Normal pressure hydrocephalus in a patient with alcohol dependence: A case report

Prajakta Patkar[1], Ichpreet Singh[2], S Mujawar[3*], Suprakash Chaudhury[4], Daniel Saldanha[5]

[1-3]Senior Resident, [4]Professor, [5]Professor and Head, Dept. of Psychiatry, Dr. D. Y. Patil Medical College, Hospital and Research Centre, Dr D Y Patil University, Pimpri, Pune, Maharashtra, India

***Corresponding Author: S Mujawar**
Email: suprakashch@gmail.com

Abstract
Normal-pressure hydrocephalus (NPH) is characterized by a classic triad of symptoms namely urinary incontinence, dementia, and gait disturbances. It may present initially with psychiatric symptoms like depression, perceptual disturbances, anxiety, etc. This case report describes a 58-year-old male patient with alcohol dependence who presented with complaints of urinary incontinence, forgetfulness, imbalance while walking and standing, fearfulness, hearing of unreal voices along with sleep appetite impairment since 3-4 months. He was consuming alcohol since the last 20 years. On examination, he was conscious, oriented to time and place. He had mild tremors. Vitals were stable. Mental status examination revealed patient was shabby, ill kempt, uncooperative, irritable, along with delusion of persecution and auditory hallucinations. Insight about his illness was impaired. MMSE score was 18. MRI suggested a disproportionate dilatation of the ventricular system as compared to the basal cisterns, sylvian fissures and cortical sulci. Careful examination of patients presenting with above symptoms is necessary for proper management of patients with NPH.

Keywords: Normal pressure hydrocephalus, Psychosis, Psychiatric symptoms, Depression, Perceptual disturbances, Anxiety.

Introduction
Hakim and Adams in 1965 first described normal-pressure hydrocephalus (NPH).[1] It is characterized by a classic triad of symptoms namely urinary incontinence, dementia, and gait disturbances. Its incidence increases with advancing age, and most patients are above the age of 60. In patients less than 65 years of age the prevalence is found to be less than 1%, and up to 3% for patients who are 65 or older. No sex predilection was found.[2-4] It is thus one of the few causes of reversible dementia, but it is still under-diagnosed.[3,5] Involvement of different areas of the brain especially prefrontal lobes have been shown by imaging and recently molecular studies, which may result in psychological symptoms like depression, perceptual disturbances, anxiety, etc.[6-9] Recent research involving nuclear imaging has shown poor perfusion of periventricular, prefrontal regions, and basal ganglia.[10-12] In addition, brain functional imaging studies revealed involvement of orbito-frontal and anterior cingulate cortex in idiopathic normal-pressure hydrocephalus (iNPH).[13-14] Groenewald E et al reported a case of a 62-year-old man who came with a history of psychiatric symptoms since 2 months. The symptoms were preceded by cognitive dysfunctions, urinary incontinence and an abnormality of the gait. He was diagnosed with NPH and improvement was seen in his symptoms after surgery was successfully carried out.[15] Yoshiyama and colleagues published a study in which they used a questionnaire to examine as to how the patients with iNPH were evaluated in Medical Centre for Dementia (MCDs) in Japan. In this study more than 590 patients with iNPH underwent an MCD examination in a year. They found that 73 out of 87 MCDs reported that iNPH patients should be examined by both dementia specialists and neurosurgeons after shunt surgery.[16] The INPH- CRasH Study which included one hundred seventy-six NPH patients and 368 controls found that the complaint of depression is as such overrepresented in NPH patients compared with the general population, in spite of treatment with a shunt and concluded that screening for depression is necessary to evaluate NPH patients so as to diagnose and treat any coexisting depression present in such patients.[17] Here, we present a case of NPH who presented with alcohol dependence syndrome with psychiatric symptoms.

Case History
A 58-year-old male, retired professional boxer, reported to psychiatry OPD of a tertiary care hospital with his wife. He came with chief complaints of excessive alcohol use since the last 30 years. He also had complaints of urinary incontinence, forgetfulness, imbalance while walking and standing, fearfulness, hearing of unreal voices along with sleep appetite impairment since 3-4 months. Patient was apparently alright 3-4 months ago when he started forgetting day to day things about his routine e.g. whether he had a bath, had food or read the newspaper etc. He would repeatedly ask for food and would find it difficult to remember the names of the family members staying at home. There were times when he would forget the way to his own home and had to be picked up or dropped home by someone. Patient often would pass urine in his clothes without realizing and would sit in the soiled state until someone changed his clothing. However, there was no fecal incontinence. The family also observed that he had started to lose his balance while standing and walking and would often need support even to do his day to day activities. He constantly complained that he was scared that he would fall down as he could not stand or walk alone without help. Of late the patient had started feeling fearful without any apparent reason and would at times even start crying that someone is trying to harm his life but couldn't mention names and couldn't be convinced to the contrary. He agreed to be hearing multiple voices of people who scared him

saying that they will kill him. The voices were vivid and not will dependent, coming from outer objective space. Patient was not able to maintain his own hygiene. Relatives complained that he wasn't sleeping very well since last 3-4 months and in fact had not slept at all since 10-12 days. His appetite was also grossly impaired to the extent that he wouldn't even ask for it and had to be fed by someone. There was history of chronic alcohol use since last 30 years which was dependence pattern and eye opener was also present since last 2 years, although he was completely abstinent for the last month now. There was no history of seizures or major medical illness in the past.

