Indications for the Surgical Treatment of Hydrocephalic Dementia

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Summary. Eighteen patients with chronic hydrocephalic dementia who had a ventriculo-atrial or ventriculo-peritoneal shunt are reported. The indications for operating on this type of dementia are discussed on the basis of the clinical and instrumental protocol and the postoperative results.

Key words: Dementia – CSF shunt – Hydrocephalus – Amipaque CT scan – Isotopic cisternography.


Introduction

Some states of mental deterioration, associated with chronic hydrocephalus in adults, which can be treated favorably by a cerebrospinal fluid shunt procedure, have been identified during the last 15 years since the description by Adams et al. of the syndrome of adult communicating normotensive hydrocephalus [1].

The characteristics of this syndrome are:

— hydrocephalus of varying degree without clinical and radiological signs of intracranial hypertension or cortical atrophy;
— gradual onset of dementia over weeks or months;
— disorders of gait, generally of ataxic type;
— improvement after CSF shunt.

The results obtained with CSF shunting have led to a better understanding of the indications for the surgical treatment of hydrocephalic dementia, although not yet with absolute precision [2, 5, 14, 24, 25, 26, 29, 32].

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Etiological, clinical and radiological details of differential diagnosis are submitted for determining which patients surgical will benefit from surgical treatment.

Clinical Diagnostic Methods

The etiology, when known, offers a valid indication, whether or not to perform a CSF shunt.

It is generally agreed that good surgical results are obtained in cases of chronic hydrocephalus secondary to subarachnoid hemorrhage, cranial trauma, meningitis, intracranial surgery and dilatation of the basilar artery.

By contrast, less favorable results have been reported in cases of dementia with chronic idiopathic hydrocephalus [4, 5, 11, 16, 17, 24].

The psychic picture consists of disturbance of memory temporospatial disorientation, and character and behavioral disorders which may reach the point of a state of complete dementia. There are, however, some aspects which indicate that surgical treatment should be administered. Generally, in these patients there is total disorientation; lack of spontaneous attention but retention of connective attention when requested of the patient. There is extremely serious slowing of the train of thought accompanied by severe impairment of initiative, lack of affect and hypomimia not found in other types of dementia [6, 7, 8, 22, 23, 31, 32] (see Table 1).

The psychiatric clinical picture becomes of particular value when behavioral symptomatology is carefully studied. There are some obvious characteristic aspects such as mimic, physical appearance and speech. The patient's reaction toward psychiatric examination and his relationship with the physician are classified according to confidence, hostility or indifferent behavior. Daily activity is judged on the basis of self-care, bodily cleanliness, sphincter control, sleep, and sexual and nutritional behavior (food refusal or bulimia). The signs of basal psychic activity at the time of hospitalization are considered in the light of some fundamentals such as alertness and the conception of space and time.

The degree of conative and spontaneous attention and of thought formulation provides information about the patient's ability to synthesize. Finally the degree of mental damage is investigated with tests such as the Wechsler-Bellevue.

Psychometric data are thus included in the global clinical picture of the patient's personality troubles. Memory deficiencies are thoroughly examined by means of the following tests: auditory learning, memory for designs, and Benton visual retention. These tests, which are performed before operation, are then repeated every 4 months for 1 year after operation.

More particularly, the psychic picture is characterized more by a state of suspension than by irreversible loss of the psychic faculties, although presenting some aspects of dementia. In fact, the potentialities of these faculties appear to remain and give the examiner the impression of only a temporary disappearance.

The motor deficits are chiefly of gait which is characterized by short steps and ataxia. The sphincter disturbance is urinary incontinence especially during the night.