

## Brain Imaging After Mild Head Injury/Concussion Can Show Lesions

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Brain imaging soon after mild traumatic brain injury (mTBI) or mild concussion can detect tiny lesions that may eventually provide a target for treating people with mTBI, according to a study presented at the American Academy of Neurology's 65th Annual Meeting in San Diego, March 16 to 23, 2013.

Studies of brain tissue once a person has died have shown that different types of lesions are associated with more severe TBI. "Our study suggests that imaging may be used to detect and distinguish between these lesions in a living person with mTBI and this finding has important implications for treatment," said Gunjan Parikh, MD, with the National Institute of Neurological Disorders and Stroke and the University of Maryland R Adams Cowley Shock Trauma Center in Baltimore, MD.

The study involved 256 people with an average age of 50 who were admitted to the emergency department at Suburban Hospital in Bethesda and Washington Hospital Center in the District of Columbia after mild head injuries. They underwent MRI brain scans. Of those, 104 had imaging evidence of haemorrhage in the brain (67 percent reported loss of consciousness, and 65 percent reported amnesia, or temporary forgetfulness). People with haemorrhages underwent more detailed brain scans with advanced MRI within an average of 17 hours after the injury.

Advanced imaging showed that—of those 104 people with imaging evidence of haemorrhage—20 percent had microbleed lesions and 33 percent had tube-shaped linear lesions. Microbleeds were distributed throughout the brain whereas linear lesions, which were found mainly in one area, were more likely to be associated with injury to adjacent brain tissue.

The investigators hypothesised that the linear lesions seen on MRI may represent a type of vascular injury that is seen in brain tissue studies of people with more severe TBI. "If that theory is confirmed, it may provide an opportunity to develop treatment strategies for people who have suffered a mild TBI," said Parikh.

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