On examination, he was conscious, oriented to time and place. He had mild tremors. Vitals were stable. CNS examination showed no impairment in the sensory or motor systems. All the deep tendon reflexes were normal and both the planters were flexors. Cardiovascular, respiratory and per abdominal examinations were normal. Mental status examination revealed patient was shabby, ill kept, uncooperative, and in touch with reality. Spoke in normal tone and speed, relevantly and coherently. Affect was irritable along with delusion of persecution and auditory hallucinations. Insight and judgment was impaired. MMSE score was 18.

MRI was done which showed that there was disproportionate dilatation of the ventricular system as compared to the basal cisterns, sylvian fissures and cortical sulci. This suggested normal pressure hydrocephalus (Fig. 1 and Fig. 2). Patient was admitted and started on Tablet Haloperidol 2.5mg HS. Neurology opinion was taken and was transferred under their care. The patient was unfortunately lost to follow up.

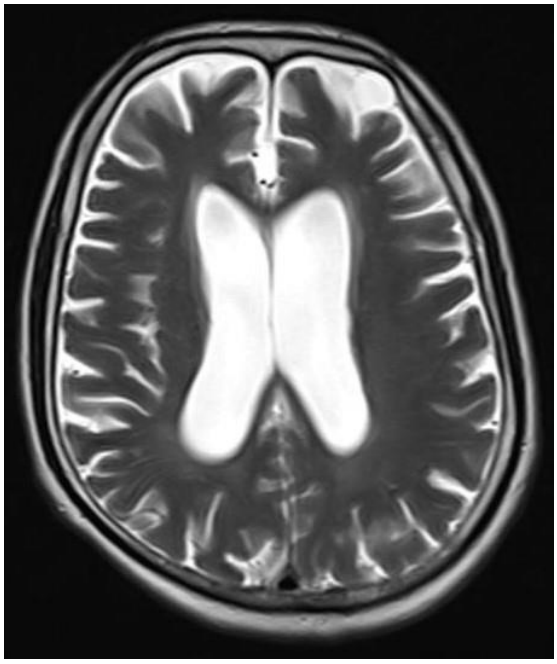

Fig. 1: MRI brain showing disproportionate dilatation of the ventricular system as compared to the basal cisterns, sylvian fissures and cortical sulci

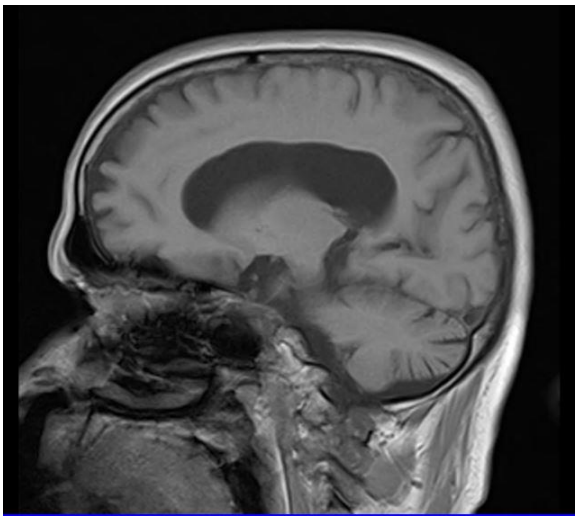

Fig. 2: MRI brain showing normal pressure hydrocephalus

Discussion

NPH which is a reversible cause of dementia is seen to present with or complicate psychiatric symptoms such as in the case reported above. Prompt identification of such neurological disorders in patients presenting with behavioural symptoms plays a major role in key treatment decisions and prognosis of these patients.[18] A study of 33 patients reported that the natural course of iNPH shows progress and deterioration with time leading to worsening in gait, balance and cognitive symptoms which may or may not be reversible. Hence, for maximum benefits of shunt treatment, surgery should be performed as soon as possible to prevent further deterioration.[19] A European multicentre study found that treatment of NPH by diversion of CSF to the peritoneal cavity or heart was effective in reversing symptoms in more than 80% of the patients.[20] However, NPH may be found to initially present with psychiatric symptoms and early surgical intervention for management of psychiatric symptoms is not considered in such cases.[21-23] In another case report a patient with a diagnosis of schizophrenia preceding the diagnosis of NPH had failed to respond to antipsychotic medication and after the surgical treatment of the NPH the improvement of the psychotic symptoms was seen.[24] Allali G et al in a study of 33 NPH patients found apathy is a good predictor of better outcomes of gait disorders in patients with NPH after CSF tapping was done in these patients.[25] Another study observed 5 patients who presented with cognitive decline, and gait disturbance, with or without incontinence for 2 years period. There were clinical or CT signs of raised intracranial pressure in 4 of the 5 patients. The underlying pathologies found in them included idiopathic meningeal fibrosis, periaqueductal glioma, meningeal lymphocytic lymphoma, basilar aneurysm and basilar invagination. All of them showed response to the insertion of a shunt. However, one patient with iNPH who was shunted during the same period, did not improve. They challenged the concept of normal pressure hydrocephalus as a cause of cognitive deterioration.[26] Hence, further research is needed in cases of

NPH presenting with psychiatric symptoms so that we can diagnose and treat them as early as possible which will lead to better outcomes and a better quality of life in these patients.

Conflict of interest

None.

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