Traumatic distal anterior cerebral artery aneurysm

Traumatic distal anterior cerebral artery (dACA) aneurysm is rare and can be easily neglected and misdiagnosed in patients with trauma. The aim of this study was to explore the radiologic characteristics of and therapeutic strategies for traumatic dACA aneurysm and to improve our understanding of unusual complications after trauma.

METHODS: The clinical data of nine cases of traumatic dACA aneurysm from our neurosurgical department from July 1, 2010, to July 1, 2018, were retrospectively analysed.

RESULTS: All 9 patients had a history of brain trauma. The initial computed tomography scan immediately after trauma showed subarachnoid haemorrhage in 8 cases. Among these cases, delayed intracranial haemorrhage occurred in 7 cases. The average interval between injury and diagnosis was 13.67 ± 9.43 days. All 9 cases were confirmed as traumatic dACA aneurysm by computed tomography angiography (CTA) and/or digital subtraction angiography. According to Lehecka's classification system, traumatic dACA aneurysm located in the A3 and A4 segment was found in 3 and 6 cases, respectively. Surgical treatment was performed in 8 cases, including neck clipping, with or without wrapping in 3 cases, trapping in 4 cases, aneurysm excision and suturing in 1 case and conservative treatment in 1 case. Three patients required a ventriculoperitoneal shunt due to severe hydrocephalus. According to the Glasgow Outcome Scale scoring system, good recovery was achieved in 4 cases, moderate disability in 2 cases, severe disability in 1 case, and death in 2 cases.

CONCLUSION: Traumatic dACA aneurysm is a rare complication of brain trauma. Delayed intracranial haemorrhage and the sudden deterioration of neurologic function were the typical characteristics in patients with traumatic dACA aneurysm. CTA is the first-line screening modality for patients who present with intracerebral haemorrhage in the corpus callosum after trauma, particularly for patients who are older, in a poorer or critical condition. When the aneurysm is located in the A4 segment or involves a small branch, surgical trapping is the preferred definitive therapy to prevent further growth and disastrous bleeding. Early diagnosis and prompt treatment could help to improve clinical outcomes [1].

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He Y, Wang L, Ou Y, Wang H, Wang S, Zhang P, He X, Guo D. Surgical treatment of traumatic distal anterior cerebral artery aneurysm: a report of nine cases from a single centre. Acta Neurochir (Wien). 2019 Dec 10. doi: 10.1007/s00701-019-04121-x. [Epub ahead of print] Erratum in: Acta Neurochir (Wien). 2019 Dec 13;:. PubMed PMID: 31802275.