Endoscopic endonasal approach for basilar artery aneurysm

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The transclival endoscopic endonasal surgery approach provides excellent visualisation of the basilar artery. Clip application and manoeuvrability of instruments was considered adequate for basilar aneurysm surgery. Surgical skills and instrumentation to control significant haemorrhage can potentially limit the clinical applicability of this technique [1].

The transclival approach was explored, and clips were successfully deployed along the proximal branches of the vertebrobasilar system and basilar trunk and bifurcation. The median sizes of skull base craniectomy necessary for exposure of the anterior communicating artery complex and basilar tip were 3.24 cm2 and 4.62 cm2, respectively. The mean angles of surgical corridors to the anterior communicating artery complex and basilar tip were 11.4° and 14°, respectively. Although clip placement was feasible on the basilar artery and its branches, the associated perforating arteries were difficult to visualize, posing unexpected difficulty for safe clip application, with the exception of ventrolateral-pointing aneurysms.

Szentirmai et al. characterize the feasibility of endonasal endoscopic clip ligation of aneurysms involving the paraclinoid, anterior communicating, and basilar arteries and proximal control of the paraclival internal carotid artery. The endoscopic approach should be initially considered for nonruptured aneurysms involving the paraclinoid and anterior communicating arteries, as well as ventrolateral basilar trunk aneurysms. Clinical experience will be mandatory to determine the applicability of this approach in practice [2].

Case reports

2012

A 59-year old woman with subarachnoid hemorrhage was found to have a ruptured basilar trunk aneurysm associated with a feeding vessel to a small cerebellar arteriovenous malformation (AVM). An expanded endoscopic endonasal transclival approach was used to successfully clip the basilar trunk aneurysm and feeding AVM vessel. The patient was subsequently discharged home without any neurological deficits. Transclival clipping of basilar trunk aneurysms is technically feasible and plays an important role in management when other strategies fail. The technical benefits of this approach include proximal and distal control of the basilar artery and improved visualization of the brainstem and perforators. Endoscopic transclival approaches should be considered in the management of complex basilar trunk aneurysms [3].

1)
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3)
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