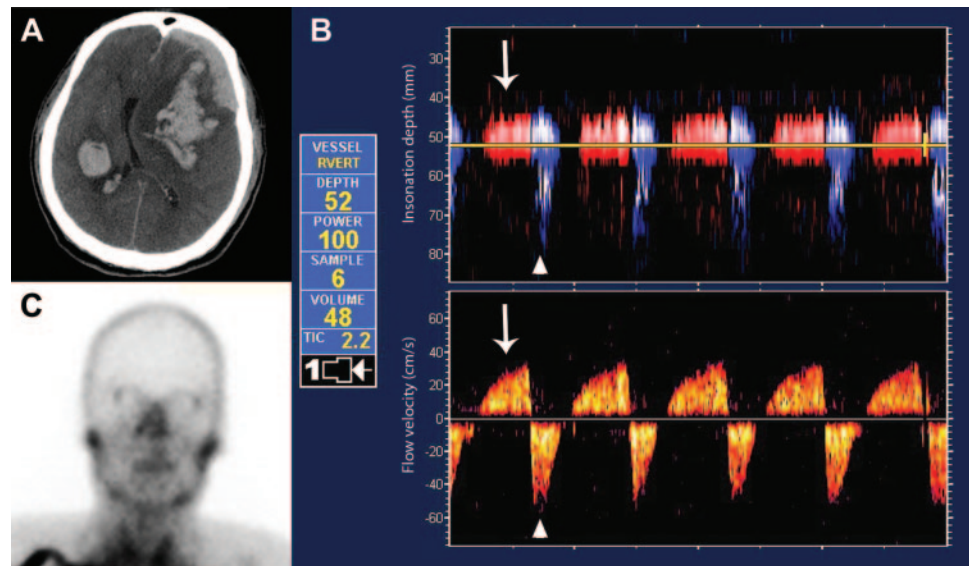


Teaching NeuroImages: Reverberating TCD flow pattern in brain death

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Figure CT, transcranial Doppler (TCD), and SPECT findings



(A) Noncontrast head CT. (B) Multi-depth TCD power-motion mode (upper panel) and single-depth spectral analysis (lower panel) show reverberating flow in the right vertebral artery characterized by brief forward flow in systole (long arrow) followed by abrupt flow reversal in diastole (short arrow). (C) Brain scintigraphy reveals absent intracranial flow.

A 70-year-old man presented after being found unresponsive at home. Emergent head CT showed bilateral intracranial hemorrhages causing significant mass effect (figure, A). Neurologic examination demonstrated absent brainstem reflexes and no response to noxious stimulation. Apnea testing could not be completed due to hemodynamic instability. Transcranial Doppler (TCD) indicated absent flow in the middle cerebral arteries and reverberating flow in bilateral vertebral arteries suggesting massively increased intracranial pressure and probable cerebral circulatory arrest (figure, B).¹

^{99m}TcTechnetium-HMPAO nuclear perfusion scan illustrated absent intracranial flow (“hollow skull sign”) with preserved tracer uptake in the nasopharynx (“hot nose sign”) consistent with brain death (figure, C).²

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Neurology 2012;79:e79

DOI 10.1212/WNL.0b013e318266fc89

This information is current as of August 27, 2012

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