




## Images in Rheumatology

# Black-blood Magnetic Resonance Imaging in Giant Cell Arteritis

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Giant cell arteritis (GCA) affects large extracranial supraaortic arteries. Ischemic stroke is a presenting feature in up to 10% and carries a mortality rate of 75%<sup>1</sup>.

A 72-year-old woman was admitted with acute dizziness and jaw claudication. Clinical examination showed swollen temporal arteries, dysarthria, ataxia of the lower limbs, and left hemianopia. Erythrocyte sedimentation rate was elevated (48 mm/h). Brain magnetic resonance imaging (MRI) showed infarction of the right occipital lobe and the cerebellar hemispheres. High-resolution black-blood contrast-enhanced T1-weighted MRI showed vessel wall enhancement of the extradural vertebral and carotid arteries as well as the temporal and occipital arteries (Figure 1). A

left temporal artery biopsy was performed, confirming giant cell formation and arterial wall inflammation with lymphocytic infiltrate (Figure 2). Despite maximal therapy with dual antiplatelet therapy and high-dose methylprednisolone, the patient died after having multiple strokes, 3 weeks after admission.

The diagnosis of GCA remains challenging and often requires additional tests such as 18F-fluorodeoxyglucose positron emission tomography (FDG-PET) and biopsy. Black-blood MRI uses a prepulse for suppression of intraluminal gadolinium to create a high-contrast image of the blood vessel wall. This technique has been used for detection of vessel wall abnormalities, such as cervical dissection<sup>2</sup> or central nervous system vasculitis

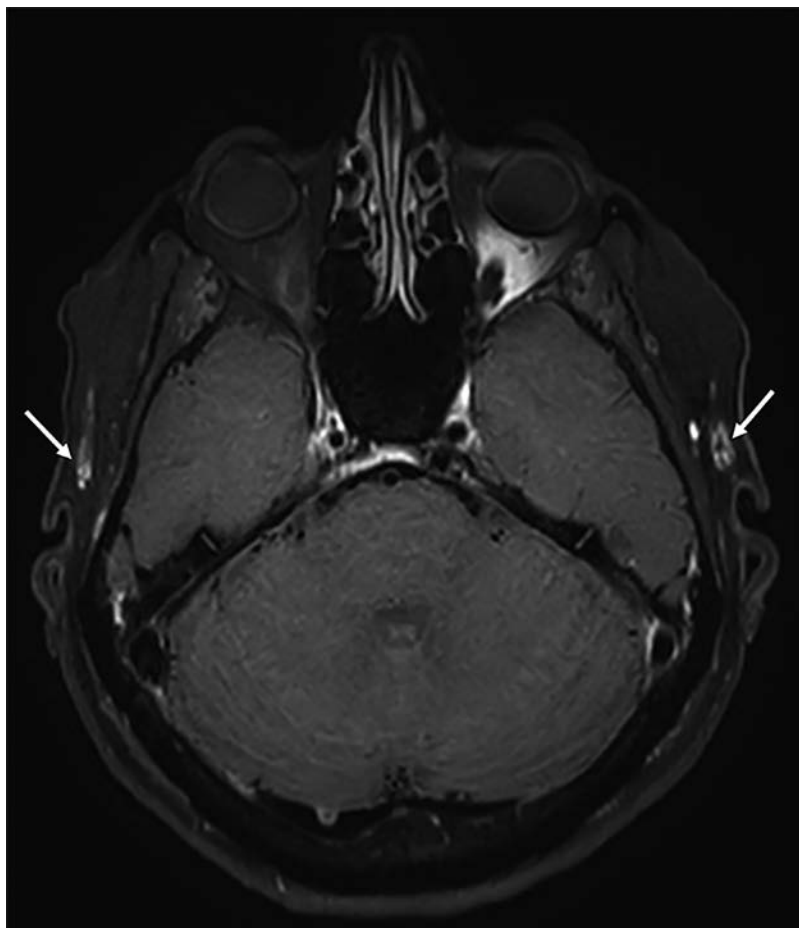


Figure 1. Axial black-blood MRI of the brain and extracranial arteries. There is contrast enhancement of the vessel wall of both temporal arteries (arrows). MRI: magnetic resonance imaging.



*Figure 2.* Histologic specimen with hematoxylin and eosin stain demonstrating a shrunken arterial lumen (A) with perivascular lymphocytic infiltrates (L) and typical giant cell formation (arrows).

and has been shown to detect arteritic anterior optic neuropathy in patients with GCA<sup>3</sup>. We report its use for diagnosis of GCA. Further studies are needed to investigate concordance between black-blood MRI and clinical symptoms, pathology, and FDG-PET.

## REFERENCES

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