

## Unusual sign of meningitis: acute globe vesicalis

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**SUMMARY:** Özkaya-Parlakay A, Kara A, Cengiz AB, Ceyhan M. Unusual sign of meningitis: acute globe vesicalis. *Turk J Pediatr* 2010; 52: 203-205.

We report a rare case of urinary retention secondary to meningitis. A 15-year-old previously healthy male patient admitted to our clinic with complaint of fever, inability to urinate and vomiting, with a two-day history of clavulanate amoxicillin usage. Lumbar puncture was performed, demonstrating a cloudy cerebrospinal fluid (CSF), with protein concentration of 86 mg/dl and glucose concentration of 72 mg/dl, and simultaneous blood glucose of 137 mg/dl. Cell count was 170/ $\mu$ L (neutrophil 154, lymphocyte 11), latex agglutination was negative and no microorganism was detected with Gram stain; there were few polymorphonuclear leukocytes with Wright stain. Cranial tomography was normal and CSF culture and blood culture did not yield any microorganisms. He was treated with ceftriaxone as empirical therapy for bacterial meningitis. In just six days after admission, voiding inability had recovered completely. Although acute urinary retention in patients with meningitis may be self-limited and there is no evidence that any treatment affects its clinical course, physicians should be aware of acute urinary retention as a rare but critical manifestation of meningitis.

*Key words:* meningitis, globe vesicalis, urinary retention.

Acute urinary retention with pleocytosis in the cerebrospinal fluid (CSF), known as the Elsberg syndrome<sup>1,2</sup>, is encountered infrequently and specifically in healthy young adults<sup>1-8</sup>. In most such cases, this disorder is ascribed to a sacral myeloradiculitis of viral origin<sup>1-8</sup>. Acute urinary retention is a symptom of urological emergency. Whereas urinary retention in elderly men is mostly attributed to prostate hypertrophy, urinary retention in childhood, young adults and in women is very uncommon<sup>1</sup>, and may have a neurological etiology<sup>2</sup>. Spina bifida occulta is such a disorder that causes urinary retention without marked neurological abnormality, other than sacral hypesthesia<sup>5</sup>. Although aseptic meningitis is a common neurological disorder, the combination of acute urinary retention and aseptic meningitis is not well known. This combination can be referred to as meningitis-retention syndrome (MRS), when accompanied by no other abnormalities. To our knowledge, only a few case reports of this syndrome are available, most of them having been reported in Japan<sup>3,4,6-8</sup>, and the underlying pathophysiology of MRS remains unclear.

### Case Report

A previously healthy 15-year-old male admitted to our clinic with complaint of fever, inability to urinate and vomiting. He had a history of spiking fever over 39°C, accompanied by mild headache for three days. He had dysuria but no hematuria, and was prescribed an antibiotic, the name of which he had forgotten, when seen by a doctor for these symptoms two days before. On the day of admission, he was unable to urinate and had abdominal distention. When seen in our clinic, he had neck stiffness, and Kernig and Brudzinski neck phenomenon was positive. Laboratory hematologic findings revealed acute infection as: white blood cell count 14900/mm<sup>3</sup>, with a normal differential cell count, erythrocyte sedimentation rate 30 mm/hour, and C-reactive protein 1.64 mg/dl. Catheterization of bladder yielded clear urine. When enuresis occurred, no other neurologic abnormalities specifically related to impairment of lumbosacral segments of the spinal cord or roots were found, i.e., no palsy or muscle weakness of the lower limbs, normal sensory findings, normal deep tendon reflexes without

pathological reflexes, lack of fecal incontinence or constipation, normal gait, and negative Lasègue sign. Magnetic resonance imaging of the brain and spinal cord were normal. Lumbar puncture, performed in order to investigate the possibility of meningitis, demonstrated a cloudy CSF, with protein concentration of 86 mg/dl and glucose concentration of 72 mg/dl. Cell count was 170/ $\mu$ L (neutrophil 154, lymphocyte 11), latex agglutination was negative and no microorganism was observed with Gram stain; there were few polymorphonuclear leukocytes with Wright stain. From the time of admission, he was treated with ceftriaxone as empirical therapy for bacterial meningitis. Cranial tomography and lumbosacral X-ray to evaluate the inability to urinate were normal. CSF culture and blood culture did not yield any microorganisms. In just six days after admission, voiding inability had recovered completely, and he had no complaints over the six-month follow-up period.

### Discussion

Clinical manifestations of our patient were as in the cases in the literature<sup>7-12</sup>. All patients had symptoms and signs of meningeal irritation such as headache, stiff neck and a positive Kernig sign, except for the patient reported by Fukagai et al.<sup>11</sup>, who had drowsiness without meningeal irritation.

Other than meningitis, our patient had no neurological abnormality such as epilepsy, aphasia, gait difficulty, or sensory impairment. Nevertheless, it seems likely that the urinary retention in our patient had a neurologic etiology, since he did not have any urological abnormalities such as urinary tract infection, and there was a strong chronological association in that the urinary retention appeared simultaneously or just after the occurrence of the meningitis.

Since conditions such as psychogenic urinary retention, the first manifestation of multiple sclerosis, drug intoxication, lumbosacral disc protrusion, and rheumatological disorders must all be considered in the differential diagnosis of acute urinary retention in a healthy young individual<sup>1,2,5,6,13,14</sup>, it is essential to promptly examine the CSF<sup>1,5,14</sup> and to test for viruses, especially by means of nucleic acid amplification<sup>15,16</sup>; to examine the central

nervous system by magnetic resonance imaging; and to test for autoimmune abnormalities, in addition to a careful review of the patient's history and physical examination. Although acute urinary retention in patients with aseptic meningitis may be self-limited<sup>4,6,7</sup> and there is no evidence that any treatment affects its clinical course<sup>3,16</sup>, physicians should be aware of acute urinary retention as a rare but critical manifestation of viral or aseptic meningitis.

Of 47 reports in the literature search, 43 cases involved urinary retention due to aseptic meningitis, 3 involved tuberculous meningitis, 1 involved *Listeria meningitis*<sup>17</sup>, and 1 was a result of spinal cord abscess. Precentral gyrus of the brain cortex, pons, sacral cord, and centrifugal nerves from the sacral cord were believed to exist in the deficit regions, which caused the urinary retention. In cases of urinary retention due to aseptic meningitis in our literature search, almost all cases improved within one month, except for one case that required six months, and no cases reported sequelae. Cranial nerve deficit from bacteria is thought to be stronger than that from viruses; therefore, the prognosis of urinary retention caused by bacterial meningitis may be worse than that by aseptic meningitis. In our case, urinary retention completely recovered in six days.

In conclusion, we report a case of urinary retention with aseptic meningitis, MRS, a peculiar syndrome that could be regarded as a mild variant of acute disseminated encephalomyelitis (ADEM). Urinary retention might reflect acute shock phase of this disorder. Although MRS has a benign and self-remitting course, management of acute urinary retention is necessary<sup>18</sup>.

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