



The Link between Arachnoid Cysts and Psychosis - Based on a Case Report

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Abstract

Introduction: Arachnoid cysts are rare central nervous system lesions formed by accumulation of cerebrospinal fluid within the arachnoid membrane, representing 1% of all space occupying lesions. They present mostly as benign incidental findings in brain imaging studies. Causality between arachnoids and psychosis is yet to be completely established, but the number of published papers reporting their coexistence is increasing.

Objectives: We aim to explore the association between arachnoid cysts and psychosis.

Methods: Case report and naturalistic literature review on PUBMED database with keywords "arachnoid cyst" e "psychosis".

Results: We report a case of a 26 year-old Caucasian male with an inaugural presentation of an acute and transient psychotic disorder with an incidental finding of an arachnoid cyst on Brain-MRI. In these cases factors suggesting strong causal association are: Abrupt onset, remission of symptoms following surgical treatment, presence of neurological changes, advanced age, absence of personal and family psychiatric history, compression of the temporal lobe and neighboring structures.

Conclusion: Regarding arachnoid cysts and psychosis a causality relation is difficult to determine. Further controlled studies in this area, as well as further advancements in image logical techniques are necessary for better understanding of the potential causal relationship between psychiatric illness and organic brain lesions such as arachnoid cysts.

Introduction

Arachnoid cysts are rare central nervous system lesions formed by accumulation of cerebrospinal fluid within the arachnoid membrane and represent approximately 1% of all space occupying lesions [1]. They are most often benign, diagnosed before adulthood as incidental imaging findings, with higher incidence in males. Their origin can be primary (congenital) or secondary to head trauma, infection or intracranial hemorrhage [2]. They are more frequently located in the sylvian fissure, but also appear in other locations such as the middle cranial fossa, suprasellar area or the posterior fossa [3]. The clinical picture is highly variable, depending on the location of the lesion and the patient's age. Although a wide range of neurological symptoms can occur, headaches and convulsive episodes are the most common manifestations in adults [2]. In recent literature a number of studies have reported psychotic symptoms in patients with arachnoid cysts, although a solid causal correlation between both these findings is not yet established.

Methods

Case report and naturalistic literature review on PUBMED database with keywords "arachnoid cyst" e "psychosis".

Case Presentation

A 26 year-old Caucasian male presenting with psychosis with 2 months of duration was voluntarily admitted to the acute in-patient psychiatric unit. He displayed poorly systematized persecutory and poisoning delusional ideas - he believed his classmates were trying to poison him and damage his organs by using an anti-inflammatory spray he had taken for amigdalitis. He thought their ultimate goal was to keep him from finishing his studies. He also displayed verbal auditory hallucinations (multiple voices conversing and command voices), delusional interpretations of bodily sensations, motor and somatic passivity phenomena. He reported anguish and near-total insomnia. Insight was absent. No mood or affect changes were observed.

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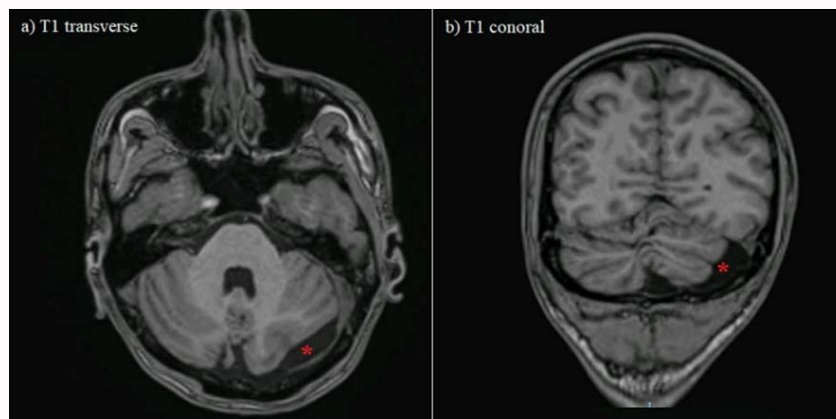


Figure 1: Cranial MRI images in transverse (a) and coronal (b) planes, showing the cyst in the retrocerebellar location (*).

The Neurological exam and Mini-Mental State Examination (30/30) were normal.

Regarding developmental history, he attended school for the cognitive-impaired due to learning difficulties.

No prior medical or surgical history, psychiatric family history, medication intake or substance abuse. General laboratory testing was normal.

Routine Magnetic Resonance Imaging (MRI) revealed a local arachnoid cyst (19 mm × 15 mm × 12 mm), conditioning widening of the posterior parasagittal left retrocerebellar extra-axial space and straightening of the parenchymatous convexity with molding of the inner plate of the occipital bone, with no mass effect (Figure 1).

The neurosurgery consultant considered the cyst to be a benign embryological residue with no need for intervention.

The patient was started on antipsychotic therapy with risperidone titrated up to 3 mg a day. The symptoms improved progressively and the patient was discharged after 1-week with full remission and partial insight.

Results and Discussion

This case report explores the possible causal relationship between arachnoid cysts and psychotic symptoms. A growing number of case reports in recent literature have shown there might be a strong etiological correlation between these two entities.

Factors such as: Abrupt onset, remission of symptoms following surgical treatment, presence of neurological changes, advanced age, absence of personal and family psychiatric history, compression of the temporal lobe and neighboring structures [2] suggest a stronger causal association.

In this case the abrupt onset and the absence of previous family

or personal psychiatric history were factors that led us to suspect the possible association between psychosis and the arachnoid cyst. A detailed development history of the cyst would be useful to better establish the temporal association between these findings.

Regarding treatment, a conservative approach is generally preferred [3], due to the high morbidity of surgery. Despite intracranial hypertension and hydrocephalus being the only mandatory signs for surgical intervention [2], several case reports describe it as the primary approach resulting in total remission of symptoms [2,4,5].

It is difficult to predict if the patient's psychiatric symptoms were precipitated by the cyst or if they were merely the initial manifestation of a primary psychiatric disorder. Further controlled studies in this area, as well as further advancements in image logical techniques are necessary for better understanding of the potential causal relationship between psychiatric illness and organic brain lesions such as arachnoid cysts.

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