

OCCIPITAL BI-TRANSTENTORIAL/FALCINE APPROACH FOR FALCOTENTORIAL MENINGIOMA

Case report

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ABSTRACT - Lesions located in the bilateral posterior incisural space are difficult to treat due to limited exposure. The classical approaches to this area are limited for lesions located bilaterally and especially when the lesion extends also below the tentorium as it may occur with meningiomas. Kawashima et al. reported, in anatomic studies, a new occipital transtentorial approach: the occipital bi-transtentorial/falcine approach, to treat such lesions. We present a patient with a large falcotentorial meningioma, located bilaterally in the posterior incisural space. The occipital bi-transtentorial/falcine approach allowed an excellent surgical exposure and complete tumor removal with an excellent patient outcome.

KEY WORDS: occipital bi-transtentorial/falcine approach, posterior incisural space, falcotentorial meningioma.

Acesso occipital bitranstentorial-falcino para abordagem de meningioma falco-tentorial: relato de caso

RESUMO - Grandes lesões que ocupam bilateralmente o espaço incisural posterior são de difícil abordagem cirúrgica pelos acessos clássicos. Recentemente, Kawashima et al. descreveram, em peças anatômicas, uma modificação do acesso occipital transtentorial, o acesso occipital bitranstentorial-falcino, para abordagem de grandes lesões que ocupam bilateralmente o espaço incisural posterior. Retata-se um caso de grande meningioma falco-tentorial que ocupava o espaço incisural posterior bilateralmente. O acesso occipital bitranstentorial-falcino permitiu exérese completa da lesão sem déficit no pós-operatório.

PALAVRAS-CHAVE: acesso occipital bitranstentorial-falcino, espaço incisural posterior, meningioma falco-tentorial.

The posterior incisural space is located posterior to the midbrain, in the pineal body region¹. Lesions located in this region include pineal tumors, meningiomas, gliomas, medial occipital lobe and superior cerebellar arteriovenous malformations. The infratentorial supracerebellar approach and the occipital transtentorial approach²⁻⁵ are the main approaches used to reach lesions located in this area. However, these approaches do not allow a good exposure of lesions located bilaterally in the posterior incisural space¹. Using anatomical specimens, Kawashima et al.¹ describe the occipital bi-transtentorial/falcine approach that provides better exposure of the bilateral posterior incisural space. It is a modification of the occipital transtentorial approach with the division of the falx and the tentorium bilaterally.

We report a case of a large falcotentorial meningioma located bilaterally in the posterior incisural space, in which it was used the occipital bi-transtentorial/falcine approach.

CASE

On November 2002, a 58 year-old woman was admitted to our neurosurgical unit with headache, torpor, and papilledema. The CT scan revealed a large mass compressing the midbrain and causing hydrocephalus. A ventriculoperitoneal shunt was placed on an emergency basis.

The patient recovered fully after the shunt, and an MRI (Fig 1) showed a large hyperintense lesion, located bilaterally on the posterior incisural space, compressing the midbrain. The patient was operated using an infraoccipital supratentorial approach³ that consisted of a unilateral occipital craniotomy exposing the ipsilateral torcula, superior sagittal sinus, transverse sinus and the occipital lobe. After

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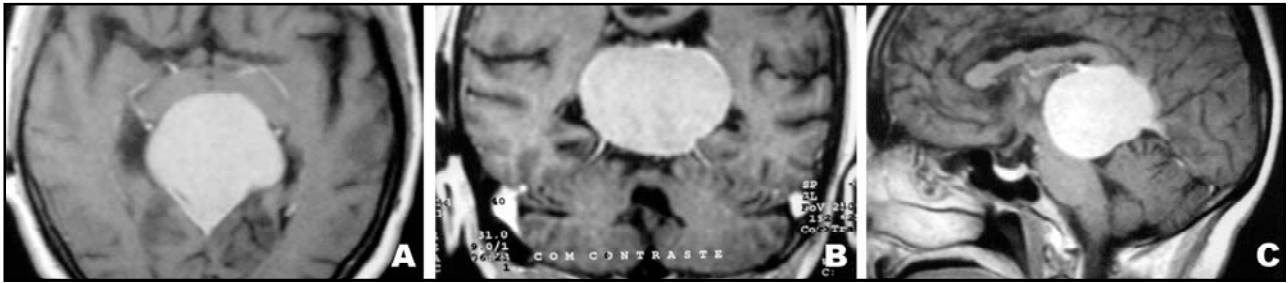


Fig 1. MRI scans showing enhanced lesion in the posterior incisural space.

opening the dura, the occipital lobe was retracted, exposing the tentorium, falx and part of the tumor. The ipsilateral supratentorial part of the tumor was then removed. An incision at the tentorium, parallel to the straight sinus, was performed (occipital transtentorial approach), allowing the removal of the ipsilateral infratentorial part of the tumor. Another incision in the falx was made parallel to and 1 cm above the straight sinus, exposing the contralateral supratentorial aspect of the lesion that was removed. Finally, the contralateral tentorium was incised, parallel and 1 cm lateral to the straight sinus, exposing the contralateral infratentorial aspect of the tumor.

