

## Falcotentorial Meningioma Accompanied by Temporal Lobe Hematoma

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### ABSTRACT

We report a case of a falcotentorial meningioma accompanied by hematoma in the temporal lobe. A healthy 51 year-old-female with no history of hypertension presented with sudden onset of consciousness disturbance and right hemiparesis. Computed tomography revealed a hematoma 5.5 cm in diameter surrounded by thick edematous brain in the left temporal lobe and a tumor 3.5 cm in diameter in the pineal region. Bilateral carotid angiography detected occlusion of the Galenic vein and straight sinus. No causative abnormality of hemorrhage was apparent. However, the left basal vein of Rosenthal had disappeared, and anastomotic venous channels could be observed in the medial left temporal lobe, contiguous to the hematoma. Emergency craniotomy failed to detect any abnormality which could cause hemorrhage in the brain parenchyma surrounding the hematoma. Subtotal removal of the tumor, histologically diagnosed as fibrous meningioma, was achieved three months later employing an occipital transtentorial approach. Venous congestion caused by compression due to the tumor was considered to be one of possible causes of the hemorrhage.

**Key words:** *Falcotentorial meningioma, Galenic vein, Intracerebral hemorrhage*

In cases involving falcotentorial meningiomas, occlusion of the Galenic system is not rare<sup>1)</sup>. In such circumstances, various types of collateral venous channels, including dilation of the superficial cerebral veins, may develop<sup>1)</sup>. Thus, disruption of the collateral venous channel is possible but no cases to date have been reported.

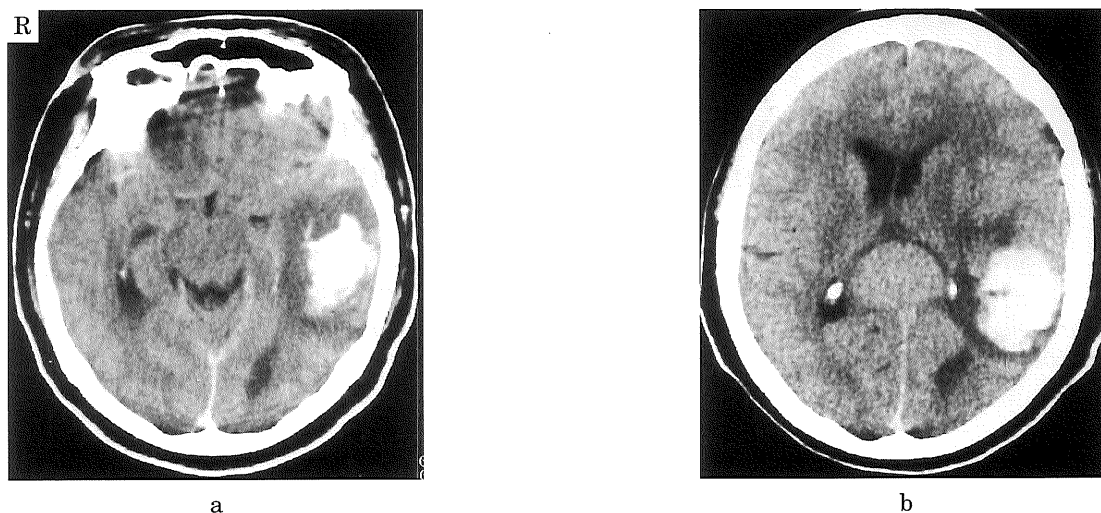
### CASE REPORT

A healthy 51 year-old female, with no history of hypertension or anticoagulant or antiplatelet treatment, was found in a stupor and was thus sent to a nearby emergency hospital. Neurological examination revealed a mild consciousness disturbance (13/15; Glasgow coma scale), right hemiparesis (4/5; manual muscle test), Gerstman's syndrome, and right homonymous hemianopsia. Computerized tomography revealed a large hematoma surrounded by thick edematous brain in the left temporal lobe, 5.5 cm in diameter (Fig. 1), and a large tumor in the pineal region, 3.5 cm in diameter (Fig. 2). Digital subtraction angiography revealed a thin left tentorial artery, a faint tumor stain in the pineal region, and occlusion of both Galenic vein and straight sinus (Fig. 3). No

