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Case Report

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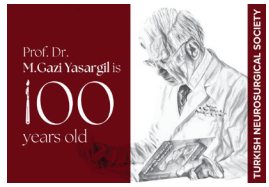

Spontaneous Bilateral Disappearance of Choroid Plexus Cysts in the Trigone of the Lateral Ventricles: A Case Report

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ABSTRACT

Non-neoplastic intracranial cysts (NICCs) are usually stable and typically do not cause symptoms throughout life. Among the various NICCs, rare spontaneous disappearances of arachnoid cysts, colloid cysts, and Rathke's cleft cysts in various locations have been reported. To our knowledge, no reports to date have described spontaneous disappearance of choroid plexus cysts (CPCs). We here report the first case of spontaneous bilateral disappearance of CPCs. Although the exact pathogenic mechanisms remain unclear, we believe that a sudden transient change in intracranial pressure or cerebrospinal fluid circulation plays an important role in the bilateral disappearance of CPCs. Further research is warranted to clarify this rare phenomenon.

KEYWORDS: Intracranial cyst, Spontaneous disappearance, Choroid plexus cysts

INTRODUCTION

Non-neoplastic intracranial cysts (NICCs) are usually stable and typically do not cause symptoms throughout life (4). With advances in radiological technology, the number of randomly discovered asymptomatic NICCs is increasing. In most cases, the presence of NICCs is discovered incidentally via computed tomography (CT) scan or magnetic resonance imaging (MRI) performed for other reasons (2,4,5). Spontaneous disappearance of NICCs is known to rarely occur, and the frequency of these events is likely underestimated due to a lack of systematic detection and long-term observation. Among the various NICCs, rare spontaneous disappearances of arachnoid cysts, colloid cysts, and Rathke's cleft cysts in various locations have been reported (1,2,5). To our knowledge, no reports to date have described the spontaneous disappearance of choroid plexus cysts (CPCs). We here report the first case of spontaneous bilateral disappearance of CPCs and discuss a possible mechanism to explain this rare condition.

CASE REPORT

This study was approved by the ethics committee of Wonkwang University Hospital (approval No. 202312028). Written informed consents were obtained from the individuals (and/or legal representatives) for the publication of the cases.

In April 2020, a 62-year-old woman underwent a cranial radiological examination as part of a medical examination. An MRI revealed bilateral 2 cm CPCs in the trigone of the lateral ventricles and an empty sella (Figure 1). Her physical and neurological examination and laboratory tests revealed no specific abnormalities. She had undergone extracorporeal shock wave lithotripsy in the urology department for a 7 mm left renal stone one year prior. Abdominal CT performed at that time showed several cystic lesions in each kidney. Afterwards, the patient reported no special symptoms and a follow-up MRI performed 2 years later revealed the complete disappearance of the bilateral CPCs (Figure 2).

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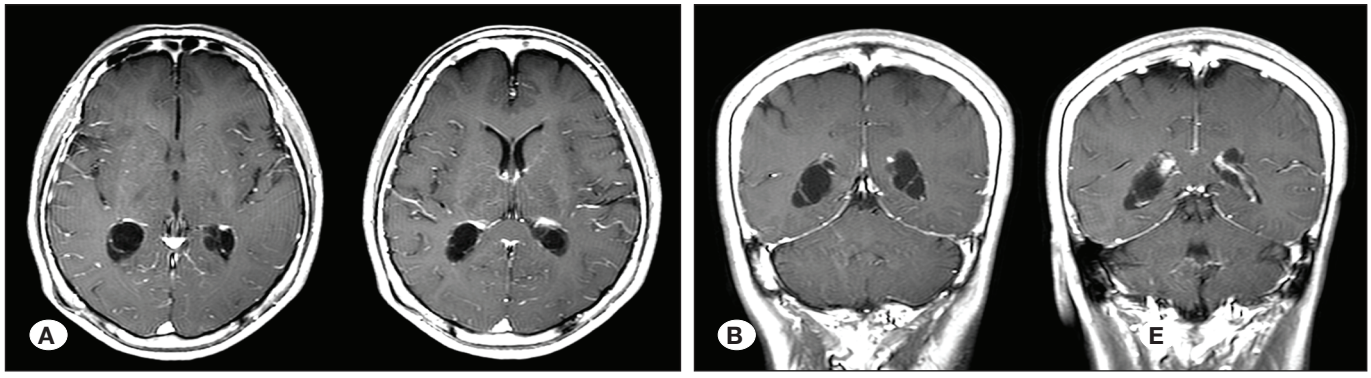

Figure 1: Axial **(A)** and coronal **(B)** cranial magnetic resonance images showing about 2 cm sized bilateral choroid plexus cysts in the trigone of the lateral ventricles.

