Extradural minipterional approach: Evolving indications of the minipterional craniotomy

Abstract

Background: In this paper, we report a clinical series of skull base lesions operated on trough the MiniPT, extending its application to skull base lesions, either using the classical minipterional or a variant, we call extradural minipterional approach (MiniPTEx).

Methods: We describe our surgical technique of operating on complex skull base lesions using a minipterional extradural approach. Anterior clinoidectomy, middle fossa peeling, transcavernous, and Kawase approaches were performed as needed. In total, we carried out 24 surgeries: three skull base tumors, 1 Moyamoya case, and 20 giant/complex intracranial aneurysms. All the patients present good neurological result (mRs < 3). Only two patients had paralysis of any cranial nerve and only one patient had a mild hemiparesis.

Results: This surgery series there are 24 cases, 10 patients were treated with exclusive MiniPT. MiniPT extradural approach was made in 14 patients. Twelve were treated using pure MiniPTEx approach, 1 patient using transcavernous approach, and in 1 patient, the anterior clinoid was resected with the combination of a MiniPT, a medium fossa peeling, and the Kawase anterior petrosectomy for skull base surgery.

Conclusion: We further advance the indications of the MiniPT by extending it to operate on the cranial base tumors or complex vascular lesions without additional morbidity. MiniPT approach may be safely associated with skull base techniques,

including anterior and posterior clinoidectomies, peeling of the middle fossa, transcavernous approach, and anterior petrosectomy. The versatility of the MiniPT craniotomy and the feasibility of performing skull base surgery through the MiniPT technique have been demonstrated in this paper.

Keywords: Aneurysm; Craniotomy; Extradural minipterional approach; Minimally invasive neurosurgery; Minipterional; Pterional; Skull base; Vascular.

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