Fetal posterior communicating artery aneurysm

Aneurysms that involve the internal carotid artery and posterior communicating artery junction and incorporate a fetal posterior communicating artery.

Internal carotid artery aneurysms originating from the takeoff of fetal PCA vessels deserve special attention before surgical or endovascular obliteration because of a greater potential for ischemic injury.

Case series

2015

Kan et al. report the outcomes of four patients with fetal posterior communicating artery aneurysms who underwent treatment with the pipeline embolization device with or without adjunctive coil embolization. In the study, all four patients failed to achieve aneurysm occlusion at the last follow-up evaluation. Based on the results, they currently do not recommend the use of the flow diverter for the treatment of fetal posterior communicating artery aneurysms [1)]

2008

A retrospective chart review was conducted for all patients who underwent surgical and endovascular treatment of an ICA-PComA aneurysm at Los Angeles County-University of Southern California Medical Center during a 15-year period (1991-2006) to identify cases with aneurysms originating from fetal variant PCAs. Data were retrospectively reviewed and analyzed.

During a 15-year period, 271 patients were treated for 273 ICA-PComA aneurysms. Aneurysms occurring at the origin of fetal PCAs were identified in 30 patients (11%). There were 23 women (77%) and seven men (23%) (sex difference, P = 0.0035). Twenty-four patients underwent surgical clipping, whereas six patients underwent endovascular coiling. The mean aneurysm size was 7 mm. The mean ischemia time with temporary clipping (12 cases) was 4.5 minutes. Intraoperative rupture occurred in four surgical cases (17%). Postoperative angiography demonstrated occlusion of the fetal PCA in one case after clip ligation (3%), with an ensuing occipital infarct yet no clinical symptoms.

ICA-PComA aneurysms originating from fetal PCA vessels may pose a more substantial risk for infarction and subsequent neurological sequelae with surgical or endovascular obliteration. Fetal variant circulations were identified at the PComA origin in 11% of ICA-PComA aneurysm patients and were more commonly encountered in women. The decision of surgical versus endovascular treatment of fetal PCA aneurysms must be carefully considered, given the greater potential for ischemic injury with parent vessel occlusion [2)].

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1) Kan P, Duckworth E, Puri A, Velat G, Wakhloo A. Treatment failure of fetal posterior communicating artery aneurysms with the pipeline embolization device. J Neurointerv Surg. 2015 Sep 11. pii: neurintsurg-2015-011959. doi: 10.1136/neurintsurg-2015-011959. [Epub ahead of print] PubMed PMID: 26363511.

2)

Zada G, Breault J, Liu CY, Khalessi AA, Larsen DW, Teitelbaum GP, Giannotta SL. Internal carotid artery aneurysms occurring at the origin of fetal variant posterior cerebral arteries: surgical and endovascular experience. Neurosurgery. 2008 Jul;63(1 Suppl 1):ONS55-61; discussion ONS61-2. doi: 10.1227/01.neu.0000335012.37875.7d. PubMed PMID: 18728604.