

Case Report

Urinary Retention Suggesting Aseptic Meningitis: Meningitis-Retention Syndrome Without Physical Signs of Meningeal Irritation

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Meningitis-retention syndrome (MRS) is the combination of aseptic meningitis and acute urinary retention that occurs in the absence of other neurological diseases. The cause(s) of MRS remain unclear. A 57-year-old Japanese woman was referred to our hospital for the evaluation of persistent fever and headache. The fever's cause was initially unclear, but the presence of urinary retention raised concern about possible aseptic meningitis despite no physical indications of meningeal irritation. Only typical cases of MRS have been reported thus far to our knowledge, and it is important that clinicians are aware of MRS when it presents in this atypical form.

Key words: meningitis-retention syndrome, aseptic meningitis, acute urinary retention

Meningitis-retention syndrome (MRS) is the combination of aseptic meningitis and acute urinary retention that occurs in the absence of other neurological disease [1]. Few cases of MRS have been reported within the fields of neurology and urology, and MRS is not widely recognized among clinicians. We describe the case of a patient with MRS in whom the presence of urinary retention raised concern about possible aseptic meningitis as the cause of persistent fever, despite no physical signs of meningeal irritation.

Case Report

A 57-year-old Japanese woman was referred to our hospital with fever and headache of 5 days' duration, and she was admitted on the same day. On admission, her consciousness was clear, her body temperature was

39.0°C, and her blood pressure (142/75 mmHg) and pulse (97 beats/min) were at the upper limit of the normal ranges. The physical examination and a neurological examination revealed no remarkable findings. There were no objective signs of meningeal irritation such as nuchal rigidity, Kernig's sign, Brudzinski's sign, or jolt accentuation of headache. Laboratory tests did not reveal an increased inflammatory response such as leukocytosis, increased C-reactive protein, or increased serum amyloid A, with the exception of a slight increase in the erythrocyte sedimentation rate (18 mm/h). Urinalysis revealed no abnormalities. A plain computed tomography (CT) scan showed bladder dilatation without hydronephrosis. After the CT scan, the patient voided 300 mL of urine but retained 400 mL.

Contrast-enhanced CT was performed to investigate the fever, but no source of infection or evidence of neoplastic, autoimmune, or endocrine disease was identi-

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fied. All blood cultures (performed twice) were negative. The amount of residual urine continued to increase, and a magnetic resonance imaging (MRI) examination of the brain and spinal cord were thus performed; no abnormalities were observed. The presence of urinary retention raised concern about possible MRS.

On the 6th day after admission, the patient had only fever and a mild headache with no physical signs of meningeal irritation, but a lumbar puncture was performed given the concern regarding MRS. The cerebrospinal fluid (CSF) pressure was 115 mmH₂O. The CSF examination revealed mononuclear leukocytosis (117/mm³, 100% mononuclear cells), an elevated protein level (111 mg/dL), decreased glucose (45 mg/dL, 29% of serum glucose), absent myelin basic protein, and a normal level of adenosine deaminase (ADA) (13.8 U/L). No neoplastic cells or microbes were observed with many types of stain, and CSF cultures were negative, indicating aseptic meningitis. The patient was diagnosed with MRS.

On further CSF examination, cryptococcus antigen was negative and herpes simplex virus (HSV) antibodies indicated a previous infection based on the immunity pattern (HSV-IgG-positive, HSV-IgM-negative; the same as the serum antibodies). No evidence of acute infection with the Epstein-Barr virus or cytomegalovirus was revealed by serology, and no cause of the patient's aseptic meningitis was identified. We had con-

sulted a urologist on the 2nd day after admission, and urapidil (60 mg/day) was prescribed. The patient's dysuria later worsened, and complete urinary retention occurred on the 7th day. She did not urinate for 2 days without urethral catheterization. The urapidil was increased to 90 mg/day and distigmine (5 mg/day) was added. Once the accurate diagnosis of MRS was made, the patient's symptoms began to improve with the symptomatic treatment. She was discharged 17 days after admission (Fig. 1), and she continued taking the urapidil for another 3 months.

