

Falco-tentorial meningioma producing irreversible midbrain damage

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Abstract

Meningiomas arising from the falcotentorial junction are the rarest subgroup of tentorial meningiomas. Because of the distance from the brain surface and the surrounding deep cerebral veins these lesions are difficult and dangerous to treat surgically. A 45-year-old female presented with the history of progressive headache, disorientation, unsteadiness, and urinary incontinence for over 6 months. The patient developed difficulty in swallowing, and weakness of all four limbs for the last 7 days. CT scan brain plain and contrast showed a large well defined, homogenously enhancing mass lesion in the pineal region with compression of the upper brain stem and obstructive hydrocephalus. In spite of the good surgical decompression the patient did not do well. As described in the literature, the compression of the midbrain can cause severe respiratory disturbances with fatal outcome; probably the similar mechanism resulted in poor outcome in present case. As we noticed the diffuse hypodensity in midbrain on CT scan, similar findings have been described in literature in cases of transtentorial herniation

with poorer outcome.

Key words: Falcotentorial meningioma, midbrain, transtentorial herniation

Introduction

Meningiomas arising from the falcotentorial junction are the rarest subgroup of tentorial meningiomas. (1-5) Because of the distance from the brain surface and the surrounding deep cerebral veins these lesions are difficult and dangerous to treat surgically. (6-9)

Case report

A 45-year-old female presented with the history of progressive headache, disorientation, unsteadiness, and urinary incontinence for over 6 months. The patient developed difficulty in swallowing, and weakness of all four limbs for the last 7 days. She had multiple episodes of vomiting and was in altered sensorium for last three days. There was no history of fever or trauma. On neurological examination she was unconscious (GCS-E2V1, M3). Pupils were bilateral equal and reacting to light. Fundus

showed bilateral papilloedema. Extra ocular movements were restricted in all directions. She had spastic quadriparesis. Her general and systemic examination was unremarkable. Blood investigations were normal except low hemoglobin (8 gm %). CT scan brain plain and

contrast showed a large well defined, homogenously enhancing mass lesion in the pineal region with compression of the upper brain stem and obstructive hydrocephalus (Figures 1 and 2).

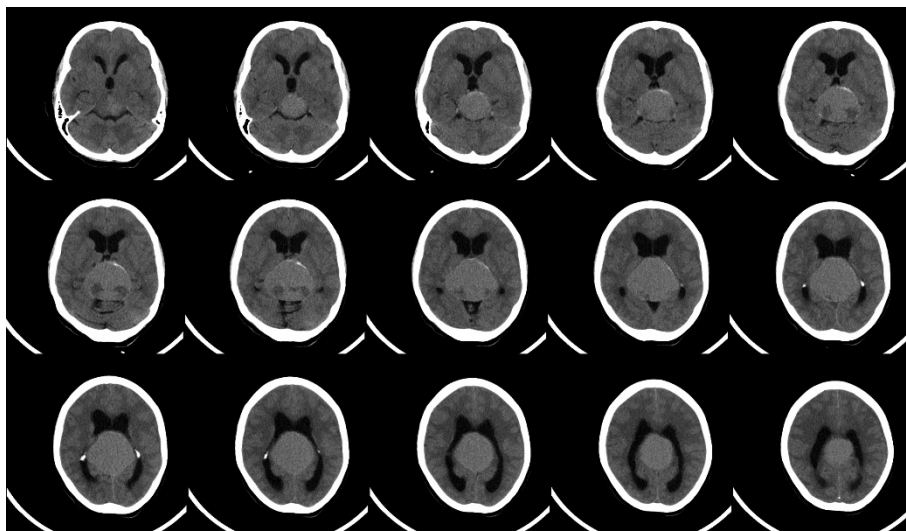


Figure 1 - Plain CT scan brain showing a large showing mass lesion in the pineal region with hydrocephalus