After complete lesion removal, the anatomical structures that surrounds the posterior incisural space could be seen: the lower surface of the splenium of the corpus callosum, crura of the fornices, superior surface of the cerebellar vermis (culmen), posterior aspect of third ventricle, pineal body, quadrigeminal plate, pulvinar of the thalamus and parahypocampal gyrus. The posterior cerebral artery, superior cerebellar artery, internal cerebral and basal veins, and vein of Galen were also well exposed by this approach.

After a brief confusional mental state that was resolved

spontaneously, the patient was discharged from the hospital on day 12 postoperatively without any neurological deficit. A head CT scan was performed 24 hours and 24-month after surgery (Fig 2) showing complete tumor removal. The pathology was compatible with fibrous meningioma. In the follow up the patient was intact and returned to her regular daily activities.

DISCUSSION

The occipital bi-transtentorial/falcine approach, reported by Kawashima et al.¹, in 2002, is a modification of the occipital transtentorial approach, with the division of the falx and bilateral tentorium. By a comparative study, using anatomical specimens, these authors showed that this new approach allows better exposition of the contralateral incisural space than the previously described approaches: occipital supratentorial, occipital transtentorial, infratentorial supracerebellar, transtentorial supracerebellar, supra-infratentorial transsinusal.

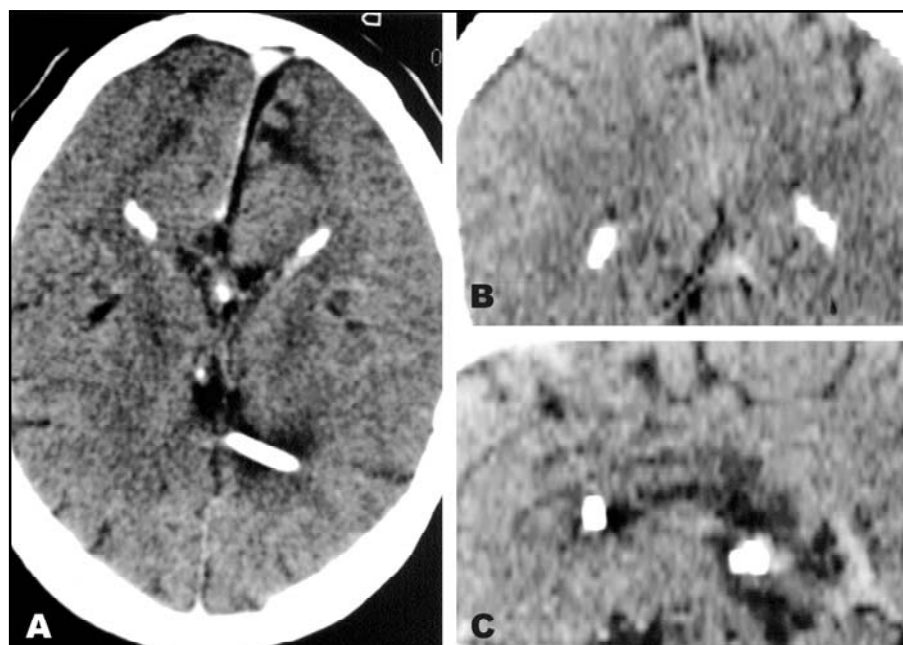


Fig 2. CT scan 24-month after the surgery, showing complete tumor removal.

In the occipital bi-transtentorial/falcine approach, the contralateral quadrigeminal cistern, which is interrupted by the falx and the contralateral tentorium, is well exposed along with the superior colliculi, the posterior parahippocampal gyrus, the posterior cerebral artery, the internal cerebral vein and the basal Rosenthal vein. The major advantage of this approach is the better exposition of the contralateral quadrigeminal region¹. We believe this approach deserves consideration when dealing with lesions located on both sides of the posterior incisural space. It may be eventually the approach of choice, as it was the case in our patient.

The occipital bi-transtentorial/falcine approach

was previously described only in anatomical specimens. Our reported case shows that this approach exposes well the posterior incisural space, permitting complete bilateral removal of lesions in this region.

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