

# Co-morbid psychiatric disorders in patients with arachnoid cyst: A case series

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## Introduction

Arachnoid Cysts (AC) are congenital, benign lesions in the brain formed by an arachnoid membrane containing cerebrospinal fluid. Most cases are diagnosed incidentally. Although most of them are asymptomatic, they can cause neurological symptoms like headache, seizures, ataxia, visual disturbances, dizziness, and neuropsychiatric problems. Within the literature, there are reports of arachnoid cysts co-existing with psychiatric disorders with different presentations. In which within some of those cases cysts as being the sole pathology. Additionally, in a case with personality disorder, improvement observed postsurgically. In a study involving 15 children with temporal arachnoid cysts in which 11 of them operated, improvement of general cognitive ability had been observed. There is an increasing awareness about neuropsychiatric conditions in patients with arachnoid cysts.

## Objectives

The objective of the present study was to perform psychometric evaluation in order to demonstrate psychiatric conditions in children with arachnoid cysts who admitted to Child Neurology Clinic regardless of symptomatology.

## Materials and Methods

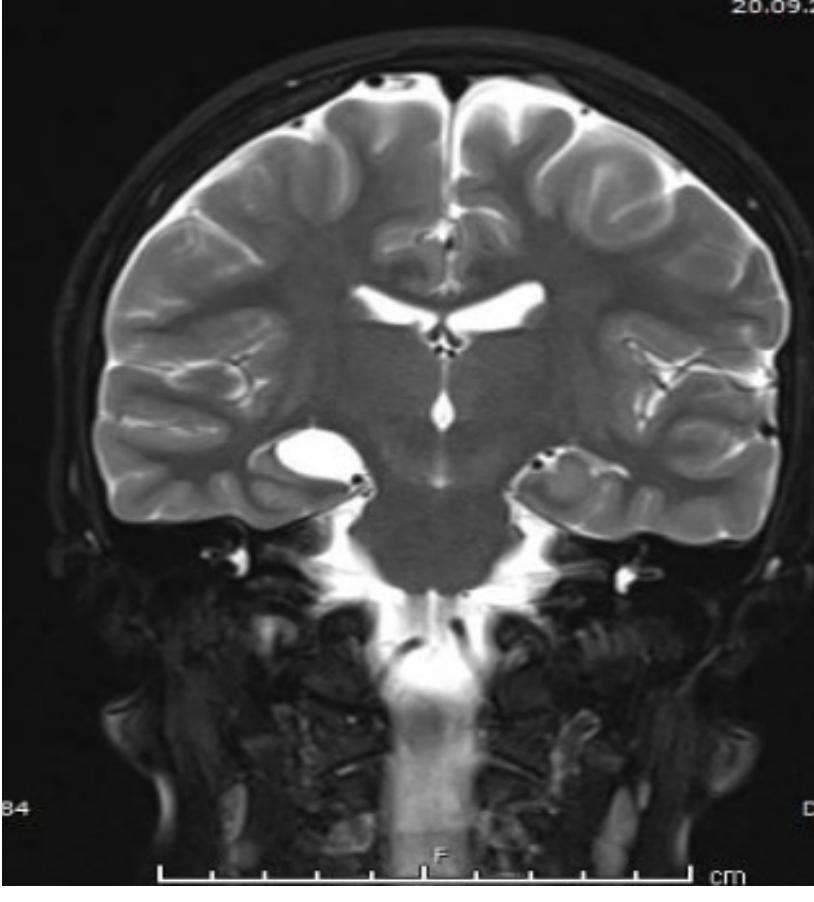
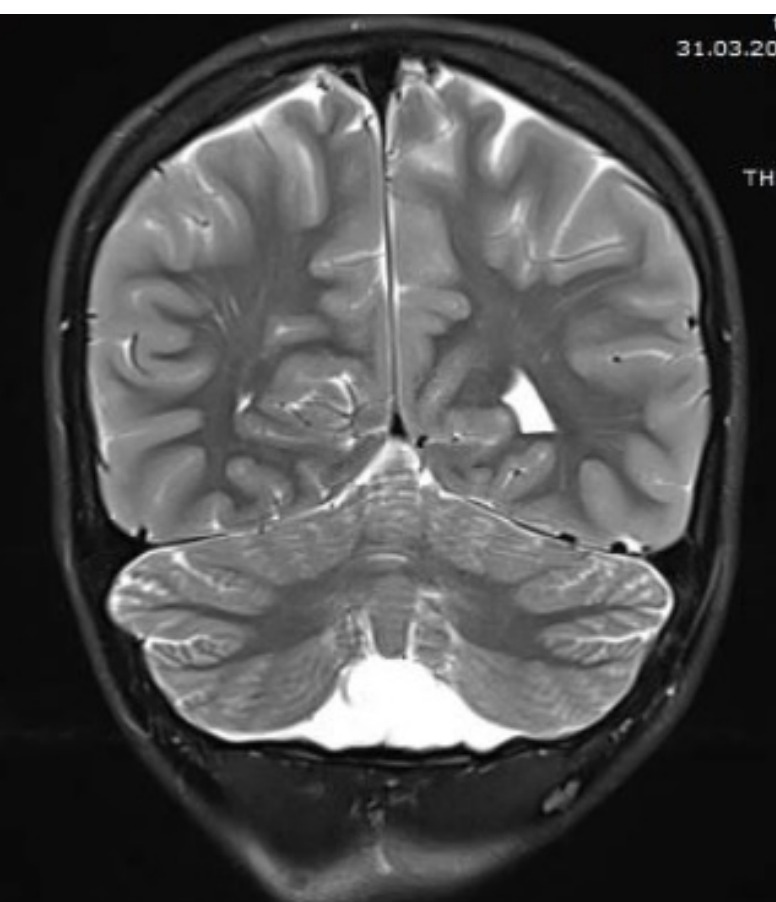
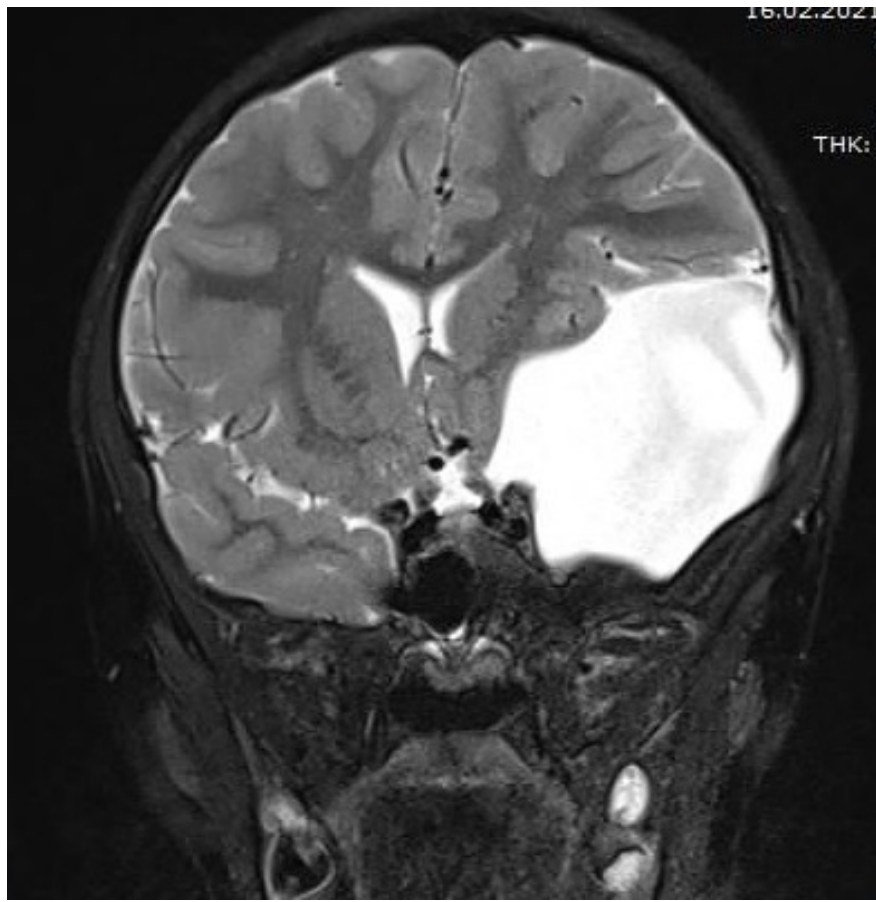
Patients with intracranial cysts with ages between 6 -17 years enrolled to the study. Among 15 patients, 8 of them had informed consent to involve to the study. Demographic data collected from patient files. MRI scans evaluated by the same radiologist. WISC 4 test (Wechsler abbreviated scale of intelligence) (matrix reasoning and vocabulary subset) performed for IQ (Intelligent quotient) score for school aged children. Kiddie-SADS-lifetime version (K-SADS-PL) (DSM V) applied for accompanying psychiatric disorders by a child psychiatrist.

