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Idiopathic Chronic Hydrocephalus in Middle-age male with lower urinary tract symptoms, erectile dysfunction, gait disturbance, and papilledema

Aaron Tigor Sihombing [a,*], Antonia Kartika [b]

[a] Department of Urology, Faculty of Medicine Universitas Padjadjaran, General Hospital Hasan Sadikin Bandung, Indonesia
[b] Neuro-Ophthalmology Unit, National Eye Center Cicendo Eye Hospital Bandung, Indonesia

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ABSTRACT

This report describes a 44-year-old male with a rare case of idiopathic chronic hydrocephalus who came with complaints of intermittent lower urinary tract symptoms (LUTS), erectile dysfunction, gait disturbance, mental disorder, and papilledema. A detailed assessment of voiding dysfunction in the clinical presentation should be explored to find a surgically correctable cause.

Introduction

Hydrocephalus usually occurs at the extreme of age, in infant or elderly. Each of these age groups hydrocephalus has its syndrome characteristic. In infants with relatively non-rigid skull cranial expansion, hydrocephalus present with head enlargement and symptoms ranging from irritability to seizure.

Different from hydrocephalus in infancy and elderly, symptoms of hydrocephalus in young and middle-aged adults are less commonly recognized. Generally, the clinical presentation of hydrocephalus of adults in this age range has been included in a cohort study of elderly patients with normal pressure hydrocephalus (NPH).[1] Ninety three percent idiopathic normal pressure hydrocephalus (iNPH) patient has lower urinary tract symptoms (LUTS).[2] Recognition of symptoms and confirmation of the diagnosis of hydrocephalus in this age group remain challenging for the medical professional since it can prevent loss in work performance and disability. We presented a case of a 44-year-old male with idiopathic chronic hydrocephalus with intermittent (LUTS), erectile dysfunction, and papilledema as presenting symptoms.

Case presentation

A 44-year-old male was referred by a general practitioner to a urologist with chief complaints of urinary urgency, frequency, and nocturia. This LUTS intermittently has come and gone for 4 years. The urinary urgency and frequency disturbed him in his workplace and he felt sleepy at daytime because he had to wake up at night to void about 3–4 times when the LUTS emerged. He denied having symptoms of straining, hesitancy, dysuria, terminal dribbling, hematuria, or fever; but he felt the symptoms were worsening and longer in duration during the last 3 months.

Besides experiencing LUTS in the past 4 years, the patient also complained of having intermittent erectile dysfunction, gait disturbance, having a great deal of effort to express his mind verbally, kept forgetting placing things in the workplace, and hard to remember things. During this 4 years time, at first he went to a general practitioner but later he sought more routine treatment to alternative medicine.

In the last 2 years, the patient had felt intermittent uncomfortable vision which accompanied by numb on the tongue, both hands, and fingers. He denied symptoms of double vision, headache, facial paresis, nausea, and vomiting.

On physical examination, the vital signs were within normal limits. A slight motoric weakness on bilateral legs coupled with normal genitourinary, rectal, and neurologic status was found in this patient. Genitourinary ultrasonography was normal with no residual urine after voiding.

Ophthalmic examination performed by an ophthalmologist revealed the visual acuity on the right and left eyes were 1.0 accompanied by decreasing bilateral pupillary reflex. The eye movement was full to all directions for both eyes. Ishihara color vision test revealed normal for both eyes. However, the MARS letter contrast sensitivity test was decreasing bilaterally to moderate abnormality. Funduscopic examination showed bilateral optic disc swelling (Fig. 1). On optical coherence tomography (OCT), the retinal nerve fiber layer (RNFL) of both optic discs were increasing.

The patient underwent magnetic resonance imaging (MRI)

* Corresponding author. Jalan Pasteur No. 38, Bandung, Indonesia.
E-mail address: aarontigor@gmail.com (A.T. Sihombing).

