CASE REPORT

Spontaneous Regression of a Cystic Cavum Septum Pellucidum

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ABSTRACT

A persistent cavum septum pellucidum (CSP) is present in ~0.73% of adults, although its incidence ranges from 0.14 to 18.9% depending on the detection method. Cystic CSP is even rarer. A cyst causing mass within the CSP can obstruct the intraventricular foramen, leading to blockage of CSF flow and possible hydrocephalus, often justifying surgical intervention. We describe spontaneous decompression of a cystic CSP in a 36-year-old man. Initial MRI showed a cystic CSP with lateral bowing of the septal walls to 1.9 cm. Follow-up MRI 15 months later demonstrated no lateral bowing, and the septal wall width was 1.0 cm. This spontaneous decompression was not explained by the one previously described case report of cystic CSP regression.

KEYWORDS: Cavum septum pellucidum; cyst; spontaneous regression

RUNNING HEAD: Spontaneous regression of cavum septum pellucidum cyst

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INTRODUCTION

Cavum septum pellucidum (CSP) and cavum vergae (CV) are persistent or acquired midline anomalies of the human central nervous system. Normally, the septum pellucidum is formed by two fused leaflets located between the rostrum, body, genu, and fornix of the corpus callosum. A fluid-filled cavum can be found when these two leaflets fail to fuse completely. The more anteriorly located CSP has parallel walls and can be as large as 1 cm in width. This anatomical variant is commonly found in term and preterm newborn infants. One study found that all normal infants younger than 36 weeks gestational age had a CSP [3], although 80% of these CSPs will disappear by the age of 3 to 6 months.

Most CSP cases are found incidentally on computed tomography (CT) or magnetic resonance imaging (MRI) studies ordered for another reason. Often, a CSP will be asymptomatic and go undiagnosed throughout the individual's lifetime. When the cavum is larger than usual, it has historically been referred to as a cystic CSP. Sarwar described the cystic CSP as a lateral bowing of the walls of the septum pellucidum to a width greater than 1 cm [5]. Spontaneous regression of a cystic CSP has only been reported once in the literature [1]. In that case, the authors proposed that the cyst had spontaneously ruptured because of increased pressure and shear forces on an area of thinned-out lateral wall. The present case is unique in that the reason behind the decompression cannot be explained.

CASE REPORT

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A 36-year-old man was referred to the neurosurgery clinic by his primary care physician for a slightly elevated prolactin level (19.9 ng/mL) accompanied by a small 2-mm lesion on his left anterior pituitary gland. Upon presentation the patient was fully oriented. He denied having any headaches, loss of libido, heat or cold intolerance, or previous endocrine abnormalities. All other organ systems were reviewed and found to be within normal limits. On physical examination, the patient's vital signs were stable. He had an unremarkable neurological examination upon testing, including funduscopic examination.

Initial MRI with and without contrast completed in November 2004 revealed a 2-mm focal hypointensity in the left anterior aspect of his pituitary gland. It was thought to possibly represent a small pituitary microadenoma. The incidental cystic CSP was noted on MRI studies, measuring 1.9 cm in width (Fig. 1). The patient was advised to return for follow-up examination in one year to undergo a repeat MRI scan and redraw his prolactin level.

Fifteen months later, in February 2006, the patient underwent a follow-up MRI scan to reevaluate his pituitary lesion. Thin-section sagittal and coronal T1-weighted pre- and post-enhancement images were obtained, as well as thin-section coronal T2-weighted fast spin echo and thin-section coronal T1-weighted dynamic gadolinium-enhanced images of the sella. In this study, it was incidentally noted that there had been an interval decrease in the transverse dimensions of the CSP, measuring 1 cm compared with 1.9 cm on the previous examination (Fig. 2). The lateral walls no longer bowed outwardly, representing a decompression of the cystic CSP. No visible fenestration was seen on any

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of the MRI scans, although it was noted retrospectively that thinning of the left posterolateral wall may have been visible on axial T1 and coronal T2 imaging.

DISCUSSION

The CSP and CV are both midline, fluid-filled structures located between the leaflets of the corpus callosum. They were termed the fifth and sixth "ventricles," respectively, in the past. This nomenclature is now obsolete as the cava do not communicate with the adjacent ventricles and lack the normal ependymal lining and choroid plexus of true ventricles [5].

A cystic CSP is characterized by a non-communicating, fluid-filled space with a width greater than 1 cm and a lateral bowing of the septal walls. They may be symptomatic and have been studied in the past for possible relations to disorders such as headache, seizures, dementia, personality changes, and schizophrenia. Expansion of the septum pellucidum can produce symptoms by distorting the vessels, compressing the hypothalamoseptal triangle, or compressing the optic pathways [2].

Symptomatic cysts associated with CSP have been treated surgically in the past. Surgical treatment usually entails percutaneous or stereotactic fenestration to the lateral ventricles, cystoventriculoatrial shunt, or a cystoperitoneal shunt.

