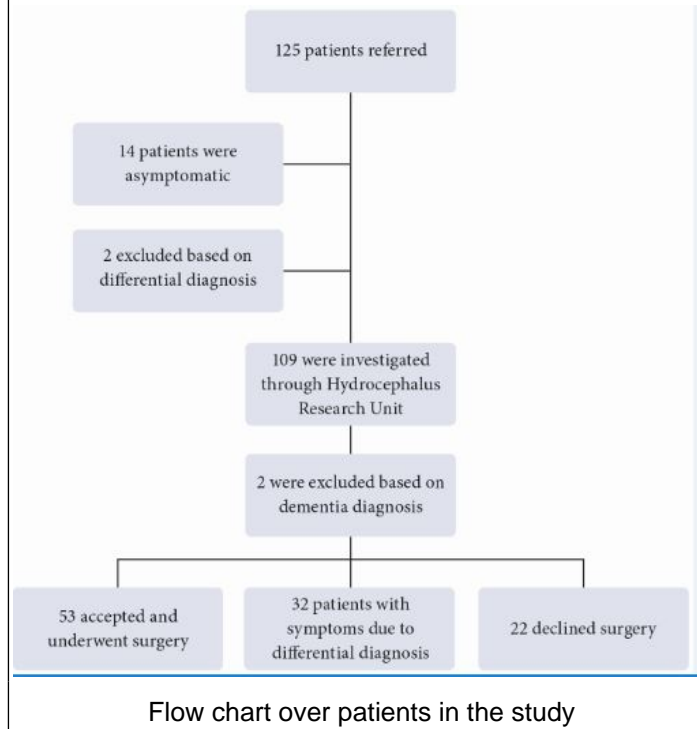


# Can Subjective Improvement of Patients Operated for Arachnoid Cysts Be Measured and Justify Surgical Treatment?

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**Figure 1 Flow chart over patients in the study**



## Results

Patients who accepted surgical treatment did not differ from the other two groups considering balance test and neuropsychological test results. Performance of patients with temporal cysts was in the normal range for test results of the neuropsychological tests. 77% of the operated patients reported improvement, yet there were no differences in test results of the operated patients before and after surgery, Figure 2. AC in temporal region and posterior fossa did not influence results of neuropsychological- and motor tests respectively. Cyst volume decreased postoperatively (<0,0001) yet there was no relation between cyst volume and clinical improvement.

**Figure 2. Neuropsychological and balance test results before and after surgery**

	Preoperative value	Postoperative value	p-value
Cyst volume	30 (52.4)	11 (50.9)	< 0.0001
Rey auditory verbal learning test (Total)	46 (13)	47 (12)	0.93
Rey auditory verbal learning test, delayed recall	45 (13)	45 (13)	1.00
Grooved peg board Dominant hand	47.5 (23.0)	46.2 (22.9)	0.56
Grooved peg board Non-dominant hand	47.8 (19.2)	42.8 (27.0)	0.29
Reaction time	50.0 (14.2)	43.0 (12.5)	0.048
Swedish Stroop Test	47.9 (10.7)	45.1 (12.4)	0.80
Rey-Osterrieth Complex Figure	> 40 (28- >40)	> 40 (28- >40)	0.63
Romberg	60.0 (16.9)	60.0 (16.4)	0.83
Sharpened Romberg; eyes open	60.0 (20.2)	60.0 (24.0)	0.41
Sharpened Romberg; eyes closed	13.5 (21.4)	13.0 (24.3)	0.51
FES (S)	6.00 (0.66)	6.00 (0.80)	0.74

Median and (SD) are presented.  
For comparison between groups Mann-Whitney U-test was used for continuous variables.  
FES (S)= Swedish version of Falls Efficacy Scale

Test result before and after surgery in operated patients

## Conclusions

In absence of objectively verified symptoms, we suggest a restrictive approach towards surgical treatment in adults with intracranial arachnoid cysts.

## Introduction

Patients with arachnoid cysts (AC) display various neurological symptoms. The most common symptoms of AC are frequent in general population and a causal relationship between symptoms and AC is debatable. Therefore treatment of AC remains controversial.

The aim of this study was to evaluate symptoms of patients with AC using neuropsychological- and balance testing and to examine the correlation between cyst location and test results.

## Methods

109 adult patients were included prospectively and consecutively in this study. All patients underwent neurological-, neuropsychological-, and physiotherapeutic examinations. AC was considered symptomatic in 75 patients who were offered surgical treatment. In 32 patients the symptoms were found to have other causes than AC. Out of the 75 patients who were offered surgery, 53 accepted and 22 declined, Figure 1. Neuropsychological testing included Rey Auditory Verbal Test, Rey Osterrieth Complex figure test, Stroop test, Grooved peg board and Target Reaction time. Balance tests included Romberg's test, sharpened Romberg with eyes open and eyes closed and the extended version of Falls Efficacy Scale. Operated patients underwent the same test battery 4-6 months after surgery. Cyst volume was measured with OsiriX® software pre- and postoperatively.