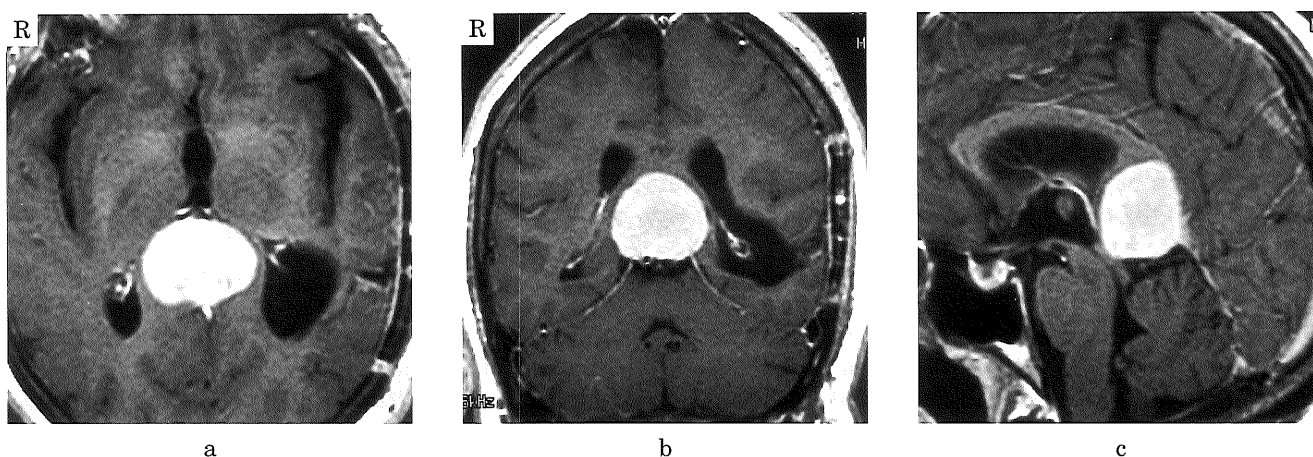
abnormalities, such as angioma or aneurysm causative of the hemorrhage, were observed. The left basal vein of Rosenthal had disappeared and anastomotic venous channels had developed in the medial left temporal lobe, contiguous to the hematoma. Emergency evacuation of the hematoma brought about an improvement of the symptoms. No abnormalities were seen in the surrounding brain parenchyma aside from considerable swelling. Three months after the hemorrhage, the patient underwent left occipital craniotomy. The left cerebellar tentorium and the posterior portion of the falx were partially divided. The tumor, histologically diagnosed as fibrous meningioma, was almost completely removed (Fig.4). The patient's postoperative course was uneventful.

### DISCUSSION

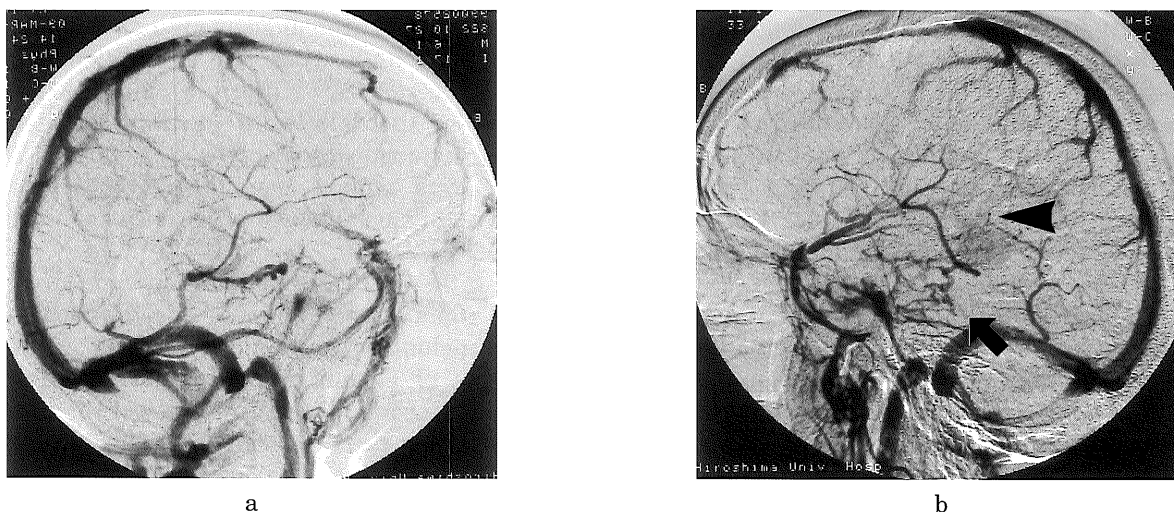
The common symptoms of falcotentorial meningioma include intracranial hypertension, followed by signs of compression of adjacent structures, such as the cerebellum<sup>1)</sup>. A review of the literature failed to reveal any cases of falcotentorial meningioma presenting with intracranial hemorrhage.



