

ARIA differential diagnosis

MRI findings in amyloid-related imaging abnormalities (ARIA) are a consequence of the presence of amyloid in blood vessel walls (cerebral amyloid angiopathy [CAA]).¹ CAA can cause **spontaneous ARIA** in patients with Alzheimer's Disease.¹ The risk of ARIA is increased with the use of monoclonal antibodies that remove amyloid plaque in patients with AD¹⁻³

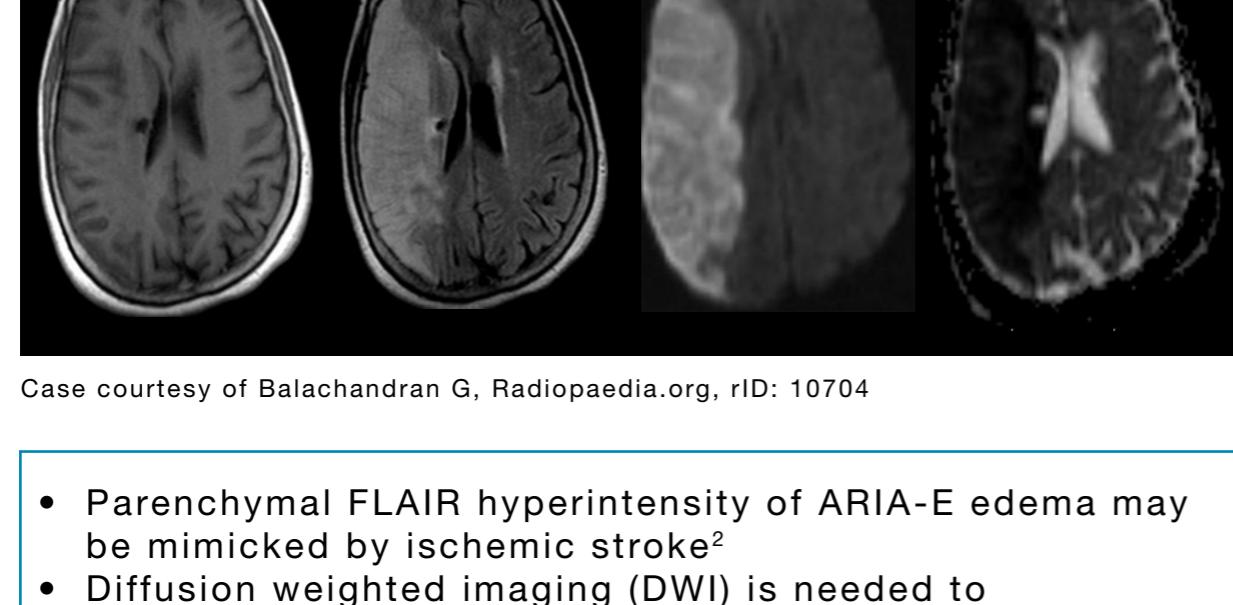
When differentiating between ARIA and other imaging abnormalities, it is important to consider the **full clinical history** of the patient and contextualize it against the **use/non-use of monoclonal antibodies that remove amyloid plaque** and the patient's clinical presentation/symptoms²

MRI is key for the diagnosis and differential diagnosis of ARIA

CT would not be expected to detect milder forms of ARIA-edema/effusion (ARIA-E) and is insensitive to the detection of microhemorrhages and siderosis (ARIA-H)³

ISCHEMIC STROKE

Right MCA hyperacute ischemic stroke⁴

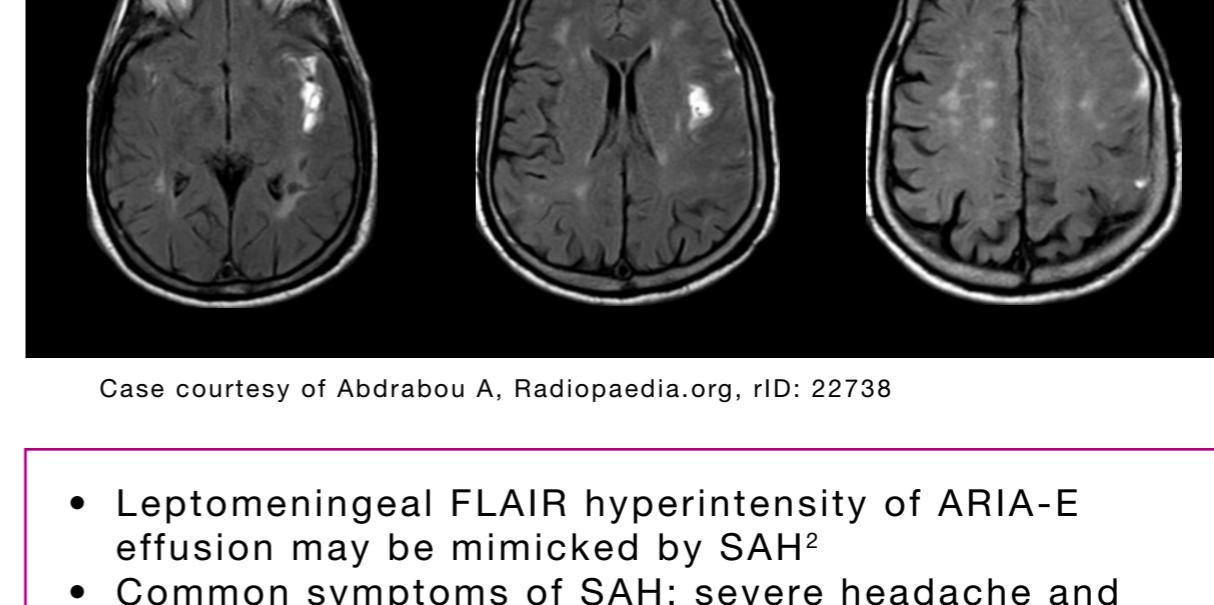


Case courtesy of Balachandran G, Radiopaedia.org, rID: 10704

- Parenchymal FLAIR hyperintensity of ARIA-E edema may be mimicked by ischemic stroke²
- Diffusion weighted imaging (DWI) is needed to differentiate between ARIA-E and ischemic stroke²
- Signs and symptoms of ischemic stroke: acute onset, hemiparesis, dysphasia or dysarthria, facial paresis, paresthesia, eye movement abnormalities, and visual field defects⁶
- Knowing if a patient is on monoclonal antibodies that remove amyloid plaque helps with determining the diagnosis of ARIA²

