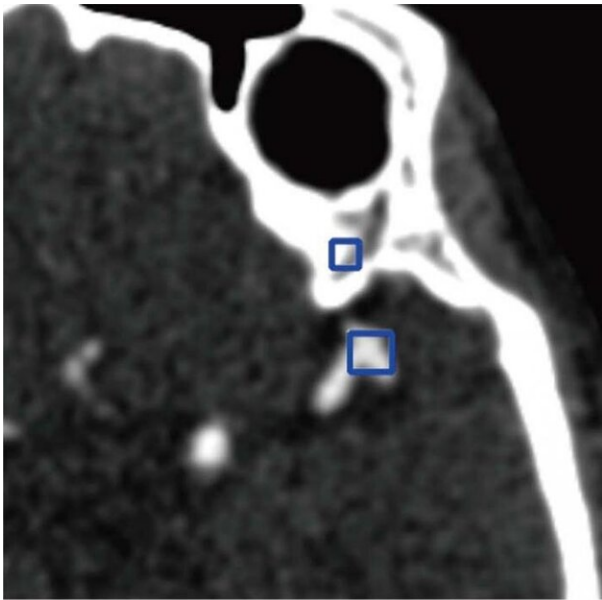
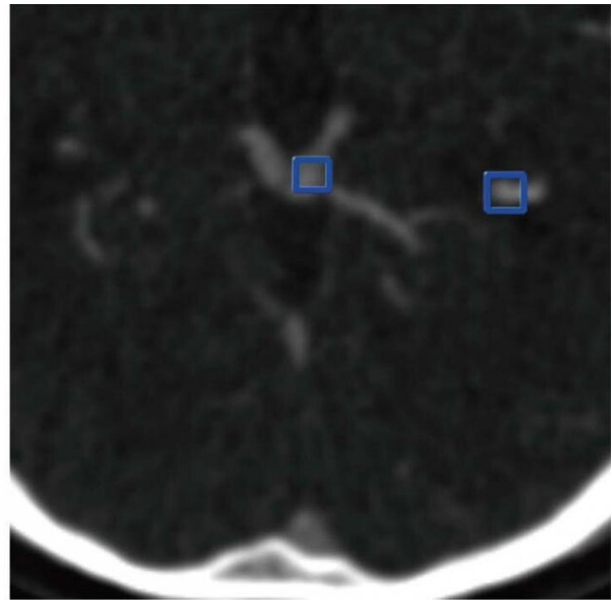


# AI helps detect brain aneurysms on CT angiography

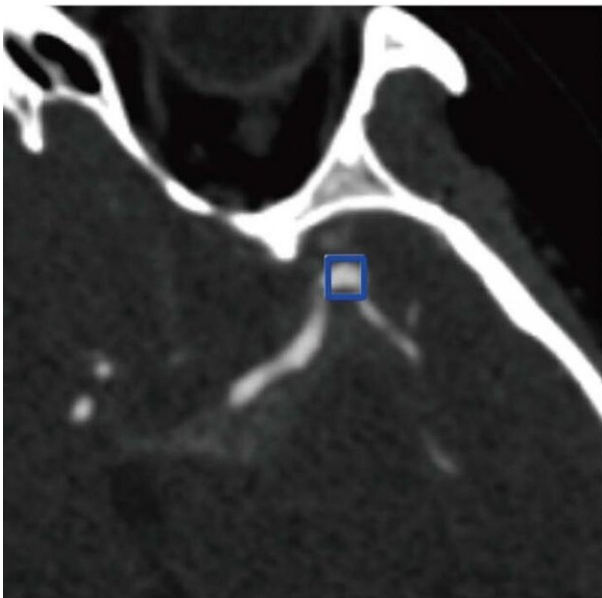
November 3 2020



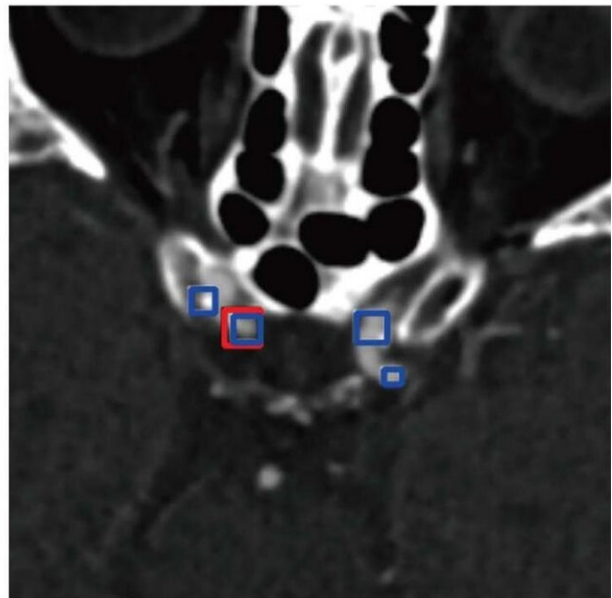
a.



b.



c.



d.