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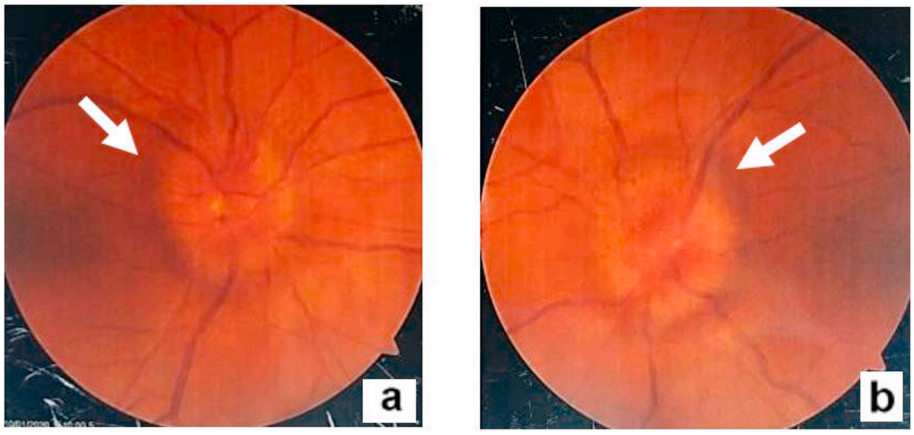

Fig. 1. Funduscopic examination showed bilateral optic disc swelling (arrow).

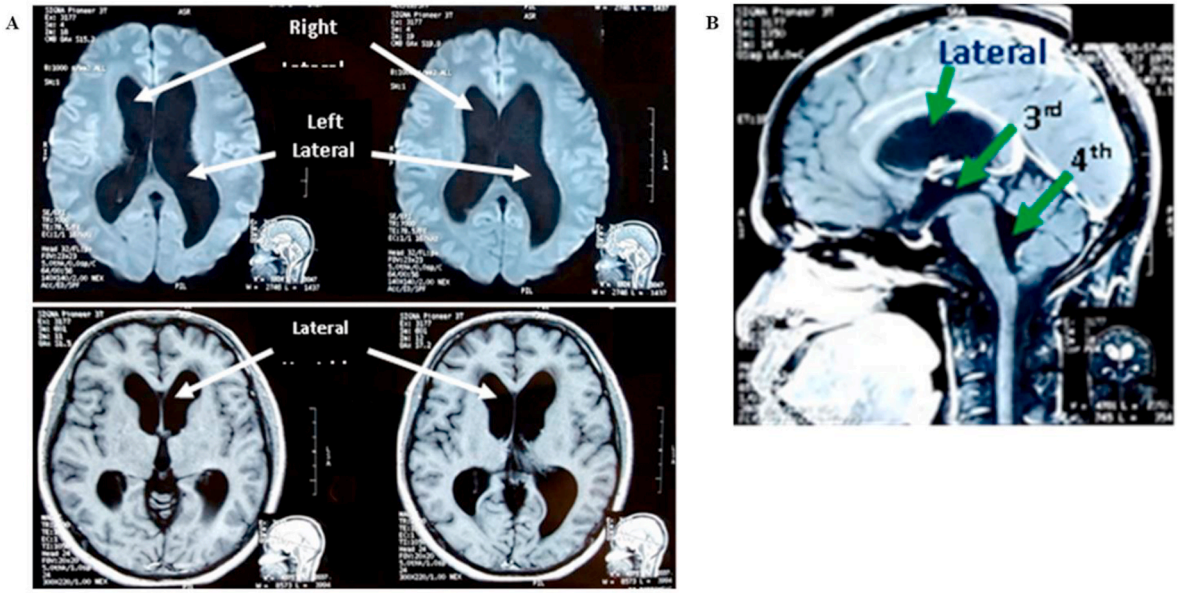

Fig. 2. Enlargement of the ventricles showed on brain MRI. (A) Transverse Plane; (B) Sagittal Plane.

