Choroid plexus cyst development and growth following ventricular shunting

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Abstract

Choroid plexus cysts are typically incidental, asymptomatic cysts. They have been reported to hemorrhage and grow, causing symptoms of obstruction. However, growth and multiplication has not been reported following ventriculoperitoneal shunting procedures. A 66-year-old woman initially underwent a suboccipital retrosigmoid craniotomy for resection of a large petroclival meningioma. Preoperatively, the patient demonstrated imaging findings consistent with hydrocephalus. After surgery the patient required a ventriculoperitoneal shunt. Two years after the initial shunting procedure, imaging demonstrated significant growth of new bilateral choroid plexus cysts as compared with pre-shunt imaging. Post-shunt imaging also demonstrated evidence of diffuse dural enhancement characteristic of intracranial hypotension. Despite radiographic growth and multiplication of the cysts, the patient was clinically asymptomatic and had a good neurological outcome.

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1. Introduction

Choroid plexus cysts are a common finding at autopsy. They are most commonly located in the glomus of the lateral ventricles and are usually incidental findings (1). These cysts are typically thought to be static and of little clinical significance, although some have been reported to enlarge and cause obstructive symptoms (2). Growth and multiplication has not been reported following ventriculoperitoneal shunting procedures previously. We describe asymptomatic growth of new bilateral choroid plexus cysts after a ventriculoperitoneal shunting procedure.

2. Case report

The patient is a 66-year-old woman who presented with difficulty walking and severe cognitive decline over several months. Her disability was progressive, including loss of bowel and bladder function, and she was admitted to a skilled nursing facility. Work-up for the patient's significant decline included magnetic resonance imaging (MRI) of the brain that demonstrated a large petroclival meningioma with hydrocephalus (Fig. 1).

The patient underwent a suboccipital retrosigmoid craniotomy for tumor resection and placement of an external ventricular drain, from which she could not be weaned. On postoperative day 7, she underwent placement of a ventriculoperitoneal shunt. Noted on preoperative imaging was the presence of intraventricular choroid plexus cysts within the glomus of bilateral lateral ventricles (Figs. 2 and 3). Repeat imaging conducted approximately two years later demonstrated slight enlargement of the bilateral choroid plexus cysts. The cysts were noted to have grown as much as 0.9 mm during this interval.

More notably, new cysts had developed within bilateral lateral ventricles (Figs. 4 and 5). MRI obtained at this time also demonstrated diffuse dural enhancement characteristic of CSF hypovolemia syndrome (3) from overshunting, although the patient clinically was asymptomatic and had a good recovery from her surgery.

3. Discussion

Spontaneous hemorrhage (4) as well as complete disappearance (5) of choroid plexus cysts has been reported in asymptomatic patients. In this case, the patient had enlargement of existing and development of new visible choroid plexus cysts following a shunting procedure. To the authors' knowledge, this phenomenon has not been reported previously in the literature. Follow-up imaging does demonstrate that the patient may have some component of intracranial hypotension, which may have possibly facilitated the increase in size of these cysts. Despite radiographic growth of the cysts, the patient was clinically asymptomatic and had a good neurological outcome.

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Figure 1. Preoperative gadolinium-enhanced coronal MRI demonstrates the meningioma and hydrocephalus.

Figure 2. Preoperative T1-weighted gadolinium-enhanced coronal study illustrating the pre-shunt appearance of the bilateral choroid plexus cysts in the glomus of the atria.

Figure 3. Preoperative axial FLAIR study demonstrating the pre-shunt appearance of the bilateral choroid plexus cysts in the glomus of the atria.

Figure 4. Postoperative T1-weighted gadolinium-enhanced coronal study demonstrating the post-shunt appearance and evidence of new choroid plexus cysts.

Figure 5. Postoperative axial FLAIR study demonstrating the post-shunt appearance and evidence of new choroid plexus cysts.