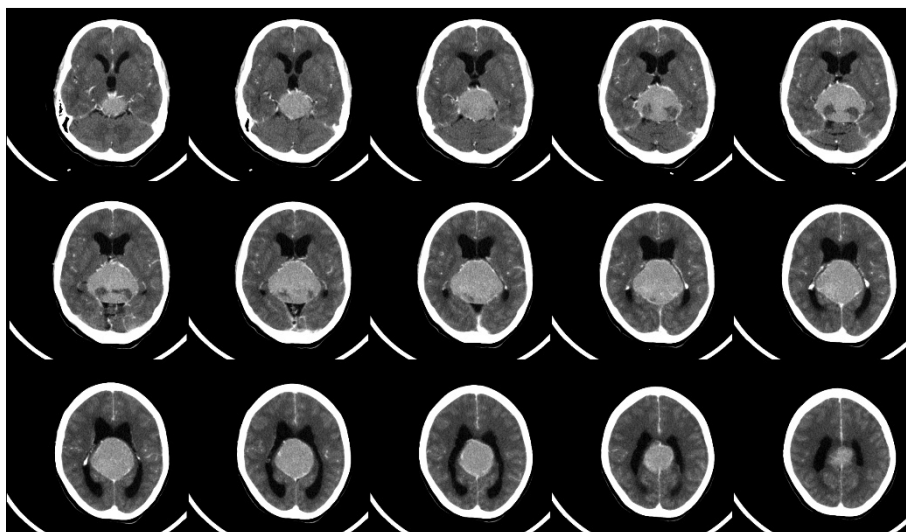


Figure 2 - Contrast CT scan brain showing the homogenous enhancement after contrast administration

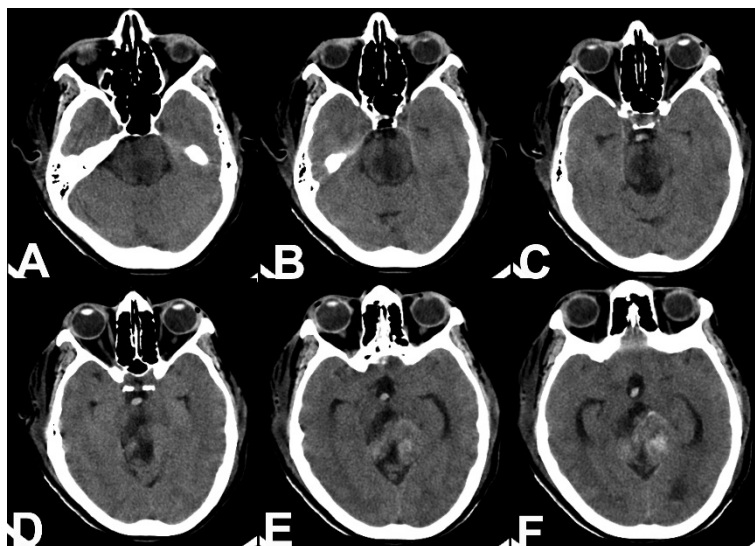


Figure 3 - Post-operative follow up CT scan showing diffuse hypodensity involving the midbrain

The patient was operated using a right interhemispheric parieto-occipital approach consisted of a unilateral parieto-occipital craniotomy exposing the ipsilateral torcula, superior sagittal sinus, transverse sinus and the occipital lobe. During surgery the major part of the tumor was found to be attached to the falco-tentorial junction and a near total excision of the lesion was performed. Followed surgery initially patient improved in her sensorium (opening eyes to call), but there was no improvement in her other neurological parameters. At day two she again deteriorated in her sensorium and a repeat CT scan showed increase in the hydrocephalus and diffuse hypodensity in the midbrain (Figure 3). The patient underwent right ventriculoperitoneal shunt, however she did not improve and continued to deteriorate. She expired on day six. Histological examination demonstrated a fibroblastic type of meningioma.

Discussion

The ideal surgical approach should allow prompt and gross total removal of falcotentorial meningiomas with minimum brain retraction and at the same time safeguard the galenic system and neighboring vital structures. (5, 10) Although total total tumour excision is the goal, however it may not be possible in all the cases. (2, 10-12) To achieve the total excision many operative approaches have been described and include transcassal, occipital transtentorial, infratentorial supracerebellar approaches and sitting, prone or Concorde positions. (11) We used the parieto-occipital route to access the lesion in the present case, which has been described as the shortest way to reach epiphysis and falco-tentorial notch. (11, 13) Uneventful postoperative courses without neurological deficits and an excellent outcome have been reported after complete removal of

the tumor. (1-5) However, the inferior extension of the tumor can compress the deep veins and the brainstem, although occlusion of deep veins may not significantly influence the outcome. (12) As described in the literature, the compression of the midbrain can cause severe respiratory disturbances with fatal outcome, (14) probably the similar mechanism resulted in poor outcome in present case. As we noticed the diffuse hypodensity in midbrain on CT scan, similar findings have been described in literature in cases of transtentorial herniation with poorer outcome. (15)

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