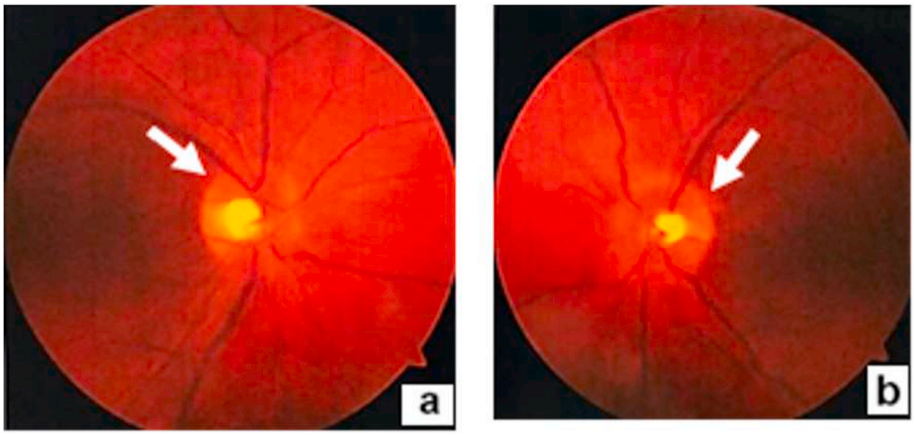

Fig. 3. Two weeks after VP-shunt, posterior segment showed normal optic disc (arrow). **(a.)** Right Eye, **(b.)** Left Eye.

examination of the brain with contrast. The result of brain MRI showed communicating hydrocephalus with enlargement of right and left lateral ventricle, third ventricle, fourth ventricle, and transependymal flow (Fig. 2).

A ventriculoperitoneal shunt that was performed by a neurosurgeon and cerebrospinal fluid (CSF) analysis showed normal limits, without

atypical cell, blast cell, or malignant cell. Neither bacteria in microbiology findings in CSF nor microorganisms grew on culture test. The interferon-gamma release assay (IGRA) test showed a negative result.

The patient regained his normal voiding and erectile function 2 weeks after a ventriculoperitoneal shunt. Then, there was an improvement in gait and cognitive impairment. There was no nocturia nor visual disturbance. On the ophthalmologic examination, we found visual acuity of both eyes were still 1.0 with normal pupillary reflex and contrast sensitivity. Fundoscopy showed a normal optic disc (Fig. 3).

Discussion

The characteristic triad of gait disturbances, mental disorder and urinary incontinence in idiopathic normal pressure hydrocephalus (iNPH) was first described by Hakim and Adams in 1965. From one prospective study, the average age of iNPH is 77 ± 0.7 years and is an important diagnosis to consider because it is surgically treatable.[3] Surgical intervention of iNPH results in an improvement in gait disturbance, mental disorder and urinary symptoms.[4]

The symptom of iNPH usually develops over time and only in exceptional cases, simultaneous regression of symptoms occurs.[4] A prospective study comparing 33 iNPH patients who waited for surgery for more than 6 months to 69 patients with surgery performed within 3 months of diagnosis showed that surgery should be performed soon after diagnosis was made. Delayed iNPH surgery only partially reverses the deterioration.[5] In this case, the patient has LUTS, gait disturbance, and cognitive disturbance that started intermittently in nature 4 years ago.

Papilledema is optic disc edema because of raised intracranial pressure, which left untreated will caused postpapilledema atrophic. One of the causes of raised intracranial pressure is hydrocephalus that may reduce perfusion of frontal lobe which an anatomical location for inhibitory control of the bladder and triggered detrusor overactivity.[2] In iNPH the major underlying caused of urinary urgency and incontinence is detrusor overactivity.[2] The papilledema and LUTS resolves after ventriculoperitoneal shunt showing the probability of intermittent slow increased intracranial pressure.

Krzastek S.C. et al. in their iNPH characteristic study, found that the average age for the male patient was 76 ± 1.1 years, 74.5% of patient reporting urge incontinence with moderate impact on the quality of life (QOL).[3] Our patient is atypical, the symptoms of his hydrocephalus were the classic triad symptoms, erectile dysfunction, starts at the fourth decade, intermittent in nature, and accompanied by papilledema.

Conclusion

Hydrocephalus in middle age male is a rare cause of LUTS. Recognition of symptoms and correct confirmation of diagnosis are important because it is a surgically correctable disease. Any symptoms other than LUTS should be assessed in detail to find a potentially treatable cause. We described a case of urinary urgency, frequency, and nocturia, accompanied by erectile dysfunction, gait disturbance, mental disorder, and papilledema caused by idiopathic chronic hydrocephalus was treatable by surgery.

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Declaration of competing interest

None.

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