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Neoplasm

A brainstem cavernoma demonstrating a dramatic, spontaneous decrease in size during follow-up: case report and review of the literature

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Abstract

Background: Many reports have demonstrated a worse prognosis for patients whose cavernomas were subtotally removed than for those whose cavernomas were not surgically treated. Therefore, it is better not to touch the cavernoma if a surgeon is not prepared to totally remove it. This report describes a large brainstem cavernoma showing a spontaneous, dramatic reduction in size after removal of only the biopsy specimen of the lesion.

Case Description: A 42-year-old woman experienced facial numbness, diplopia, and ataxia. A magnetic resonance (MR) study revealed a pontine cavernoma with hemorrhage. Two weeks later, recurrence of the patient's symptoms and consciousness disturbance were noted. An MR study revealed massive hemorrhage from the cavernoma with a ventricle dilatation. An operation on the lesion was conducted 3 months after the initial hemorrhage. However, the operation was aborted when an exploration of the lesion showed a tight adhesion between the lesion and the pons. Removal of only a biopsy specimen and evacuation of the suckable hematoma were done. No neurologic recovery and no decrease in the size of the cavernoma were detected postoperatively. Her family did not wish for further treatments. She was in a bedridden state with severe brainstem dysfunction when she was transferred to a local hospital. Sixteen months after the surgery, her consciousness was clear, and MR imaging confirmed a marked reduction in the size of the cavernoma.

Conclusion: A dramatic, spontaneous decrease in size does occur even in the case of a large brainstem cavernoma showing hemorrhages. Conservative therapy may be one of the treatment options for the symptomatic brainstem cavernoma.

Keywords: Cavernoma; Size; Natural history; Magnetic resonance imaging

1. Introduction

It is accepted that surgery is indicated for brainstem cavernomas that lie close to the pial surface and have a history suggestive of a mass effect or significant hemorrhage [10]. However, it is also accepted that it is better not to touch the cavernoma if a surgeon is not prepared to remove the entire lesion. This is because many reports have shown a worse prognosis for patients whose cavernomas were subtotally removed than for those whose cavernomas were not surgically treated [4]. This report describes a patient with a large brainstem cavernoma showing a spontaneous, dramatic reduction in size after removal of only the biopsy specimen of the lesion, resulting in a good prognosis.

2. Case report

A 42-year-old woman experienced right-sided facial numbness, double vision, and ataxia 1 month before the study started. Her neurologic examination revealed a right-sided facial sensory deficit and weakness associated with the sixth and seventh cranial nerves and right-limb ataxia. A

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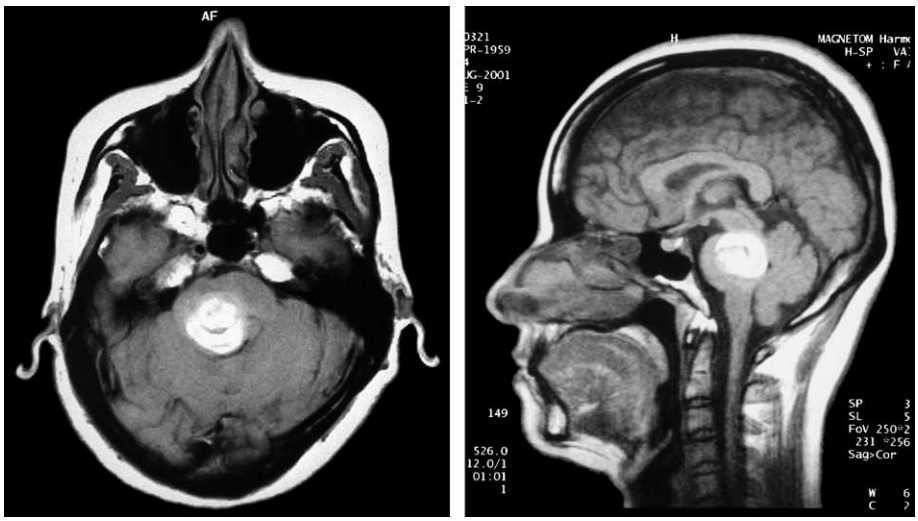

Fig. 1. T1-weighted axial (left) and sagittal (right) MR images, obtained 1 month after the initial hemorrhage, showing a pontine cavernoma.

magnetic resonance (MR) study revealed a mass lesion of mixed signal intensity in the pons (Fig. 1). A diagnosis of a pontine cavernoma was made. However, she did not agree to undergo surgery and was discharged from the hospital. Her symptoms gradually improved. Two weeks later, however, her symptoms recurred. At that time, she showed consciousness disturbance, sixth and seventh cranial nerve paralysis, left hemiparesis with a left-sided hemisensory deficit, and bilateral medial longitudinal fasciculus syndrome. An MR study revealed massive hemorrhage from a pontine cavernoma with a ventricular dilatation (Fig. 2). Three months after the initial hemorrhage, an operation on the lesion was conducted with a midline suboccipital vermis-splitting approach. However, the operation was aborted when an exploration of the lesion showed a tight adhesion between the lesion and the pons. The hematoma was surrounded by a fibrous pseudocapsule. Therefore, removal of only a biopsy specimen, evacuation of the suckable part of the hematoma, and insertion of the ventricular drainage were done. Preoperatively, the patient was almost in a locked-in state and no neurologic recovery from surgery was detected. Magnetic resonance imaging 1 month after the surgery disclosed an increased size of the lesion (Fig. 3). After undergoing microsurgery, the patient underwent a shunt placement procedure for hydrocephalus. Her family did not wish for further treatments. She was in a bedridden state and required tracheostomy and tube feeding because of the brainstem dysfunction when she was transferred to a local hospital. She showed no change for the first 9 months, but after that, she gradually recovered while she was in the local hospital. Sixteen months after surgery, her consciousness was clear, and tracheostomy and

Fig. 2. T1-weighted axial (left) and sagittal (right) MR images, obtained 2 weeks after recurrence of symptoms, revealing a remarkable enlargement of the lesion as a result of a massive hemorrhage.