Foreign-body granuloma simulating recurrence of falx meningioma

Case report

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The authors report a case of foreign-body granuloma that developed 11 years after total removal of a falx meningioma. Prior to surgery, it was thought to be a recurrence of tumor.

Key Words • brain tumor • foreign-body granuloma • meningioma

Recurrence of meningioma is well known, and since the advent of computerized tomography (CT) diagnosis of recurrence has become much easier. On the other hand, foreign-body granuloma is a very rare intracranial mass lesion. Here we report a pitfall into which we have fallen, in which we misdiagnosed a foreign-body granuloma as recurrence of meningioma on CT scan.

Case Report

This 51-year-old housewife was aware of awkwardness in putting on her left shoe in August, 1978, followed by slowly progressing difficulty in walking for 3 years.

First Admission. In September, 1981, a CT scan demonstrated a contrast-enhanced mass in the right side of the falx (Fig. 1). Neurological examination revealed bilateral choked discs, and hyperreflexia of the lower extremities, greater on the left than on the right, with extensor plantar response on the left. Angiography demonstrated vessel displacement typical of right frontoparietal falx meningioma. A persistent tumor vascular blush was seen at the anterior falx branch of the right ophthalmic artery. Through a right frontoparietal craniotomy, the tumor was totally removed. The attachment of the falx was not removed but coagulated completely. The postoperative course was uneventful, and the patient was discharged with minimal weakness of the left lower extremity. A postoperative CT scan demonstrated total removal of the tumor (Fig. 2).

Fig. 1. Preoperative computerized tomography scans. Plain scan (left) and scan after contrast enhancement (right). A round and homogeneously enhanced mass is attached to the right side of the falx.

Fig. 2. Enhanced computerized tomography scan 1 week after the first operation. The tumor is totally removed. A high-density area is visible, showing postoperative enhancement.
In February, 1983, 1½ years after the first operation, a follow-up CT scan was performed, although there was no subjective complaint or neurological deficit. It revealed a high-density mass in the same region as before. The mass was slightly enhanced by contrast material (Fig. 3).

Second Admission. The patient was readmitted on February 22, 1983. There was no neurological deficit. In spite of some vessel displacement by a right frontoparietal falx mass, angiography demonstrated no tumor stain. On February 28, 1983, reoperation was performed. The tumor was globular and partly lobulated, hard, and yellowish-gray. It was firmly attached to the right side of the falx and easily dissected from the surrounding brain. The tumor was removed in toto together with the attached falx. The postoperative course was smooth and uneventful. To our surprise, histological examination showed the lesion to be a foreign-body granuloma (Fig. 4) containing cotton fibers. These fibers might have been remains of cotton strips applied to the falx for hemostasis during the first operation.

Discussion

Recurrence of meningioma is well known. Some intracranial lesions mimic meningioma; among them are dural invasion of glioblastoma, metastasis, tuberculoma, and plasma cell granuloma.

Many kinds of foreign body are capable of eliciting a granulomatous tissue response, in addition to late abscess formation. Surgical glove starch is one example. Sekhar, et al., showed that small foreign bodies such as hair, cotton fibers, and talc granules and their accompanying granulomatous inflammation were present at both ends (ventricular and peritoneal) of malfunctioning ventriculoperitoneal shunts. Vinters, et al., reported that foreign particles were included in the histological specimens of excised cerebral vascular malformations associated with granuloma formation. The particles were thought to have been introduced during cerebral angiography. In the central nervous system, however, development of a foreign-body granuloma large enough to remove is very rare. We found only two examples in the literature. Korosue, et al., reported a case of intracranial granuloma as a complication of subdural-peritoneal shunt for subdural effusion, in which the subdural shunt tube was buried in the subdural mass. A CT scan revealed the mass as a round, markedly enhanced area of high density. Epstein, et al., reported an intracranial granuloma that developed in the subdural space of the operative site 3 years after total removal of a frontoparietal convexity meningioma. On CT, the tumor showed an enhanced ring lesion. The tumor was roughly the size of a golf ball. Histological examination showed multiple fragments of refractive suture material surrounded by a mononuclear infiltrate, and pathological diagnosis was fibrous scar with hemosiderin and focal suture granuloma.

We have not found a case with foreign-body granuloma misdiagnosed as recurrence of a meningioma. In our case, cotton fibers might have peeled off from cotton strips during the first operation, resulting in the development of a foreign-body granuloma.

References

Postoperative foreign-body granuloma


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