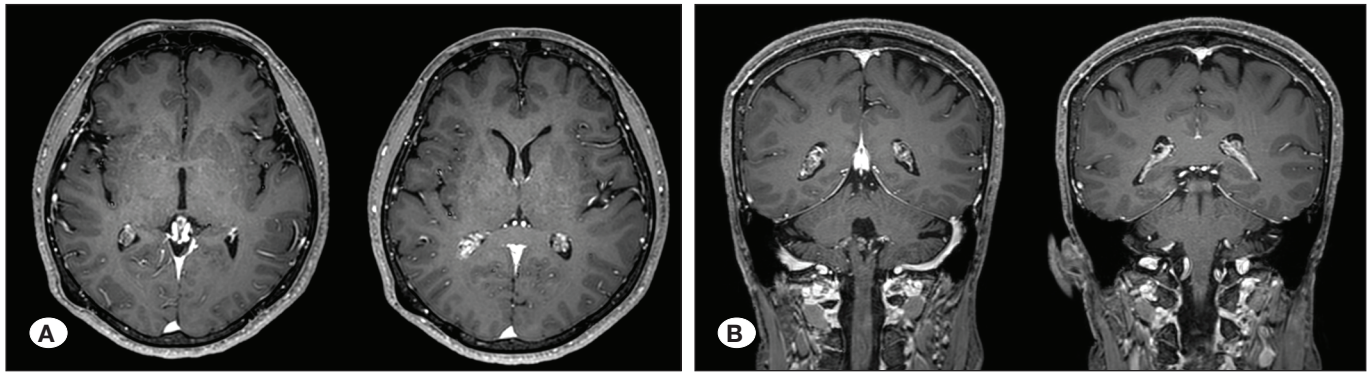

Figure 2: Follow-up axial **(A)** and coronal **(B)** cranial magnetic resonance images performed 2 years later showing a complete disappearance of the bilateral choroid plexus cysts in the trigone of the lateral ventricles.

DISCUSSION

CPCs are the most common type of intraventricular, non-colloid neuroepithelial cyst, and are found in approximately 50% or more of autopsy findings (3,6). Most CPCs are less than 1 cm in size, do not cause symptoms, and are often found incidentally. CPCs that have grown large enough to cause symptoms are very rarely reported (3,4,6). Although reports describe its occurrence in the fourth ventricle, it typically occurs in the trigone of the lateral ventricle (3,6). Histologically, the cyst wall usually consists of a thin network of connective tissue lined with a single layer of cuboidal or columnar epithelial cells, which may or may not have cilia (3,6). However, controversy remains regarding histological findings characterizing CPC walls, and in large cysts, cell shape is often indistinguishable due to cystic fluid compression, so large cysts have been reported under various names, including choroid plexus cyst, arachnoid cyst, and neuroepithelial cyst (6).

Although the mechanisms underlying the spontaneous disappearance of NICCs remain unclear, the spontaneous disappearance of CPCs is thought to occur via a similar process to that involved in the disappearance of other NICCs. CPC wall rupture can be a triggering event that causes spontaneous disappearance. Head trauma is one obvious potential cause of such triggering events. Head trauma can include minor events in which the patient is not aware any trauma was sustained. Head trauma may favor cyst regression by rupturing cyst outer membranes, opening a cyst to drain into the ventricular system. Although post-traumatic mechanisms can readily explain CPC disappearance, we may also assume that a tiny channel allowing communication between the cyst and the subarachnoid space could permit progressive cyst drainage through normal cerebrospinal fluid (CSF) pathways. Tiny channels may occur for a variety of reasons, including transient changes in CSF dynamics or cystic fluid secretion through the cysts' thin walls. In this case, the patient experienced simultaneous disappearance of bilateral lesions without a clear history of trauma. A possible mechanism to explain this in patients without a history of trauma is the spontaneous disappearance of the cyst into the subdural space due to an event that can suddenly and transiently increase intracranial pressure, such as the Valsalva maneuver.

CONCLUSION

To the best of our knowledge, this is the first reported case of spontaneous disappearance of bilateral CPCs. Although the exact mechanisms remain unclear due to the lack of long-term prospective studies of untreated asymptomatic patients, we believe that a sudden transient change in intracranial pressure or circulation of CSF could play an important role in the

bilateral disappearance of CPCs. Further research is warranted to clarify this rare phenomenon.

Declarations

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Availability of data and materials: The datasets generated and/or analyzed during the current study are available from the corresponding author by reasonable request.

Disclosure: The authors declare no competing interests.

AUTHORSHIP CONTRIBUTION

Study conception and design: KE
Data collection: KE
Analysis and interpretation of results: KE
Draft manuscript preparation: KE
Critical revision of the article: KE
Other (study supervision, fundings, materials, etc...): KE
All authors (KE) reviewed the results and approved the final version of the manuscript.

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