



Functional Medicine

Meningitis-retention Syndrome; A Case Report



Gen Ishii ^{a,*}, Kenichi Hata ^a, Soichiro Aoki ^a, Masayasu Suzuki ^a,
Takahiro Kimura ^b, Shin Egawa ^b

^a Atsugi City Hospital, 1-16-36 Mizuhiki, Atsugi City, Kanagawa 243-8588, Japan

^b Jikei University School of Medicine, 3-25-8 Nishishinbashi, Minato-ku, Tokyo 105-8461, Japan

ARTICLE INFO

Article history:

Received 9 February 2016

Accepted 12 February 2016

Keywords:

Meningitis-retention syndrome

Acute urinary retention

Aseptic meningitis

ABSTRACT

We report a case of meningitis-retention syndrome followed by urodynamic tests. A 48-year-old man was admitted to the hospital for an undiagnosed fever with headache and urinary retention. Aseptic meningitis was suspected according to cerebrospinal fluid analyses, and urodynamic test showed an underactive detrusor, leading to inadequate contraction of the bladder on voiding in spite of a normal sensation during bladder filling. Clean intermittent self-catheterization was required temporarily, but normal urinary voiding without the need for medication was restored in 2 weeks after discharge from the hospital, when urodynamic tests showed normal contractility of the bladder during voiding.

© 2016 The Authors. Published by Elsevier Inc. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

Introduction

Acute urinary retention is a urologic emergency, which is often caused by medication, excessive drinking, or lower urinary obstructive diseases such as benign prostatic hypertrophy. However sometimes, inflammatory neurologic diseases also cause acute urinary retention. Meningitis-retention syndrome (MRS) is known as a combination of urinary retention and aseptic meningitis, caused by a sacral myelradiculitis. Here, we report a case of MRS followed by urodynamic tests.

Case report

A previously healthy, 48-year-old man presented with high fever accompanied by headache, which he had been experiencing for 10 days. Neurological examination revealed a mildly stiff neck, and initial blood test results were normal, except for elevated creatine kinase (CK) levels (4168 U/L) and inflammation (C reactive protein) levels (0.58 mg/dL). However the results of a cerebrospinal fluid (CSF) examination showed mononuclear leukocytosis (62 cells/mm³), increased protein content (98 mg/dL), and slightly decreased glucose levels (42 mg/dL), which led to suspicion of aseptic meningitis. Complement fixation test for the CSF was negative for herpes simplex (HSV) and herpes zoster viruses (VZV); on the other hand enzyme immunoassay showed that IgG antibodies of HSV and

VZV were slightly elevated in the blood (HSV-IgG: 64.5 EIA-units, VZV-IgG: 61.5 EIA-units). Serum samples were analyzed again 4 weeks later, and it was found that, IgG levels of HSV had increased by two-fold, but IgG levels of VZV were almost unchanged (HSV-IgG: 128 EIA-units, VZV-IgG: 55.9 EIA-units). It was suggested that HSV infection had caused the meningitis.

Since the patient was experiencing slight difficulty during urinary voiding and the urinary bladder was found to be expanded on the abdominal CT images, transurethral catheterization was performed and 1000 mL of urine was removed. However, the catheter was removed in a few days, and he could not urinate, so that the urodynamic tests were underwent at the time of 12th hospital days. During bladder filling, he felt a first sensation to void at 216 mL and a strong desire to void at 459 mL, but the sphincter EMG activity disappeared and detrusor contraction was not visible even when the bladder had been infused with 701 mL fluid (Fig. 1). As an underactive bladder was suspected due to the meningitis, the clean intermittent self-catheterization (CISC) was indicated without medical treatment.

Acyclovir 1000 mg/day was started to treat the aseptic meningitis, but the administration was stopped in 6 days because of the development of eruption. Afterward his fever and headache gradually subsided and he was discharged on the 14th day, he was still not able to void urine without CISC. For a few days, he could only void small amounts of urine without CISC; however 2 weeks after the discharge, he could void urine without residual volume in the bladder. At 2 months after the onset of symptoms, urodynamic tests were underwent again (Fig. 2). As before, he had a normal sensation to void during bladder filling, but the pressure of the sphincter EMG

* Corresponding author. Tel.: +81 46 221 1570.

E-mail address: ishiiigen@gmail.com (G. Ishii).