The only other case of spontaneous resolution of an idiopathic cyst of the CSP was reported in 2000. The authors described the regression of a cystic CSP in a 20-year-old woman with amenorrhea and an empty sella turcica [1]. The patient was incidentally found to have a cyst of the CSP without symptoms of obstruction, which had regressed upon follow-up MRI obtained four years later. The authors postulated a possible

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spontaneous rupture of the cyst secondary to increased pressure and shear forces on an area of thinned-out lateral wall. The left lateral wall appeared fenestrated on a thin-section cut of the follow-up MRI studies. A thorough review of the images in the present case did not reveal any fenestrations in either of the CSP lateral walls, although it can be noted that the left lateral wall was obviously thinned on the initial MRI studies. We therefore believe that spontaneous fenestration was probably the mechanism in this case as well.

Another reported case involved a 26-year-old man with venous sinus occlusion and recurrent venous infarctions [6]. During the course of his disease, enlargement of the CSP and CV were appreciated on imaging, accompanied by hydrocephalus. Upon improvement of his venous congestion, his cystic CSP and CV also spontaneously resolved. The authors supported a theory by Oteruelo, who hypothesized that CSP and CV drainage was performed by septal wall capillaries [4].

The present case describing spontaneous regression of an incidentally noted cyst of the CSP appears to be novel because no obvious fenestration of either septal wall was observed on MRI scans nor was there notable venous congestion or pressure gradient that would support the capillary drainage theory.

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FIGURE LEGENDS

Fig. 1. Initial MRI scans of cystic CSP. A. Coronal T2-weighted MRI scan obtained at the level of the third ventricle shows the outwardly bowing walls of the cystic CSP. The left lateral wall (arrow) is extremely thin and therefore barely visible. B. A coronal T2-weighted MRI scan located more anteriorly also shows the convex walls of the cystic CSP at the level of the pituitary infundibulum. C. Axial T1-weighted fat-saturated enhanced MRI scan displays the entire cystic CSP situated between the lateral ventricles. Note the very thin lateral wall on the left (arrow).

Fig. 2. Follow-up MRI studies obtained 15 months after the initial studies with no interval treatment reveals the cystic CSP is diminished in size, having lost its convexed lateral walls. A. Coronal T2-weighted MRI scan obtained at the level of the third ventricle shows the cystic CSP is smaller. The left lateral wall is now more visible but still thinner than the right. B. On a coronal T2-weighted MRI scan located more anteriorly at the level of the pituitary infundibulum the cystic CSP also shows loss of wall convexity indicating decompression has occurred.

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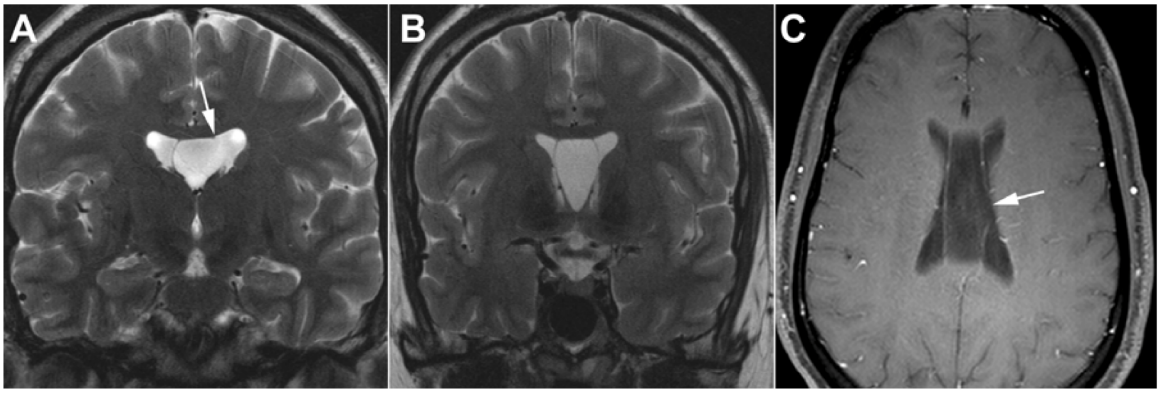

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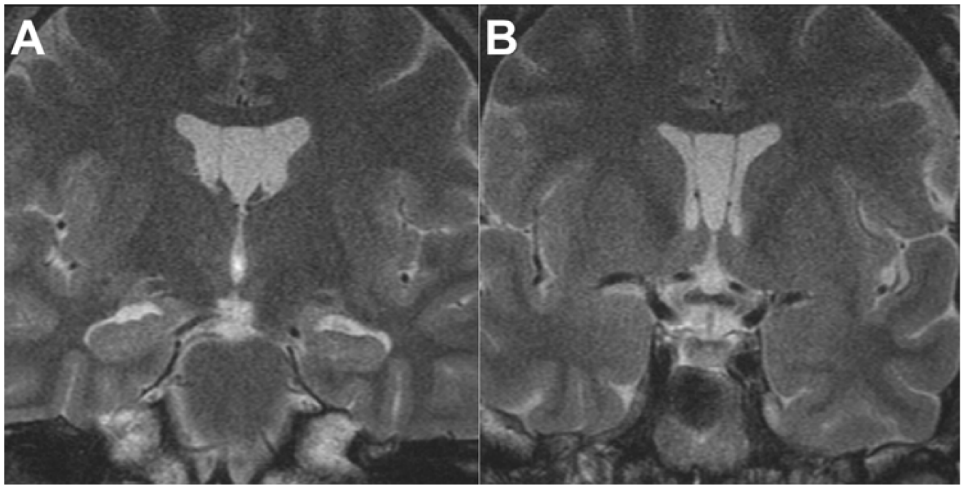

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