

Cognitive recovery in normal pressure hydrocephalus after shunt surgery

Recuperação cognitiva na hidrocefalia de pressão normal após cirurgia de instalação de sonda

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ABSTRACT

The normal pressure hydrocephalus is a syndrome characterized by three symptoms, which are gait disturbance, dementia, and incontinence. The authors report the case of a 58 years old patient. He presented normal pressure hydrocephalus of weighty dementia and after ventricle peritoneal surgery, he presented cognitive recovery in verbal memory, executive memory, and visual memory. The cognitive aspects were evaluated through neuropsychological tests, before and after the surgery. The authors concluded that normal pressure hydrocephalus must be seen as differential diagnosis of dementia and gait disturbance in the elderly, and they can be potentially treatment through the peritoneal ventricle shunt surgery.

Key-words: hydrocephalus, cognition, shunt, neuropsychological.

RESUMO

A hidrocefalia de pressão normal (HPN) é uma síndrome caracterizada por uma tríade sintomática, na qual estão presentes os sintomas de apraxia de marcha, demência, e incontinência urinária. Os autores relatam um caso dessa entidade, em um paciente de 58 anos, que apresentou hidrocefalia de pressão normal, encontrando-se no quadro de demência grave, e após cirurgia de derivação ventrículo-peritonal apresentou recuperação cognitiva nas esferas de memória verbal, memória de execução e memória visual. Os aspectos cognitivos, foram avaliados através de testes neuropsicológicos, antes e após a cirurgia.

Concluem os autores que a hidrocefalia de pressão normal, deve ser lembrada como diagnóstico diferencial de demência e distúrbio de marcha no idoso, e pode ser potencialmente tratada com a cirurgia de derivação ventrículo – peritonal.

Palavras:– chave: hidrocefalia, cognição, derivação, neuropsicologia

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INTRODUCTION

The normal pressure hydrocephalus is characterized by three symptoms: gait disturbance, dementia, and urinary incontinence¹.

The acknowledgement of normal pressure hydrocephalus (NPH) as the cause treat potential was first recognized by Hakim and Adams in the sixties, characterized by alteration gait disturbance, associated with intellectual decrease advanced dementia and urinary incontinence. In NPH occurs pressure of the cerebrospinal fluid and the patients present enlarged ventricles, generally occurring in the sixth or seventh life decade. The cognitive deficits of subcortical subtypes, characterized by psychomotor difficulties, presents in executive function², by the shunt surgery, the patients present cognitive recovery in gait disturbance or incontinence³.

Due to few studies in both national and international literature about this syndrome the authors present a case report.

A CASE REPORT

Patient, 58 years old, illiterate, internal in the neurology infirmary, hospital of Clinics of Federal University of Pernambuco, presents normal pressure hydrocephalus in Weighty dementia, waiting treatment of shunt surgery. Neuropsychological tests were made to assess the dementia rating.

Instruments used: mini-mental, Rey auditory verbal, Wais III, with verbal comprehension subtests and formation of figures with cubes to evaluate the executive function. The complex figure Rey's version B (due to weight dementia presented by patients), evaluation visual memory^{7,8,9}.

In the pre-surgery moment the patient presents significant losses in verbal memory, executive memory, visual memory, of weighty dementia.

The second evaluation was realized five day after the shunt surgery, the patient presents

improvement in all areas cognitive, including the dementia, which became a light dementia (CDR1)¹⁰. The third evaluation was realized 35 days after the shunt surgery; a patient improves in all cognitive functions and comes out of the state of dementia. It was also observed improvements in gait disturbance, and urinary incontinence.

To observe **figure 1**, **figure 2** and **table 1**, **table 2**.

Figure 1 - Model - Rey's figure - Version - B

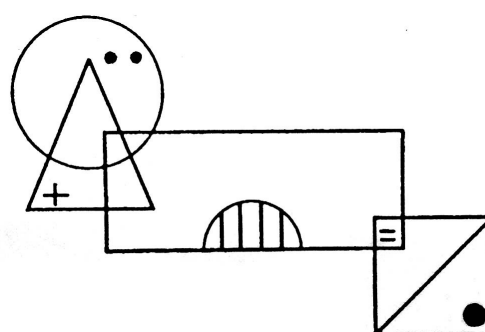


Figura 2 – visual memory evolution, was tree realized evolution.