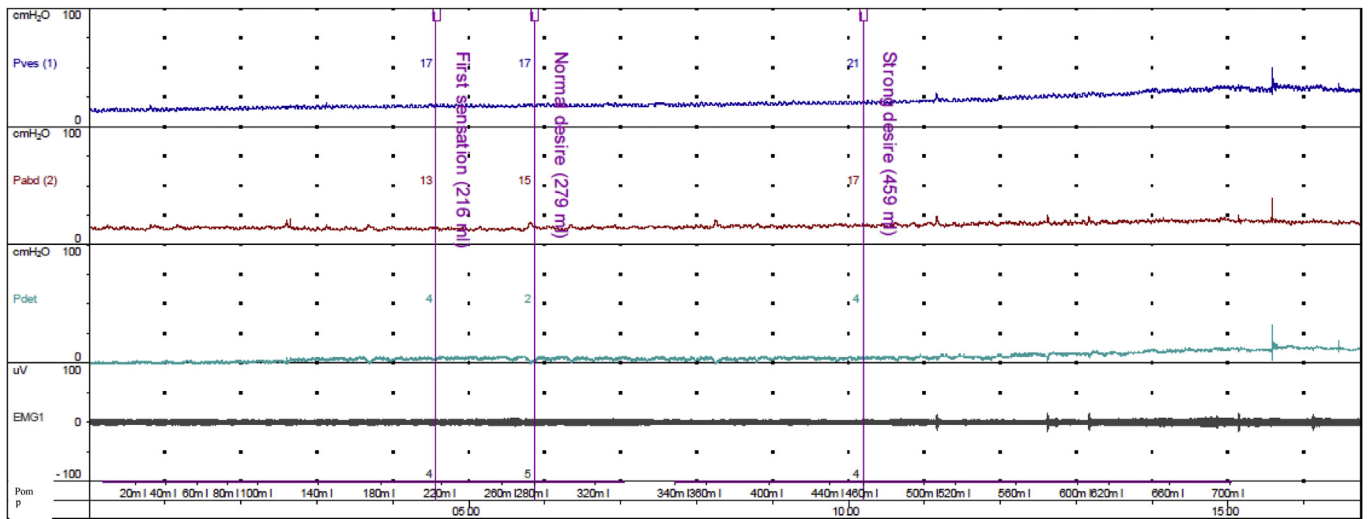


Figure 1. During bladder filling, he felt a first sensation to void at 216 mL and a strong desire to void at 459 mL, but the sphincter EMG activity disappeared and detrusor contraction was not visible even when the bladder had been infused with 701 mL fluid.

gradually increased. During urinary voiding, the detrusor contracted along with relaxation of the sphincter.

Discussion

Although aseptic meningitis is a common disease, a combination with acute urinary retention is not so common. This combination can be referred to as MRS. Though some cases have been reported, the prevalence of this disorder is not yet known.^{1,2} Elsberg syndrome was first described in 1913 as acute radiculitis with acute urinary retention secondary to lumbosacral myeloradiculitis; now it is considered the same as MRS.³ Urinary retention in Elsberg syndrome is considered to be due to reactivation of the Herpes virus in the sacral dorsal root ganglia with axonal spread to the spinal cord.⁴

In the case described in this report, the clinical manifestations were almost the same as those observed in previously described patients with MRS. All patients described so far had high fever with meningeal irritation manifesting as headache, stiff neck, and a

positive Kernig sign, and then developed urinary retention. CSF analysis revealed mononuclear leukocytosis, normal to increased protein levels, and normal to decreased glucose content, therefore, aseptic meningitis was suggested, MRS was diagnosed. However, sometimes patients with MRS have only undiagnosed fever and urinary voiding difficulty, with few symptoms of meningeal irritation.⁵ Such cases are difficult to diagnose, but the possibility of MRS should be considered.

Although immune treatments such as steroid pulse or antiviral treatment have been tried often, their effectiveness remains unclear. Almost all cases have shown a good prognosis over a period of 2–10 weeks.

