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Neuromyelitis optica in a young patient presenting with urinary retention: A case report

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ABSTRACT

Neuromyelitis optica (NMO) is a rare autoimmune disorder of the central nervous system that can cause a variety of neurological symptoms, including urinary dysfunction. Here, we present the case of a 21-year-old male patient who was diagnosed with NMO after presenting with urinary retention.

1. Introduction

Neuromyelitis optica (NMO) is a rare autoimmune disorder that affects the central nervous system, causing inflammation and demyelination of the optic nerve and/or spinal cord.[1] The disease is more common in females and is often misdiagnosed as multiple sclerosis (MS) due to the similarity of their symptoms. The hallmark symptoms of NMO include optic neuritis and myelitis. In some cases, individuals with NMO may develop urinary complications, such as urinary urgency, frequency, incontinence, difficulty emptying the bladder, and urinary tract infections.[2] Urodynamic assessment is an important diagnostic tool that can be used to evaluate patients with urinary retention, including those with.[3] Treatment options for urinary complications in NMO include medications, catheterization, and neuromodulation.

2. Case report

A 21-year-old male patient presented with a complaint of inability to pass urine for the past 24 hours. He had no history of previous urinary tract infections, he had no prior lower tract symptoms.

Physical examination revealed a distended bladder, and a Foley catheter was inserted, draining 1200 mL of urine with immediate relief of the urinary retention. His vital signs were within normal limits. Initial neurological examination was normal.

Laboratory investigations including complete blood count, renal function tests, and electrolytes were within normal limits. A urine dipstick test showed no evidence of infection or hematuria.

On day 2 of his hospitalization, the patient presented a decrease in visual acuity, weakness of the limbs, and hypoesthesia of the 2 feets. Neurological examination revealed mild weakness in the lower extremities, hyperreflexia, and positive bilateral Babinski sign.

The brain and spine MRI showed multiple enhancing lesions in the optic nerve (Fig. 1: A, B), while the spinal cord was normal, In addition serum aquaporin-4 antibody (AQP4-IgG) was positive consistent with the diagnosis of neuromyelitis optica.

The patient was started on intravenous methylprednisolone therapy followed by oral prednisolone. He also received 6 plasmapheresis sessions. He was also started on azathioprine to prevent further relapses of NMO. An attempt to remove the bladder catheter failed twice with two weeks of intervale.

At urodynamic assessment at six weeks, the base detrusor pressure was 3 cmH2O. The bladder sensibility was normal. The presence of uninhibited contractions objectifies detrusor overactivity associated with leakage during filling. The bladder compliance was low at 11.2 ml/cmH2O. On the urethral pressure profile, no sphincter insufficiency was found with maximum closing pressures at 59 cmH2O. The striated sphincter dyssynergia could not be evaluated because the patient could not urinate before, during, and after the urodynamic assessment.

After being prescribed anticholinergic drugs and receiving training on how to perform sterile self-intermittent catheterization, the patient was discharged from the hospital with a follow-up plan for managing his NMO as an outpatient.

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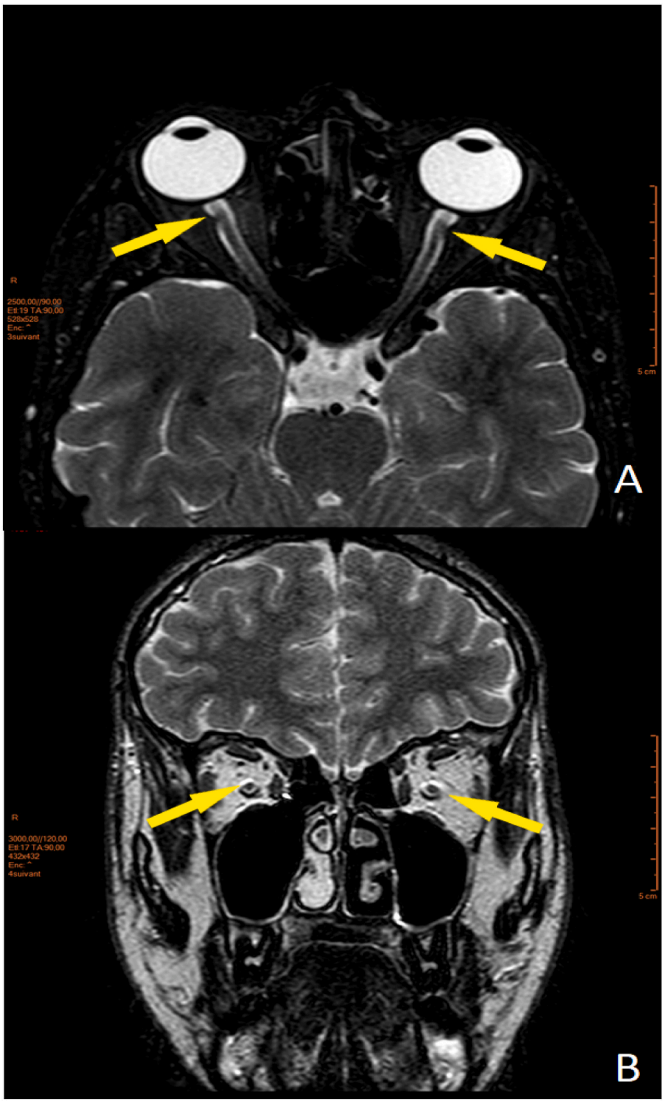