Examples of false-positive aneurysms, including (a) bony structures and vessel bifurcation, (b) veins, (c) vessel curvatures, and (d) calcified plaques. Red box (d) indicates aneurysms annotated by radiologists, and the blue boxes indicate aneurysm candidates provided by the algorithm. Credit: Radiological Society of North America

A powerful type of artificial intelligence known as deep learning can help physicians detect potentially life-threatening cerebral aneurysms on CT angiography, according to a study published in the journal *Radiology*.

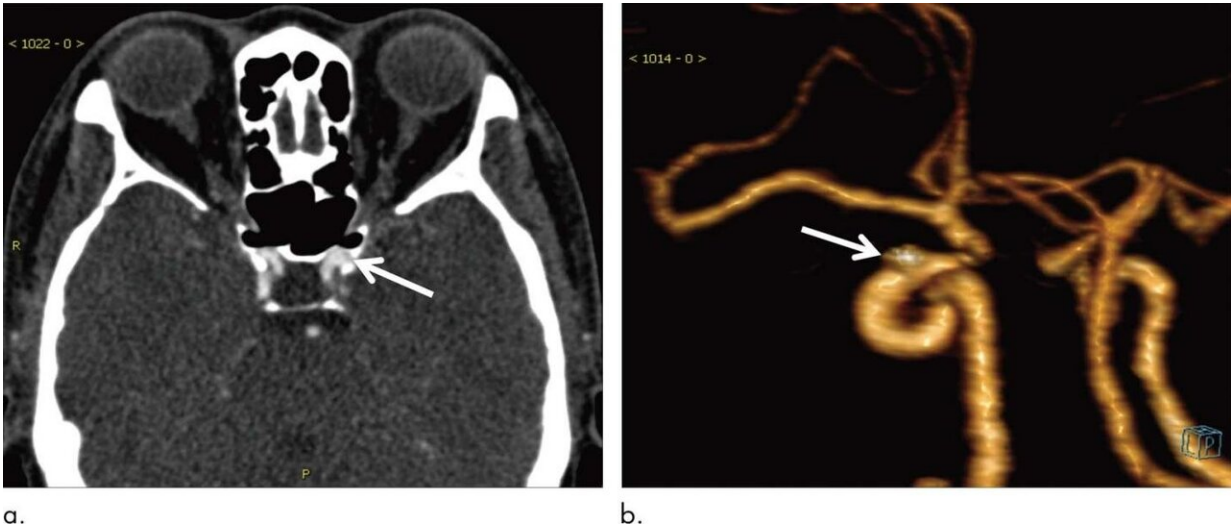
Cerebral aneurysms are weakened areas of blood vessels in the brain. Left untreated, they can leak or rupture, with sometimes fatal results. Detection and characterization of these aneurysms are critical, as the risk of rupture depends on the size, shape and location of the [aneurysm](#).

CT angiography is usually the first choice for evaluating cerebral aneurysms. The exam is highly accurate, but cerebral aneurysms can be overlooked on the initial assessment due to their small size and the complexity of the blood vessels in the brain.

"In our daily work we are always faced with cases in which some important lesions have been missed by the [human eye](#)," said study senior author Xi Long, Ph.D., from the Department of Radiology at Tongji Medical College's Union Hospital in Wuhan, China. "Cerebral aneurysms are among those small lesions that may be overlooked on the routine assessment of radiological images."

Deep learning offers tremendous potential as a supplementary tool for a more accurate interpretation of cerebral aneurysms. A deep learning

system is trained on existing images and learns to recognize abnormalities that can be difficult for a human observer to see. In radiology, deep learning has been recently been used as in a variety of roles assisting radiologists, such as in the detection of tuberculosis on chest X-rays.



A 54-year-old woman with aneurysm 2.9 mm in maximum diameter located on left internal carotid artery (arrow). (a) Axial section head CT angiogram and (b) volume-rendered three-dimensional reconstruction image. Aneurysm was missed by algorithm, possibly because of small size (

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