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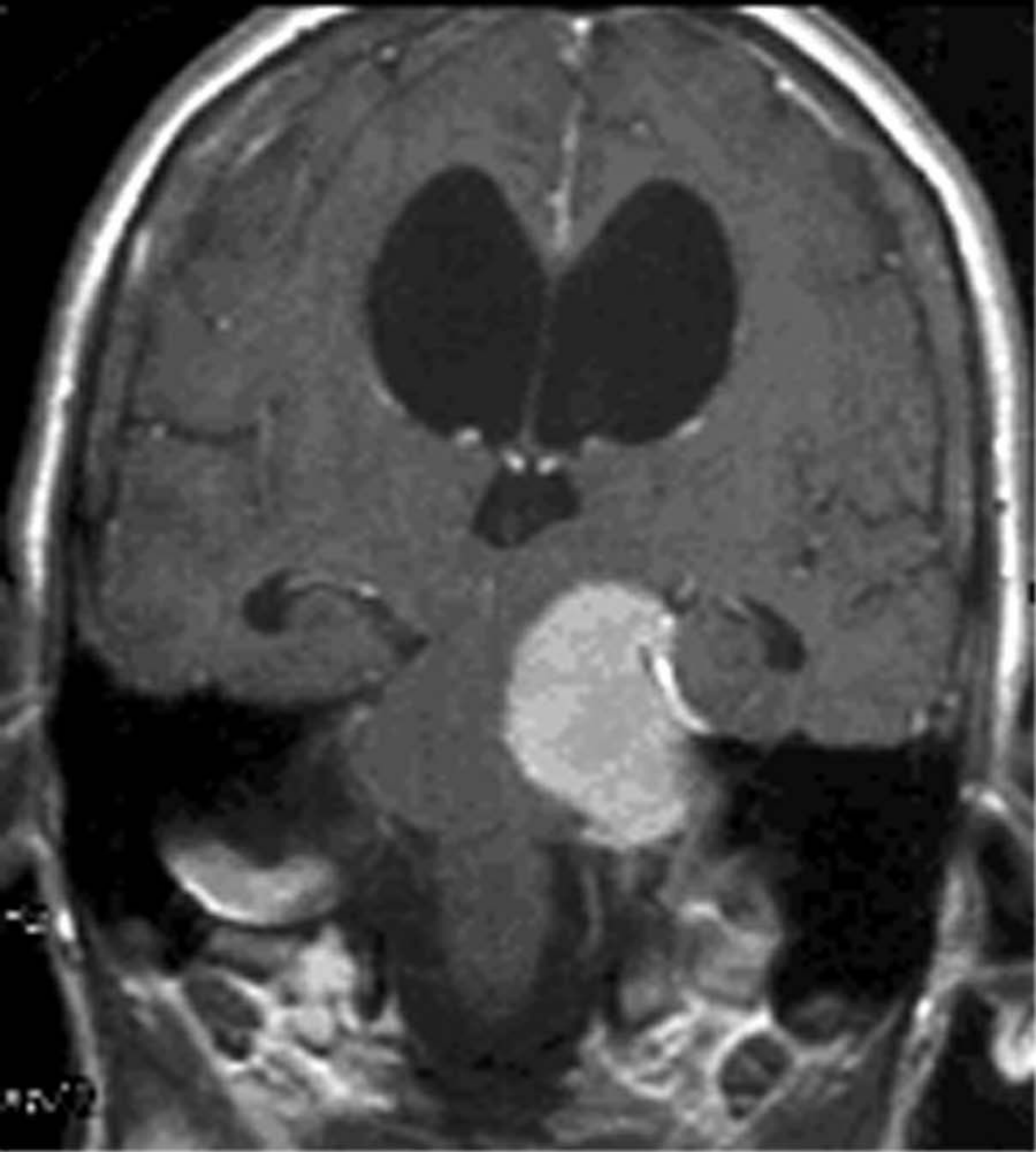

