## Susceptibility vessel sign

Blood goes through sequential stages of degradation from oxyhemoglobin to deoxyhemoglobin, methemoglobin, and then hemosiderin, which can each be identified using MRI. In contrast to oxyhemoglobin, the presence of unpaired electrons in deoxyhemoglobin, methemoglobin, and hemosiderin gives them paramagnetic properties, which produce an inhomogeneity in magnetic fields.

This property of paramagnetic molecules is termed the magnetic susceptibility effect and causes signal loss on MRI, which is best detected using T2 -weighted gradient echo imaging.

Intraluminal clots evolve in stages similar to parenchymal hematomas.

Thus, red thrombi in occlusive vessels may be seen as hypointense signals within vascular cisterns on GRE because of the paramagnetic property of deoxygenated hemoglobin components in trapped red blood cells.

This radiological finding is the susceptibility vessel sign <sup>1)</sup>.

The extent of SVS width beyond the lumen might reflect the content of hemosiderin. An extreme overestimation ratio might indicate aged thrombus, which may be resistant to thrombolysis.

1)

Cho KH, Kim JS, Kwon SU, Cho AH, Kang DW. Significance of susceptibility vessel sign on T2\*-weighted gradient echo imaging for identification of stroke subtypes. Stroke. 2005 Nov;36(11):2379–2383.

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