## Results

Eight patients evaluated with arachnoid cyst. Among them 4 (50%) were male and 4(50%) were female. Mean age of the patients was 12 years and 6 months. Most frequent complaint in attendance was seizure in 5 out of 8 patients. Arachnoid cysts mostly located within the posterior cerebellar area.

Within the group 4 patients had a normal IQ score with a mean of 99,7. Among patients with normal IQ score 1 patient had epilepsy and Attention Deficit Hyperactivity Disorder and 1 patient had epilepsy without any neuropsychiatric disorder. Other 4 patients had moderate intellectual disability with a mean IQ score of 48,3. Among those patients, 2 out of 4 had epilepsy and 3 of them had accompanying psychiatric disorders (tic disorder, obsessive compulsive disorder in addition to specific phobia and conduct disorder).

Patient	Age (years)	Gender	Complaint	Diagnosis	Localisation of cyst	Size of cyst (mm)	Vocabulary subset score	Matrix reasoning score	IQ score	K-SADS-PL
1	8, 5/12	male	headache	-	Post cerebellar	4 x 3,5	21	31	52	Tic disorder
2	8, 3/12	male	seizure	epilepsy	Left FT	66 x 75	50	35	85	ADHD
3	13, 5/12	female	seizure	-	Left P	71 x 50	20	22	42	OCD Specific phobia
4	17	female	seizure	epilepsy	Post cerebellar	53 x 56	22	28	50	-
5	12, 3/12	female	tinnitus	-	Post cerebellar	25 x 23	50	54	104	-
6	14, 5/12	female	headache	-	Post cerebellar	71 x 51	63	45	108	-
7	9, 7/12	male	seizure	epilepsy	Right T	22 x 13	22	27	49	Conduct disorder
8	13, 2/12	male	seizure	epilepsy	Right T	19 x 15	55	47	102	-



## Conclusions

Although it cannot be concluded that the etiology of neuropsychiatric conditions of our patients directly related to arachnoid cysts, arachnoid cysts may have a role in the psychiatric symptomatology. Alternatively formation of the cysts and the presence of psychiatric conditions might share the same abnormal developmental processes.

In conclusion, patients with arachnoid cysts have a high rate of co-morbid neuropsychiatric disorders that increases with the decrease of IQ level that should be confirmed with larger scale studies.

## References

Sandvik U, Adolfson T, Jacobson DN et al. Cognition in children with Arachnoid cysts. J Clin Med.2020.9(3):850

Silva JD, Alves A, Talina M, et al. Arachnoid cyst in a patient with psychosis: Case report. Annals of General Psychiatry. 2007;6 (1, 16,10,1186/1744-859x-6-16)

Bechter K, Wittek R, Seitz K et al. Personality disorders improved after arachnoid cyst neurosurgery, then rediagnosed as ‘minor’ organic personality disorder. Psychiatry Research:Neuroimaging.2010;184(3):196-200

Patel K, Oluwadamilare A, Melvin K et al. Psychiatric manifestation in the setting of Arachnoid cyst: A case series.ARC Journal of Psychiatry.2019;4(2):1-4

Gosalakal JA. Intracranial arachnoid cysts in children: a review of pathogenesis, clinical features, and management. Pediatr Neurol. 2002 Feb;26(2):93-98. doi: 10.1016/s0887-8994(01)00329-0.

Kim KH, Lee JY, Phi JH, Cho BK, Shin MS, Kim SK. Neurocognitive profile in children with arachnoid cysts before and after surgical intervention. Childs Nerv Syst. 2019 Mar;35(3):517-522. doi: 10.1007/s00381-018-4026-0.

## Acknowledgements /contact

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