

# Rapidly Progressing De Novo Arachnoid Cyst in an Adult Patient

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## Abstract

Intracranial arachnoid cysts are thought to be primarily congenital lesions that are commonly found incidentally on brain imaging. Other postulated pathophysiological mechanisms include meningeal infections, trauma, or iatrogenic causes (e.g. post neurosurgical procedures). The spontaneous appearance of these cysts is very rare. In this report we present the first case of an arachnoid cyst occurring spontaneously in a 54 year-old man presenting with progressively worsening headaches with subsequent imaging showing a new arachnoid cyst at the left cerebellopontine angle (CPA). Serial MRI tests revealed the cyst to be expanding rapidly, coinciding with worsening of the patient's headaches, tinnitus, and an ataxia. Thus, the decision was made to offer surgical intervention. While arachnoid cysts in adults are primarily thought to follow a stable course in most cases, the rapid progression in this case suggests that close monitoring with serial imaging may be warranted.

## Introduction

Intracranial arachnoid cysts are fluid-filled lesions composed of cerebrospinal fluid (CSF) representing approximately 1% of all intracranial lesions.<sup>1</sup> Primary arachnoid cysts are considered to be congenital malformations due to abnormal splitting of the two lipid layers of the arachnoid membrane. Secondary cysts can develop after trauma, meningitis, neurological surgery, or subarachnoid haemorrhage.<sup>2</sup> Regardless of their etiology, arachnoid cysts predominantly maintain a benign course of progression; they remain stable in size and are usually asymptomatic.<sup>3</sup> Rapid growth of arachnoid cysts found incidentally has been reported to be a rare occurrence.<sup>4</sup> A recent study assessing the prevalence and natural history of arachnoid cysts on magnetic resonance imaging (MRI) images of 48,417 adult patients reported the incidental finding of arachnoid cysts in 661 of these patients. To examine the course of progression, they followed 203 patients with a total of 213 intracranial arachnoid cysts for  $3.8 \pm 2.8$  years and found that five cysts enlarged over time, while only two patients experienced the development of new neurological symptoms.<sup>4</sup> Regarding spontaneous arachnoid cysts: only four cases have been illustrated in the literature thus far, all occurring in young children.<sup>5-8</sup> Herein we present the case of a 54-year-old patient with a CPA arachnoid cyst arising spontaneously and expanding rapidly over a short period of time with neurological sequelae. To the best of our knowledge, this is the first such report in an adult patient.

## Case Report

### History and Examination

A 54-year-old, right-handed man presented to our clinic with a one-year history of severe daily headaches, left-sided facial paresthesias, and tinnitus. His headaches were acute in onset, sharp in nature, bitemporal with no radiation, and were not associated with any other symptoms. They had no identifiable trigger, would last for several minutes, and were increasing in frequency and severity as time passed. While initial imaging had been negative (Figure 1A), subsequent imaging demonstrated the appearance of an intracranial extra-axial cyst at the left CPA (Figure 1B, 1C).

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