Fig. 1. A and B: axial and coronal section of Encephalic MRI in T2 sequence showing a pathological hyper signal of the optic nerves bilaterally.

The patient does not show up at his urology follow-up appointment.

3. Discussion

NMO is an autoimmune disorder affecting the central nervous system, characterized by inflammation and demyelination of the optic nerve and/or spinal cord. The disease is more common in females and is rare in young males, and typically occurs between the ages of 20 and 40. The symptoms include optic neuritis and myelitis. Optic neuritis can cause sudden vision loss or pain, while myelitis can cause weakness, numbness, or paralysis in the limbs, as well as bladder and bowel dysfunction.[1]

NMO can be difficult to diagnose, as its symptoms overlap with other neurological disorders such as multiple sclerosis (MS). However, the presence of aquaporin-4 antibodies (AQP4-IgG) is often used to distinguish NMO from MS.[2]

NMO can affect the bladder and result in urological symptoms. This is because the myelin sheath that is damaged in NMO is responsible for transmitting signals between the brain and the bladder. Some of the urological symptoms that can occur in NMO include urinary urgency, frequency, incontinence, difficulty emptying the bladder, and urinary tract infections. In some cases, individuals with NMO may require catheterization to empty their bladder.

Urodynamic assessment is an important diagnostic tool that can be used to evaluate patients with urinary retention, including those with neuromyelitis optica. Urodynamic studies can help to identify the underlying cause of urinary retention and guide management decisions.

In this case, urodynamic studies may have been indicated to evaluate the patient's lower urinary tract function and bladder capacity. These studies typically involve the measurement of bladder pressure and urine flow during filling and emptying of the bladder.

Urodynamic studies have revealed evidence of overactive bladder and detrusor-sphincter dyssynergia, which are a common finding in patients with neuromyelitis optica and can contribute to urinary retention.[3]

However, it is worth noting that in cases of acute urinary retention, as in this case, it is often necessary to provide immediate relief of the urinary obstruction with a catheter before further evaluation can be performed. In such cases, urodynamic studies may be deferred until after the acute phase of the illness has resolved.

In terms of treatment, the management of urinary complications in NMO typically involves a combination of medical and non-medical interventions. Medications such as anticholinergics and alpha-blockers can be used to improve bladder function and reduce urinary symptoms.[3] In cases of detrusor-sphincter dyssynergia, botulinum toxin injections may be beneficial in reducing bladder hyperactivity.[4]

In addition to pharmacological treatments, non-medical interventions such as intermittent self-catheterization may also be necessary. These procedures involve regularly emptying the bladder using a sterile catheter and can help to reduce the risk of urinary tract infections.[3,4]

Neuromodulation is another potential treatment option for urinary complications in neuromyelitis optica. This involves the use of electrical or magnetic stimulation to modulate nerve activity and improve bladder function. Several types of neuromodulation have been investigated, including sacral nerve stimulation, percutaneous tibial nerve stimulation, and transcutaneous electrical nerve stimulation.[5]

4. Conclusion

The management of urinary complications in NMO requires a multidisciplinary approach involving a range of medical and non-medical interventions. Urodynamic assessment is an important diagnostic tool that can guide treatment decisions, and a combination of pharmacological and non-pharmacological interventions is typically required to manage urinary symptoms in individuals with NMO.

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