Parasagittal sinus meningioma of the posterior third

Its a type of Parasagittal meningioma of the posterior third.

Superior sagittal sinus meningiomas pose the neurosurgeon with the dilemma of whether to attempt complete resection at the cost of high morbidity or to elect more conservative surgery, exposing the patient to a higher risk of recurrence.

Although meningiomas of the posterior third of the sagittal sinus share some elements and challenges with the other two thirds, they have peculiar venous patterns (generally fewer draining veins, both in number and importance, than in the other sagittal locations, in addition to a distinctive cortical/functional relationship (close connection with the visual cortex and consequent high incidence of visual deficit), and a typical anatomical sinus collocation (the posterior third is the tail end of the sinus and of the supratentorial venous drainage system and carries a higher risk of brain oedema).

Since the functional outcome of posterior third meningiomas strictly correlates with visual deficit

Sinus invasion, is the main limiting factor for tumour removal.

Clinical Features

Visual field deficit

Published series report few and inconsistent data regarding visual symptoms caused by posterior third meningiomas.

In the series of Biroli et al., visual field disturbances and hemianopia were the most common symptoms. Visual disturbances such as visual discomfort, positive phenomena (flashing or coloured light or shapes) and reduced visual acuity or complete field deficit will ordinarily attract the attention of both the patient and the physician, and eventually lead to diagnosis.

Partial visual field deficit, such as quadrantanopia, did not usually play a relevant role in the clinical history and was diagnosed at clinical or instrumental evaluation [1)]

Outcome

At discharge, of the 19 patients with a preoperative visual field deficit, the deficit was unchanged in 16, improved in three and worsened in none. A transient postoperative deficit developed in one patient and completely resolved during the follow-up period.

Of the 19 patients seen at the last follow-up visit, 16 had presented with a preoperative visual deficit: no changes were observed in eight and resolution/improvement was noted in eight. The fact that six of the eight patients who improved had had a partial preoperative deficit suggests that its severity might represent a favourable prognostic factor. At follow-up, vision-related problems were the ones that most seriously affected the patient’s quality of life.

In this series, an improvement in visual deficits was noted in almost half of the patients. Taken together, these data underscore that, because there might be a margin for improvement, every effort

should be made to preserve the visual cortex

Recurrence was 12 %

Remnants were observed and treated with GKS for disease progression.

In one patient a residual tumour on the sinus was treated with GKS a few months after surgery and was therefore not considered as a recurrence. In the three patients with disease recurrence, the resection was Simpson grade I, II and IV, respectively. The one patient with a WHO grade II meningioma was lost at follow-up. Accurate preoperative assessment of the sinus is a fundamental step in the management of these patients. In two of the three patients who relapsed and in three of the four who had undergone Simpson grade IV surgery, the sinus was either invaded or compressed.

In the four patients with a residual tumour, one patient was treated with GKS a few months after surgery due to regrowth, one was closely followed with MRI and treated after 42 months, one is stable after 69 months follow-up, and one was lost at follow-up. [2)].

Case report

Surgical sacrifice of the straight sinus may be performed during intracranial tumor resection. Sacrifice of the straight sinus is associated with an unpredictable risk of venous infarction. We describe a patient with a falcine meningioma who underwent endovascular balloon test occlusion of the straight sinus before surgical resection.

A 48-year-old woman presented with symptoms resulting from a 4-cm-diameter meningioma in the left occipital region. Along its inferior margin, the tumor abutted the straight sinus. Cerebral angiography demonstrated occlusion of the posterior one-third of the superior sagittal sinus but patency of the straight sinus.

A 4-mm angioplasty balloon was directed into the straight sinus via the right jugular vein. In addition to clinical assessments, the pressure within the proximal straight sinus, upstream from the balloon, was measured before and during inflation. Severe headaches followed balloon inflation, and the pressure in the proximal straight sinus increased 18 mm Hg. With balloon deflation, the clinical and hemodynamic findings immediately returned to normal. On the basis of these findings, the straight sinus was preserved during surgery.

This technique is straightforward and allows some assessment of the physiological responses and individual tolerance to sinus occlusion before surgery [3)]

[1)] , [2)]
Biroli A, Chiocchetta M, Gerosa M, Talacchi A. Surgical treatment of parasagittal and falcine meningiomas of the posterior third. Acta Neurochir (Wien). 2012 Nov;154(11):1987-95. doi: 10.1007/s00701-012-1454-6. Epub 2012 Aug 12. PubMed PMID: 22886053.
[3)]
Houdart E, Saint-Maurice JP, Boissonnet H, Bonnin P. Clinical and hemodynamic responses to balloon test occlusion of the straight sinus: technical case report. Neurosurgery. 2002 Jul;51(1):254-6; discussion 256-7. PubMed PMID: 12182428.