Discussion

Aseptic meningitis may cause acute urinary retention as part of MRS [1]. Urinary retention often occurs a few days after the onset of aseptic meningitis and resolves without specific treatment [2]. The mechanism of MRS has been speculated to involve demyelination within the central nervous system, based on elevated myelin basic protein levels in the CSF of some patients [1, 3]. An increased ADA level and decreased glucose level in the CSF are also thought to be features of MRS [2]. Physical signs of meningeal irritation such as nuchal rigidity, Kernig's sign, Brudzinski's sign, and jolt accentuation of headache may become evident over time even when there are no signs initially [4, 5].

To our knowledge, only one other case of MRS has

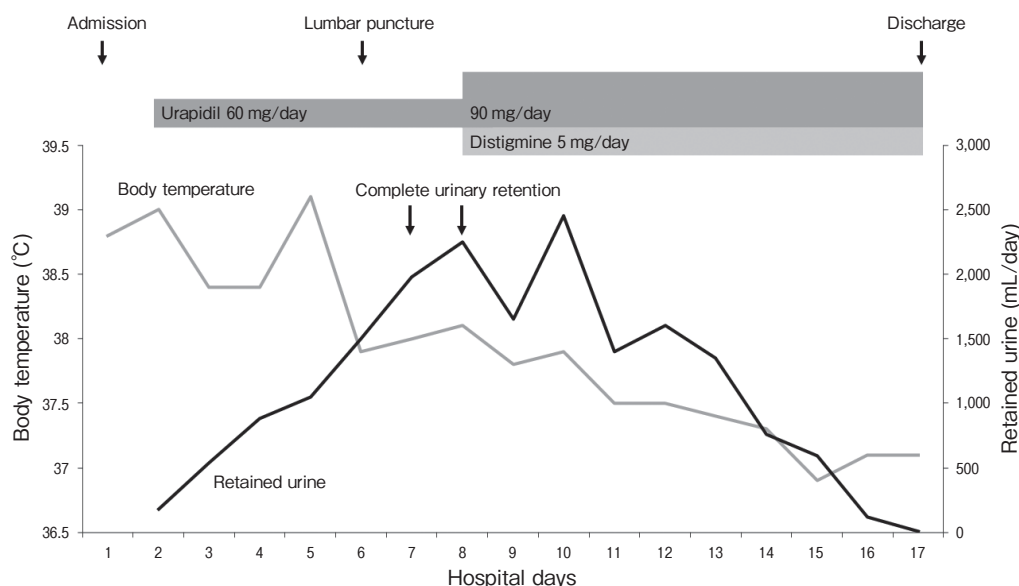


Fig. 1 The clinical course of the patient, a 57-year-old woman.

been described in which the patient did not display physical signs of meningeal irritation throughout the course of the disease, but that patient exhibited nausea and vomiting, which are more typical of suspected meningitis [6]. In our patient's case, only nonspecific symptoms were present with no objective signs of meningeal irritation or abnormal laboratory findings to aid in the diagnosis of MRS.

Aseptic meningitis is characterized by symptoms of headache, fever, and vomiting, along with physical signs of meningeal irritation and CSF pleocytosis in the absence of bacteria. Although a lumbar puncture is moderately invasive, it is often indicated in the presence of specific signs of meningeal irritation. While physical signs of meningeal irritation are highly specific for the diagnosis of meningitis, they are less sensitive. The reported sensitivities for diagnosing meningitis are 13-77.7% for nuchal rigidity, 2-50% for Kernig's sign, 2-64% for Brudzinski's sign, and 6.06-100% for jolt accentuation of headache [7]. This low sensitivity, along with the possibility of spontaneous recovery, can make it difficult for clinicians to definitively diagnose aseptic meningitis.

Several cases of MRS have been reported, but the frequency of MRS is not well understood. Hiraga *et al.* reported that MRS was observed in 8% of patients with aseptic meningitis [2], but there are likely more unrecognized cases due to a lack of awareness among clinicians. MRS is not well known among general physicians; nevertheless, urinary retention is a urological emergency and MRS must be recognized when it

occurs.

In conclusion, clinicians should recognize MRS and consider aseptic meningitis as a differential diagnosis when they encounter patients with acute urinary retention with fever and headache.

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