Traumatic aneurysms

The pathophysiology of extracranial traumatic aneurysm formation has not been fully elucidated. Intraarterial optical coherence tomography (OCT), an imaging modality capable of micrometer cross-sectional resolution, was used to evaluate patients presenting with saccular traumatic aneurysms of the internal carotid artery (ICA). Two consecutive trauma patients diagnosed with saccular traumatic aneurysms of the cervical ICA, per the institutional screening protocol for traumatic cerebrovascular injury, underwent digital subtraction angiography (DSA) with OCT. Optical coherence tomography demonstrated disruption of the intima with preservation and stretching of the more peripheral layers. In 1 patient the traumatic aneurysm was associated with thrombus formation and a separate, more proximal dissection not visible on CT angiography (CTA) or DSA. Imaging with OCT indicates that saccular traumatic aneurysms may develop from disruption of the intima with at least partial preservation of the media and adventitia. This provides in vivo evidence that saccular traumatic aneurysms result from a partial arterial wall tear rather than complete disruption. Interestingly, OCT was also able to detect arterial injury and thrombi not visible on CTA or DSA [1)].

Treatment

Traumatic aneurysm treatment

1)
Griessenauer CJ, Foreman PM, Deveikis JP, Harrigan MR. Optical coherence tomography of traumatic aneurysms of the internal carotid artery: report of 2 cases. J Neurosurg. 2016 Feb;124(2):305-309. Epub 2015 Aug 7. PubMed PMID: 26252460.