CASE REPORT

Cystometrography of meningitis-retention syndrome

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SUMMARY

Although the combination of acute urinary retention and aseptic meningitis has not been well recognised, this combination can be referred to as meningitis-retention syndrome (MRS). We report a case of MRS with urodynamic follow-up. A 29-year-old man developed fever and headache, and after 7 days, he developed sudden urinary retention. Neurological examination indicated stiff neck, hyper-reflexes of the lower extremities. Cerebrospinal fluid examination showed mononuclear leucocytosis, increased protein level. Myelin basic protein was absent. MRI of the brain and spinal cord were normal. Cystometrography revealed an atonic bladder. The diagnosis was MRS. After 11 days of hospital day, his symptoms reduced rapidly, and on the 12th day, cystometrography revealed normal pattern. In mild cases, the symptoms reduced and the urodynamic examination improved rapidly. Although MRS is a rare symptom, its urodynamic assessment is important.

BACKGROUND

Although the combination of acute urinary retention and aseptic meningitis has not been well recognised, this combination can be referred to as meningitis-retention syndrome (MRS) when accompanied by no other abnormalities.¹ Conversely, because the presence of mild pyramidal involvement and increased myelin basic protein in the cerebrospinal fluid (CSF) suggest spinal cord involvement and demyelination, MRS may be considered to be a very mild form of acute disseminated encephalomyelitis.¹ MRS has a benign and self-remitting course.¹ Therefore, the responsible lesion for urinary retention of MRS remains unknown.² Few report described that a patient with MRS was performed the follow-up of the urodynamic study. We report a case of MRS with urodynamic follow-up.

CASE PRESENTATION

A 29-year-old man without any remarkable medical history developed slight fever and headache. After 7 days, he had developed sudden urinary retention. He was admitted to our hospital. Transurethral catheterisation revealed 1100 mL of residual urine, and an indwelling Foley catheter was inserted into the bladder. He had no skin eruptions. His mental status is defined as alert and consciousness as normal. Neurological examination indicated a mild stiff neck, hyper-reflexes of the bilateral lower extremities, no pathological reflexes, normal bowel dysfunction, normal stand and normal gait.

INVESTIGATIONS

A blood examination revealed an increased erythrocyte sedimentation rate (70 mm/hour; reference range, <10 mm/hour) and increased C reactive protein (CRP) level (1.70 mg/dL; reference range, <0.3 mg/dL). Other blood examination was normal, including haemoglobin A1c and autoantibodies. CSF examination showed mononuclear leucocytosis (leucocytes 122/ μ L), increased protein level (50 mg/dL; reference range 15–45 mg/dL), normal glucose level (56 mg/dL; 63% of serum glucose) and negative IgM and IgG antibodies of herpes simplex type-1 and herpes zoster viruses. Bacterial smears and cultures of CSF were negative, and the test for tuberculosis and cryptococcus were negative. Myelin basic protein and oligoclonal bands were absent. The chest X-ray and CT was normal, and abdominal CT revealed no abnormal findings. Nerve conduction studies were normal. MRI of the brain and spinal cord were normal. Autonomic nerve examination test, including ECG (coefficient of variation of R-R intervals and Holter ECG) and blood pressure monitoring (24 hours) were normal. He did not show orthostatic hypotension. Cystometrography revealed an atonic bladder, and first desire to void was 150 mL, and maximum desire to void was 350 mL (figure 1).

DIFFERENTIAL DIAGNOSIS

These findings showed urinary retention due to aseptic meningitis. According to the algorithm to diagnose MRS and related conditions,¹ the final diagnosis was MRS.

OUTCOME AND FOLLOW-UP

Conservative therapy continued. After 11 days of admission, his symptoms reduced rapidly. On the 12th hospital day, cystometrography revealed normal pattern.

Figure 1 Cystometrography revealed an atonic bladder. On his cystometrography, first desire to void (FDV) was 150 mL, and maximum desire to void (MDV) was 350 mL.

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DISCUSSION

We report a case of MRS with urodynamic follow-up. In that case, the first urodynamic study was performed during acute phase, and his symptoms reduced and the cystometrography improved rapidly.

A unique feature of MRS is the early recovery of bladder function within 2 weeks contrary to the 4–8 weeks reported in the literature.^{3,4} However, few report described that a patient with MRS was performed the follow-up of the urodynamic study. Recently, it was reported a man with MRS in whom a urodynamic study was performed twice.⁵ In that case, an initially areflexic detrusor became overactive after a 4-month period.⁵ The report suggested that in cases that the urinary symptoms persist, abnormal findings of the urodynamic study continue. In mild cases like this case, the symptoms reduced and the urodynamic examination improved rapidly.

The responsible lesion for urinary retention of MRS remains unknown.² An areflexic detrusor originates from various lesion sites in the neural axis, for example, either a lower or upper motor neuron lesion. Urinary retention with an upper motor

neuron lesion typically appears in the acute spinal shock phase initially.^{6,7} It might return to normal or change to detrusor overactivity.^{6,7} The exact mechanism is still known. However, it was suggested that sodium channel expression might be altered in the spinal dorsal horn neurons and thalamus.⁸ This altered sodium channel expression contributes to pathological amplification of innocuous and noxious inputs in the central nervous system structures.⁸ Similarly, a spinal cord lesion above the lumbosacral cord can indirectly influence the properties of bladder afferent neurons.⁸

Although MRS, the combination of acute urinary retention and aseptic meningitis, is a rare symptom, its urodynamic assessment is important.²

Contributors YT: corresponding author. KS: study supervision.

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Learning points

- ▶ Although the combination of acute urinary retention and aseptic meningitis has not been well recognised, this combination can be referred to as meningitis-retention syndrome (MRS) when accompanied by no other abnormalities.
- ▶ In mild cases, the symptoms reduced and the urodynamic examination improved rapidly.
- ▶ Although MRS is a rare symptom, its urodynamic assessment is important.

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