SUBARACHNOID HEMORRHAGE (SAH)

Left sylvian fissure and adjacent sulci SAH⁵



Case courtesy of Abdrabou A, Radiopaedia.org, rID: 22738

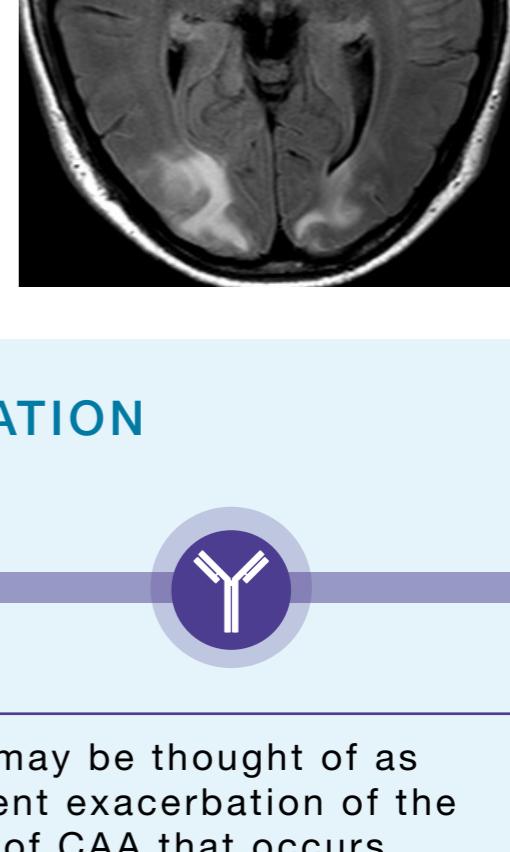
- Leptomeningeal FLAIR hyperintensity of ARIA-E effusion may be mimicked by SAH²
- Common symptoms of SAH: severe headache and vomiting. Decreased level of consciousness and focal neurological signs can also be present⁶
- Differentiating ARIA-E and SAH may require a systematic clinical and diagnostic approach²

PERILESIONAL EDEMA

- The parenchymal FLAIR hyperintensity of ARIA-E edema may be mimicked by edema due to malignancy and infection²
- The detection of an underlying source of parenchymal edema can be enhanced by gadolinium administration²

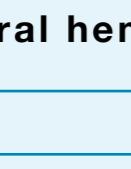
POSTERIOR REVERSIBLE ENCEPHALOPATHY SYNDROME (PRES)

- PRES has similar findings to ARIA-E on MRI²
- Causes of PRES: hypertension, renal disease, autoimmune disorders, cytotoxic medications, pre-eclampsia, and sepsis⁷
- Signs of PRES: encephalopathy, epileptic seizures, visual disturbances, and focal neurological deficits⁷
- Less specific signs: (very similar to ARIA) headache, nausea, and vomiting⁷
- Some symptoms of PRES and ARIA may overlap,^{7,8,9} but the clinical context of treatment with monoclonal antibodies that remove amyloid plaque versus underlying risk factors of PRES can enable differentiation²



Case courtesy of Hani Makky Al Salam, Radiopaedia.org, rID: 7697

CEREBRAL AMYLOID ANGIOPATHY – RELATED INFLAMMATION



CAA is characterized by the accumulation of **amyloid β** within blood vessels walls.^{11,12} It is a common neuropathological finding among older adults, especially among those with Alzheimer's disease.¹² CAA is considered an important cause of lobar intracerebral hemorrhage^{11,12}

CAA-related inflammation (CAA-ri) represents an unusual life-threatening manifestation of CAA.¹¹ It is a **spontaneous** inflammatory condition that responds to steroids or immunosuppressant therapy¹³

ARIA may be thought of as transient exacerbation of the effect of CAA that occurs **secondary** to treatment with monoclonal antibodies that remove amyloid plaque¹³

CAA-ri versus ARIA

Both have **similar imaging findings** of sulcal effusions/edema and microhemorrhages/siderosis and are best differentiated by the use/non-use of **monoclonal antibodies that remove amyloid plaque**¹³

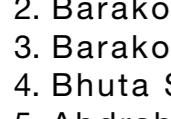
KEY CONSIDERATIONS



ARIA can be mimicked by several other disease processes: ischemic stroke, SAH, CAA-ri, and PRES²



Knowing a patient is on monoclonal antibodies that remove amyloid plaque helps with differential diagnosis²



Understanding the patient's clinical history and differences between Ischemic Stroke, SAH, CAA-ri, PRES is key²

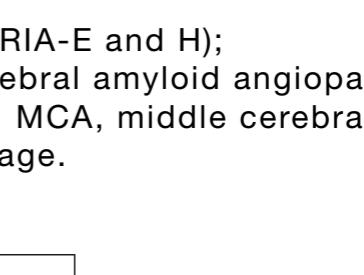


History, neurologic exam, and selected diagnostic procedures (including selected neuroimaging modalities and laboratory tests) are beneficial in making a diagnosis²

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For additional information on ARIA, scan here:



www.UnderstandingARIA.com

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