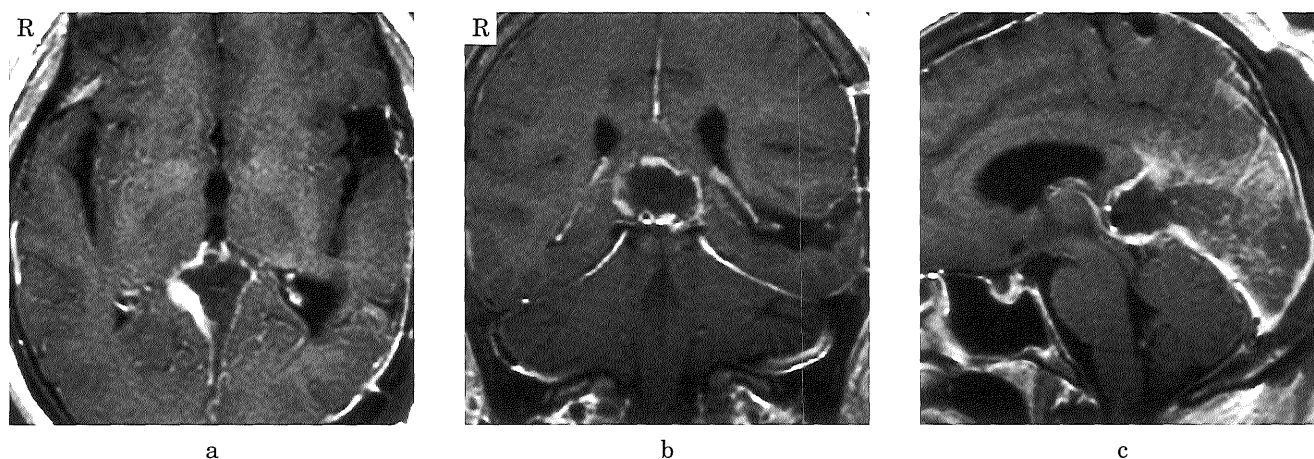
**Fig. 1.** Computed tomographic axial scan on admission showing a hematoma 5.5 cm in diameter surrounded by thick edema in the left temporal lobe.  
 a: level of midbrain, b: level of thalamus



**Fig. 2.** Gadolinium enhanced magnetic resonance imaging (MRI), examined after the removal of the hematoma, demonstrating a homogeneously enhanced round tumor compressing the splenium anteriorly.  
 a: axial image, b: coronal image, c: sagittal image



**Fig. 3.** Venous phase of digital subtraction angiography ( lateral view ) : faint tumor blush (arrow head) posterior to the internal cerebral veins and disappearance of the Galenic vein and straight sinus.  
 a: right carotid angiogram, b: left carotid angiogram  
 Left carotid angiogram showed disappearance of Rosenthal's basal vein, but tortuous venous channels (arrow) in the left temporal lobe.



**Fig. 4.** MRI examined two weeks after tumor removal demonstrating the subtotal resection of the tumor and small residue in the right posterior corner.

a: axial image, b: coronal image, c: sagittal image

The reported causes of intracranial hemorrhage accompanied by benign brain tumor have been divided into four categories; disruption of a feeding artery<sup>2-4,12</sup>, rupture of newly formed thin-walled vessels in the circumference of the tumor<sup>4,5,8,12</sup>, congestion of the venous outflow<sup>6,9,11,12</sup>, and an accidental association with systemic factors<sup>7,10</sup>, such as hypertension or arteriosclerosis. Although the present case might have brought about an accidental idiopathic intracerebral hematoma, the meningioma could possibly have caused hemorrhage, because there were no precipitating systemic factors for the hemorrhage such as hypertension. Furthermore, the absence of the left basal vein of Rosenthal and the development of tortuous anastomotic venous channels contiguous to the hematoma were taken as circumstantial evidence suggesting that the hemorrhage was due to congestion of venous flow caused by compression by the tumor. One of these fragile venous channels might have disrupted on a chance minor head injury or systemic venous hypertension. The precise causative factor cannot be established since no one witnessed the events that preceded her collapse.

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