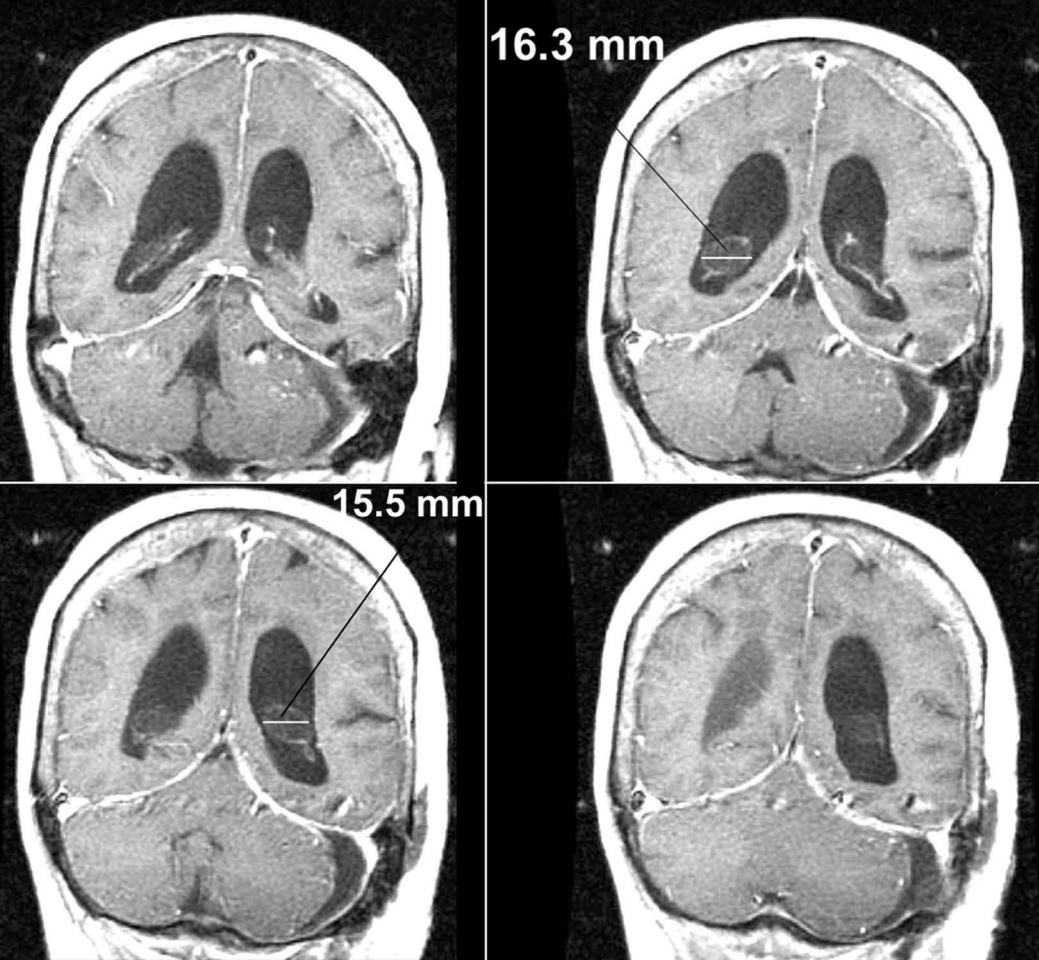
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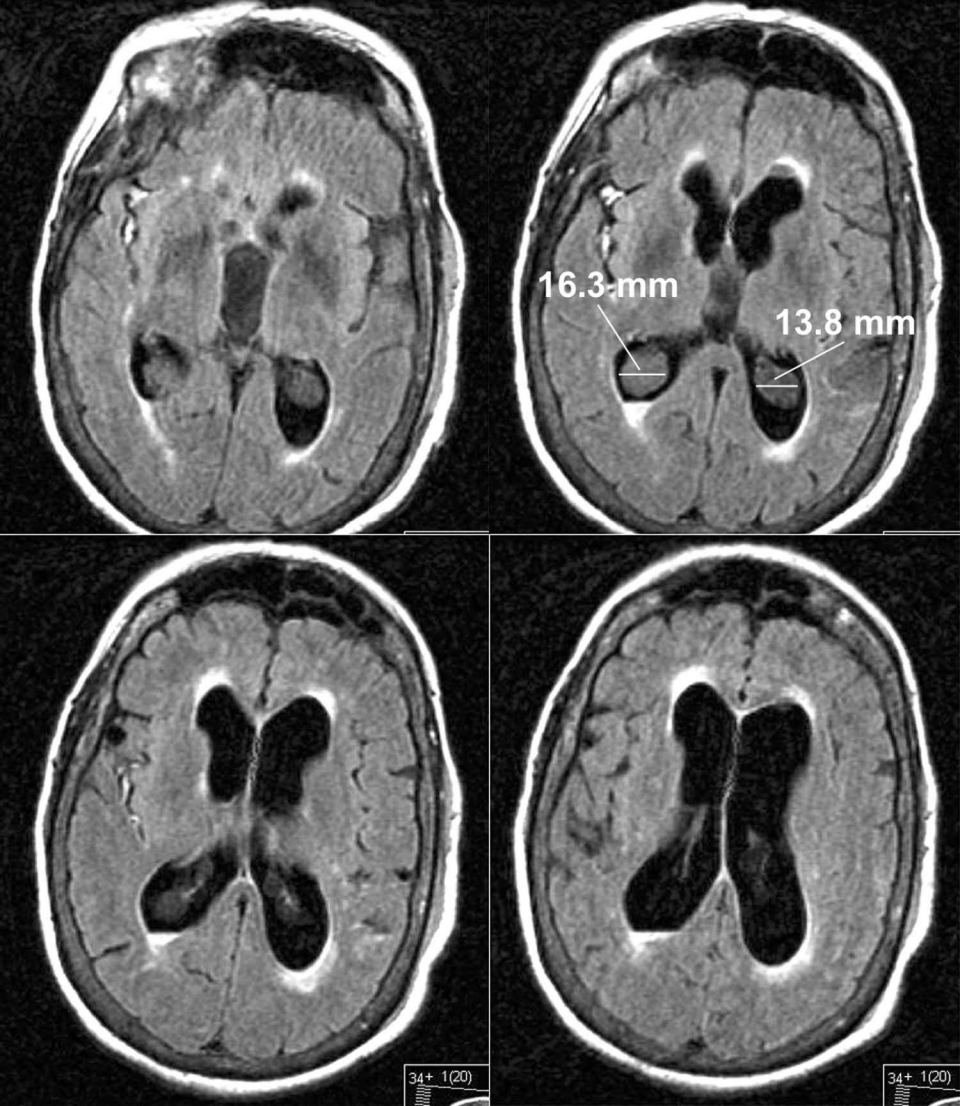
