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Case Report

Neuropsychiatric manifestations in patient with normal pressure hydrocephalus improved with therapeutic lumbar tapping

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ABSTRACT

Normal pressure hydrocephalus is a communicating hydrocephalus without evident obstruction of the normal pathway of CSF flow. Normal-pressure hydrocephalus is a common cause of reversible dementia and it can also present with various psychiatric symptoms. A 76-year old man was brought to psychiatry OPD with history suggestive of decreased need for sleep for 8 days, disinhibited behaviour, increased libido, increased activity and increased talk for 4 days. On examination patient was noticed to be having increased psychomotor activity with increased talk, mood reported to be happy with elated affect, no content or perceptual disturbances were elicited. Cognitive functions were within normal limits. Personal and social judgement was impaired with grade 0 insight. General physical and systematic examinations were within normal limits. MRI reports showed ventricular enlargement suggestive of normal pressure hydrocephalus. Patient underwent diagnostic and therapeutic lumbar tapping. There was significant improvement in patient's behavioural symptoms following therapeutic lumbar tapping. Therapeutic lumbar tapping in this case of normal pressure hydrocephalus was effective in the management of manic symptoms. Early identification of organic cause in late onset psychiatric disorders is necessary. Prompt intervention of the organic cause was effective in the management of manic symptoms.

Keywords: Mania, Normal pressure hydrocephalus, Therapeutic tapping

INTRODUCTION

Normal pressure hydrocephalus is a progressive, sub-acute or chronic disorder characterized by accumulation of cerebrospinal fluid in the ventricles leading to enlargement of the ventricles sometimes with little or no increase in intra-cranial pressure. Normal pressure hydrocephalus is characterized by a triad of gait disturbance, cognitive impairment and urinary incontinence.[1] Normal pressure hydrocephalus is amenable to neurosurgical interventions. It is a cause of dementia identifiable by its physical manifestations referred to as a "correctable cause of dementia." patients with normal pressure hydrocephalus can present with behavioral manifestations that include affective symptoms, personality change, inappropriate affect, emotional lability or incontinence, disinhibition, poor judgement and delirium.[2,3]

Prior case report of an elderly man who presented with paranoid psychosis and mild cognitive impairment, but no neurological signs or classic triad noted; gait disturbances and urinary incontinence developed later in the course of illness. Computer tomography revealed Normal pressure hydrocephalus and lumbo-peritoneal shunt was performed following which there was full remission of psychotic symptoms as well as considerable improvement in functioning, continence and gait.[4]

Psychiatric sequelae can be the predominant as well as initial clinical manifestation of normal pressure hydrocephalus. Normal pressure hydrocephalus is an organic brain syndrome that is potentially reversible by a neurosurgical shunting procedure.[5] Prior case report of normal pressure hydrocephalus presented as secondary mania and the patient responded to neurosurgical intervention.[6] Normal pressure hydrocephalus may present with psychiatric symptoms. Elderly patients without a prior psychiatric history, no localizing neurological signs and fluctuating cognitive and memory deficits in association with prominent affective and/or psychotic symptomatology of recent onset, should raise the clinician's index of suspicion for organic cause.