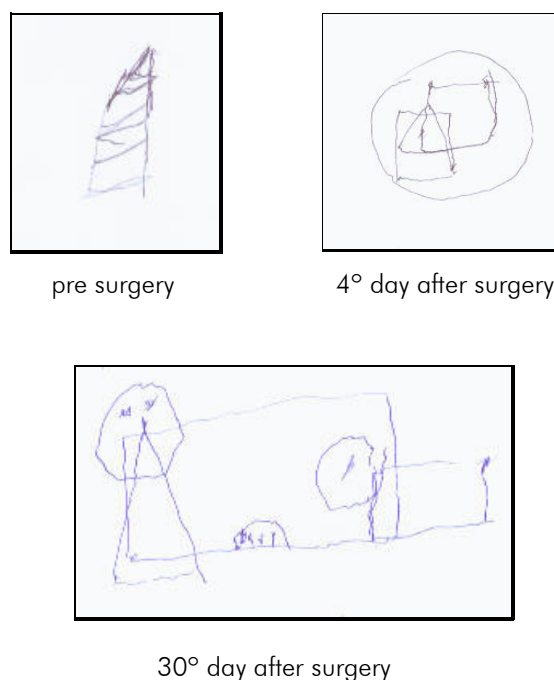


Table 1: Results in evolution and values of variables in the Neuropsychological test battery

Neuropsychologic tests	Pre surgery	4 ^o day after surgery	30 ^o day after surgery	R.V
Mini - exame mental	5	7	16	13
Verbal auditory Rey 's	6	15	22	30
Was - verbal comprehension	0	8	12	15
Visual memory Ceba	3	4	6	15
Visual memory Rey 's	1	8	27	31
Was – Executive	1	4	8	15
Escafe Rating	CDR 3	CDR 1	CDR 0,5	
Escafe Katz	dependence	degree dependence	independence	

Berttment cognitive after shunt

Table 2 – Accompaniment Mini-mental across

Dados	Pre surgery	4 ^o day after shunt	30 ^o day after shunt
Orientação	1	4	7
Memória Imediata	2	–	1
Atenção e Cálculo	2	–	3
Evocação	–	–	–
Linguagem	5	–	6

Mini-mental of evolution

DISCUSSION

The NPH may be the cause of secondary idiopathic, in secondary case, the most common etiology is a hemorrhage subarachnoid, meningitis, encephalic brain traumatic. In last there has been an increase in cases of idiopathic hydrocephalus.

The mechanic physiopathology of case is alteration in the re-absorption of cerebrospinal fluid. The classis treatment of the NPH is placement of shunt peritoneal ventricle, which reestablishes brain intrapressure, possibly causing or lessening the damage in these patients, improving their life quality before their family.

In the work done with the neuropsychological tests, as evaluation realized before, is 6 a 12 months after surgery, in patients with NPH, 50% obtained cognitive improvement in verbal memory and executive memory².

Other study show that the neuropsychological evaluation in patients having NPH and congenital hydrocephalus in adults, before and after shunt and concluded that the group with NPH, presents improvement in cognitive functions³.

In the Hospital of Clinics of São Paulo, a study was made with 56 hydrocephalus cases and the NPH was present in 30 patients, and gait disturbance was verified in 100% dos cases, as

cognitive alteration was present in 83,3% e a urinary incontinence in 53,3%⁴.

In related the study through 251 records of patients suffering of dementia, a hydrocephalus is present in 29 patients, 11%⁵. When compared to patients with NPH after surgery with other types of hydrocephalus, improvement was observed in the development of verbal memory, executive memory, and visual memory⁶.

CONCLUSION

The NPH is one form of dementia that can be treated by surgery shunt, the patient presented better cognition and improvements in the gait disturbance.

To check student through our neuropsychological test, there was an improvement in the scores presented by the patient in each phase realized.

The visual memory got better, as the first figure presents, after surgery, little information was kept compared to the 30 day after surgery figure.

This study shows positive results in patients, illiterate with NPH, being a contribution to those interested in researching this topic, and shows the importance shunt surgery in patients with normal pressure hydrocephalus.

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