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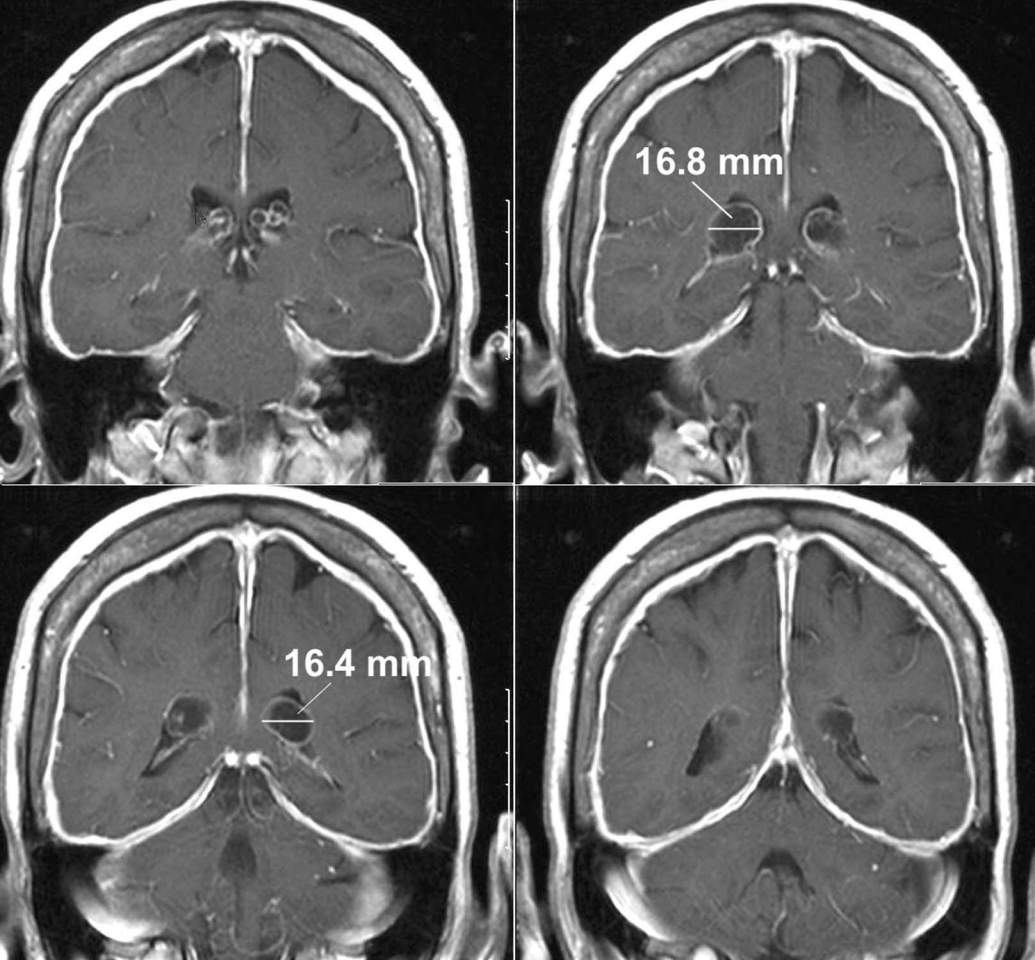
