Contralateral Minimum Anterior and Posterior Combined Petrosal Approach for Retrochiasmatic Craniopharyngiomas: An Alternative Technique

Sachin Ranganatha Goudihalli¹,³ Hiroki Morisako³ Wimba Prastarana² Takeo Goto³ Hiroki Ohata³ Kenji Ohata³

¹ Department of Neurosurgery, Fortis Hospital, Bangalore, India
² Department of Neurosurgery, Airlangga University, Surabaya, Indonesia
³ Department of Neurosurgery, Osaka City University Graduate School of Medicine, Osaka, Japan

Address for correspondence Kenji Ohata, MD, PhD, Department of Neurosurgery, Osaka City University Graduate School of Medicine, 1-4-3 Asahimachi, Abeno-ku, Osaka, 5458585, Japan (e-mail: kohata@med.osaka-cu.ac.jp).

Abstract

Retrochiasmatic craniopharyngiomas (RC) are a challenge for the neurosurgeon to treat surgically, restrained by their location in the interpeduncular fossa, surrounded by vital neurovascular structures, narrow corridor and poor visibility. Many approaches are possible and elucidated in the literature, which the surgeon chooses, based on multiple factors, such as the size of tumor, calcification, laterality, preoperative neurological deficits and the endocrine function status, recurrence, postradiotherapy status, or significant superior and/or posterior extension.¹,²

We describe a contralateral minimum anterior and posterior (CL-MAPC) petrosal approach for a case of recurrent RC, in a 37-year-old female patient operated before using a pterional approach, now presented with left homonymous hemianopia and panhypopituitarism (Fig. 1). We preferred a contralateral approach to protect the ipsilateral optic tract (OT) from retraction injury, which formed an obstacle to the tumor from ipsilateral side. Apart from various benefits described by the author previously for RC, using MAPC petrosal approach, the CL-MAPC offers a safe corridor, protecting the ipsilateral OT, visualization of tumor origin usually posterior to chiasm,
wider corridor if PCoM could be sacrificed, as it was done in this case, and pituitary stalk identification, with a probability of its functional preservation, unlike a necessity of pituitary transposition in EEA, though the endocrine outcome is poor after a radical resection irrespective of the approach chosen.\cite{1,3,4} There was complete excision of the tumor with preservation of visual function postoperatively. We recommend the use of CL-MAPC as an alternative to EEA in some specific indications when the tumor is large, calcified, obscuring OT on the ipsilateral side and with significant lateral extension, which may be limiting factors in EEA (\textit{\textbf{Fig. 2}}).

The link to the video can be found at: https://youtu.be/gWCJmh4_evs.

\textbf{Conflict of Interest}
None.

\textbf{Fig. 1} Preoperative CT scan (A), and MRI including axial (B), coronal (C), and sagittal (D) sequences showing tumor with calcification, in the retrochiasmatic area close to left optic tract. MRI, magnetic resonance imaging.
References


Fig. 2 Intraoperative images showing the retrochiasmatic area with tumor and vital neurovascular bundle around (A) and the tumor bed visualized after the complete tumor removal, showing the left optic tract (B). T, tumor; III, right oculomotor nerve; PCA, right posterior cerebral artery; SCA, right superior cerebellar artery; IV, right trochlear nerve; BS, brain stem; OT, left optic tract; *, clipped right hypoplastic PCoM.