Urodynamic tests revealed an areflexic detrusor in patients reported so far, which results in an inability to contract the bladder properly on voiding despite having a normal desire and attempt to void. In almost all cases, voiding function has recovered with improvement of aseptic meningitis without any treatment. The time taken for recovery of voiding function has been reported to be 10–32 days on average.⁵ There was only one report followed by

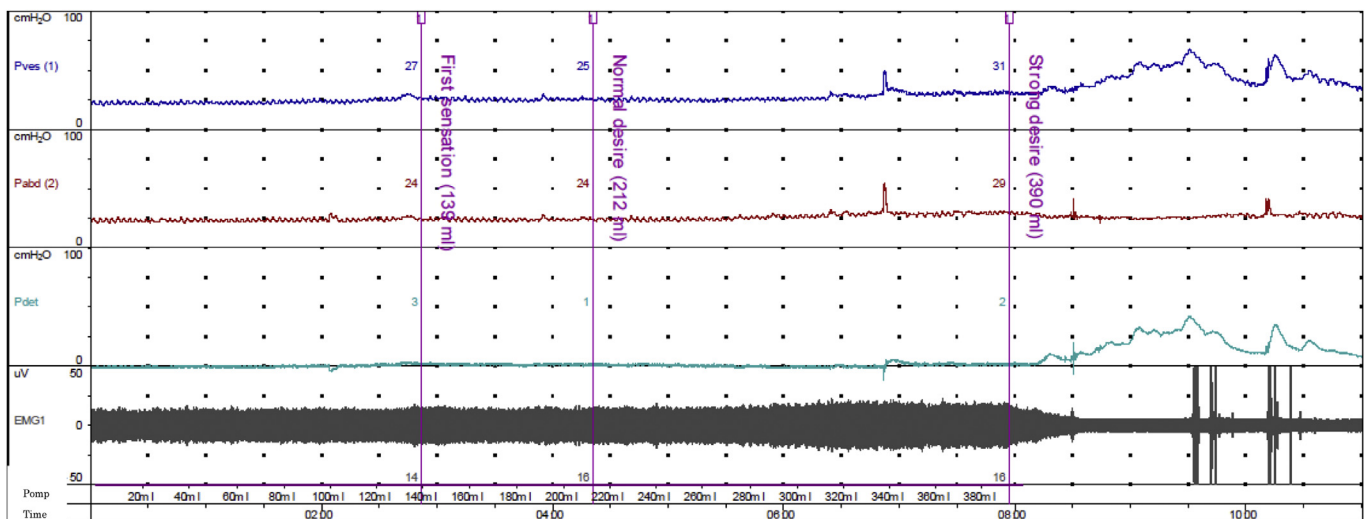


Figure 2. As before, he had a normal sensation to void during bladder filling, but the pressure of the sphincter EMG gradually increased. During urinary voiding, the detrusor contracted along with relaxation of the sphincter.

urodynamic tests at the time of recovery of urinary voiding, and slow detrusor overactivity and incomplete detrusor-sphincter dyssynergia was suggested in their followed urodynamic study.⁶ In our case, there was no detrusor overactivity or detrusor-sphincter dyssynergia; the detrusor contracted properly along with relaxation of the sphincter when voiding function was restored completely. The difference might be reflected by the condition at the time of the second urodynamic tests.

In conclusion, we encountered a case of MRS followed by urodynamic tests. To facilitate urinary voiding, catheter management was required against acute urinary retention. And areflexic detrusor was shown on urodynamic study but voiding function recovered after 2 month without any treatment.

Disclosure

The authors declare no conflict of interest.

Acknowledgment

No sources of funding have to be declared.

References

1. Sakakibara R, Uchiyama T, Liu T. Meningitis-retention syndrome: an unrecognized clinical condition. *J Neurol.* 2005;252:1495–1499.
2. Zenda T, Soma R, Muramoto H. Acute urinary retention as an unusual manifestation of aseptic meningitis. *Intern Med.* 2002;41:392–394.
3. Elsberg CA. Experiences in spinal surgery. Observations upon 60 laminectomies for spinal disease. *Surg Gynecol Obstet.* 1913;16:117–132.
4. Hemrika DJ, Schutte MF, Bleker OP. Elsberg syndrome: a neurologic basis for acute urinary retention in patients with genital herpes. *Obstet Gynecol.* 1986;68:375–395.
5. Kim T, Whang J, Lee S, et al. Acute urinary retention due to aseptic meningitis: meningitis-retention syndrome. *Int Neurorol J.* 2010;14:122–124.
6. Tateno F, Sakakibara R, Sugiyama M, et al. Meningitis-retention syndrome: first case of urodynamic follow-up. *Intern Med.* 2011;50:1329–1332.