CASE REPORT

A 76-year-old gentleman presented to the psychiatry outpatient department with complaints of decreased sleep for 8 days, disinhibited behavior, increased libido, increased activity and increased talk for 4 days. Symptoms were acute in onset and progressive in nature. Patient had decreased need for sleep. He was also noticed to be exposing his genitals to the females at home and making inappropriate gestures and talking excessively about sexual matters. There was no history suggestive of bowel and bladder incontinence, memory impairment, gait disturbances, head injury, fever, seizures, substance use, depressive symptoms, thought interference, anxiety symptoms. There was no significant past history or family history of psychiatric illness reported. On mental status examination patient was conscious and alert, adequately groomed and nourished, rapport was established easily. Patient was noticed to have increased psychomotor activity; talk was increased in tone and volume with decreased reaction time, talk was relevant, coherent and spontaneous. Mood was reported to be happy with elated affect, no content or perceptual disturbances were elicited. Patient had decreased attention span and concentration. Patient was oriented to time, place and person; memory and other cognitive functions were within normal limits. Personal and social judgement was impaired with grade 0 insight. No focal neurological deficits were elicited. There were no other localizing or lateralizing signs. Other systems examinations were within normal limits. Considering atypical presentation and acute onset of psychiatric symptoms with absence of significant past and family history of psychiatric illness provisional diagnosis of organic manic disorder (F 06.30) was made. Patient was advised blood investigations and computed tomography. Computed tomography brain revealed ventricular enlargement with features suggestive of normal pressure hydrocephalus. Routine hemogram, renal function test, liver function test and thyroid function test were within normal limits. Patient was referred to neurology and admitted under neurology department. MRI showed features suggestive of normal pressure hydrocephalus. Patient underwent diagnostic and therapeutic lumbar tap on alternate days and clear CSF about 60ml was drained. Patient's manic symptoms improved after therapeutic lumbar tapping. Patient was started on tab acetazolamide 250mg for normal pressure hydrocephalus. Endocrinology opinion was sought for diabetes mellitus. Urology opinion was sought in view of benign prostate hypertrophy. Ophthalmology reference was sought, and features of diabetic retinopathy were noticed. Medication for diabetes mellitus, hypertension and benign prostate hypertrophy were continued. There was significant improvement in manic symptoms following neurosurgical intervention and on follow up no behavioral symptoms were reported.

DISCUSSION

Cognitive and neuropsychiatric symptoms are common in patients with normal pressure hydrocephalus. Disturbances in executive and memory function usually dominate and impaired wakefulness may be present, but a range of other psychiatric symptoms have also been reported, such as anxiety, emotional instability and blunting, personality change, depression, mania, obsessive compulsive disorders and psychosis; some of which have been shown to improve after shunting. However, little is known about the frequency of psychiatric symptoms in idiopathic Normal pressure hydrocephalus or the frequency of co-existing psychiatric or behavioral disorders.[7] Normal pressure hydrocephalus results from obstruction in the subarachnoid space to the normal flow of CSF. This normally flows from the basal cisterns over the cerebral convexities to the superior sagittal sinus where the fluid is returned to the systemic circulation. The disorder has a variety of different underlying etiologies. These include subarachnoid space-occupying lesions or hemorrhage, chronic meningoencephalitis, residual changes following acute bacterial meningitis or spinal anaesthesia, and carcinomatosis of the meninges; but often there is no obvious cause.[8] With the typical clinical presentation, gait disturbance is often the first sign to appear. It is described as a "magnetic "gait, with difficulty initiating walking, postural instability, and broad-based shuffling gait.[9] This may be due to a number of factors, including paraventricular corticospinal fiber damage, disconnection of basal ganglia from the frontal cortex, and uninhibited antigravity reflexes.[10] Incontinence is a late sign and is thought to be due to damaged periventricular pathways to the sacral bladder center resulting in reduced inhibition of bladder contraction.[11] Dementia is characteristic of the subcortical type, with prominent frontal lobe features, including psychomotor retardation. Precise anatomical correlates accounting for the behavioral symptoms associated with normal pressure hydrocephalus have not yet been established. However, certain anatomical regions have been known to be associated with particular behaviors and symptoms. Mania has been associated with diencephalic and hypothalamic dysfunction; temporal lobe abnormalities may cause episodic aggression and ventricular enlargement due to aqueduct stenosis may present as schizophreniform psychosis. Antipsychotic

medication may help relieve agitation and paranoid symptoms; antidepressants and electroconvulsive therapy have been shown to alleviate depressive symptoms in patients with normal pressure hydrocephalus.[12] Very little is known about frequency of psychiatric and behavioral disorders in idiopathic normal pressure hydrocephalus, but a wide range of symptoms have been described in these patients. Population based case-control and cohort studies are needed as well as studies of biomarkers and neuropsychological testing.

CONCLUSION

Normal pressure hydrocephalus can be explained by clinical and radiological findings. Therapeutic lumbar tap in this case of normal pressure hydrocephalus was effective in the management of manic symptoms. Early identification of organic cause in patients with late onset psychiatric disorders is necessary. Prompt intervention for organic cause is effective for the management of mood symptoms. Normal pressure hydrocephalus is a common disorder and its reversibility by means of a CSF shunt, justifies increased awareness for identification and treatment of organic etiology although presenting with psychiatric symptoms.

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