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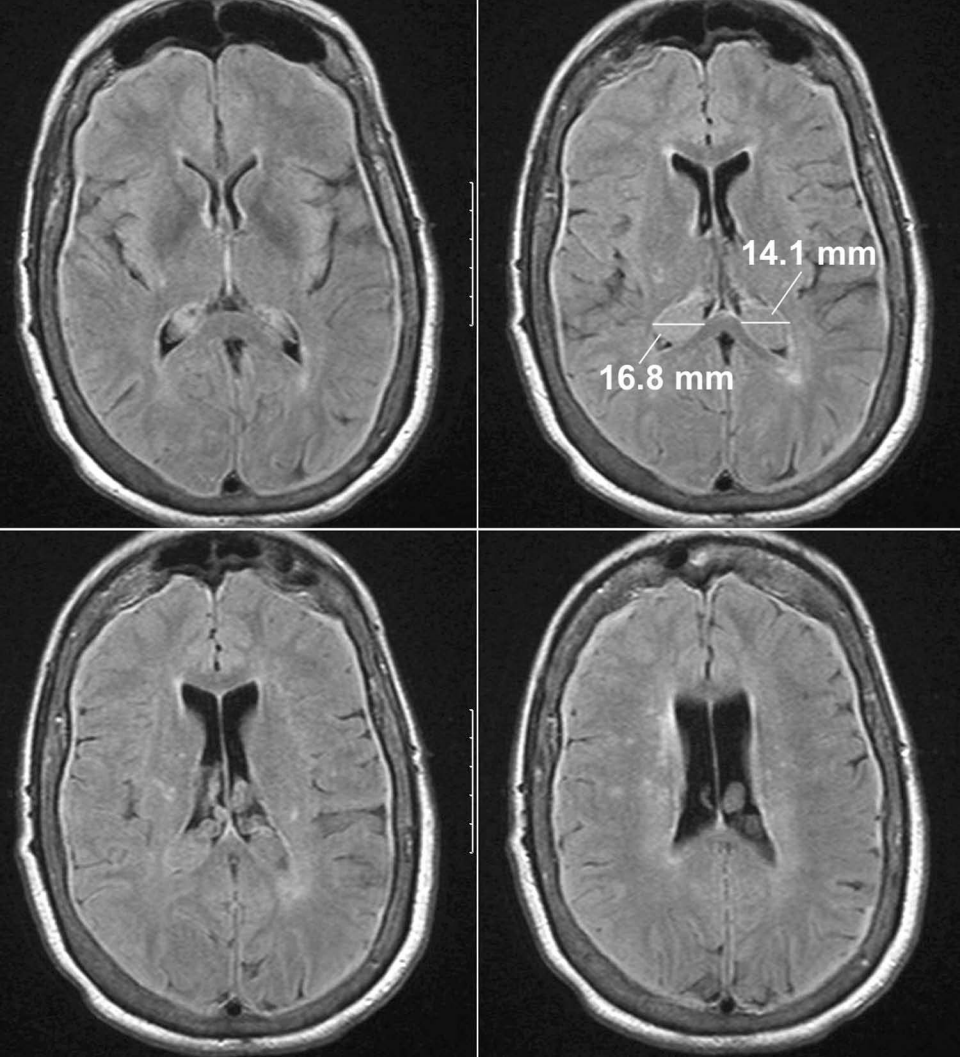
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