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"MENINGITIS–RETENTION SYNDROME" - A NEURO-UROLOGICAL ANALYSIS

Hypothesis / aims of study
A peculiar combination of acute urinary retention and aseptic meningitis is referred to as **"meningitis–retention syndrome" (MRS)**. We aimed to delineate this syndrome by describing our 8 MRS patients, with a review of literatures.

Study design, materials and methods
We described clinical symptoms, laboratory findings, urodynamic findings (all performed within several days after admission, in two of them the test was repeated), and management of our 8 MRS patients (4 men, 4 women, mean age 54 years [32-73 years]).
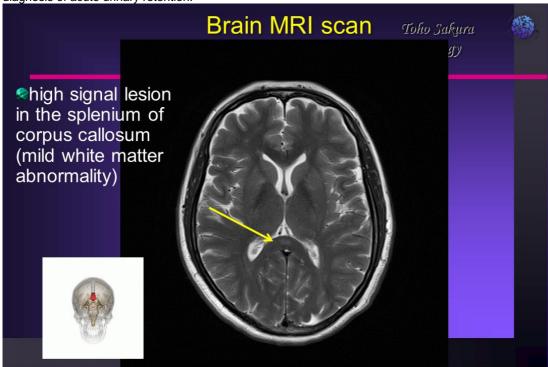
Results
In our 8 MRS patients, 3 had premorbid condition comprising oral medicine use in 2 (one, herbal medicine with skin eruption and positive lymphocyte stimulating test; one, diclophenac; both chemical meningitis suspected) and increased rheumatoid factor in one. All patients with MRS had typical symptoms of fever, headache, stiff neck (in 7), and minor pyramidal signs (in 3), together with acute urinary retention, while none of them had limb weakness. In addition, mild drowsiness was observed in 3 initially. In the cerebrospinal fluid (CSF), all had increased cell count of 206 [70-445] /mm^3 and total protein of 107 [71-176] mg/dl. Positive myelin basic protein (MBP) and oligoclonal band (OCB) were noted in 3 and one, respectively. T2 weighted image-MRI showed transient hyperintensity in the deep white matter and genu of corpus callosum in one. Urodynamics revealed that the bladder is initially underactive in all patients during voiding and one had detrusor-sphincter dyssynergia, while filling cystometry showed detrusor overactivity in two (DHIC). Sphincter EMG showed neurogenic changes in 3 of 6 patients the test was done. In two patients urodynamics was repeated, showing almost normal voiding contraction in two, and in one of them, filling cystometry pattern changed from normal to overactive. All patients are started on clean, intermittent catheterization (CIC). In total, mean period of spontaneous resolution for meningitis was 4.1 weeks (1-12) and that for retention was 3.1 weeks (1-8). Effect of steroid (in 3 cases, steroid pulse in 2, prednisolone 60 mg/day in one) to shorten the resolution period remained unclear.

Interpretation of results
MRS is thought to be a very mild form of acute disseminated encephalomyelopathy (ADEM), with increased cell count, total protein, and occasional MBP and OCB in the CSF and white matter abnormality on MRI, suggestive of central nervous system demyelination. Putative location of lesions is diverse, e.g., the meninge, cerebral white matter, cervicothoracic and sacral spinal cord, and for urinary retention, mainly upper neuronal damage. Proper management of the acute urinary retention is necessary to avoid bladder injury due to overdistension. The effectiveness of steroid therapy in shortening the urinary retention period awaits further study.
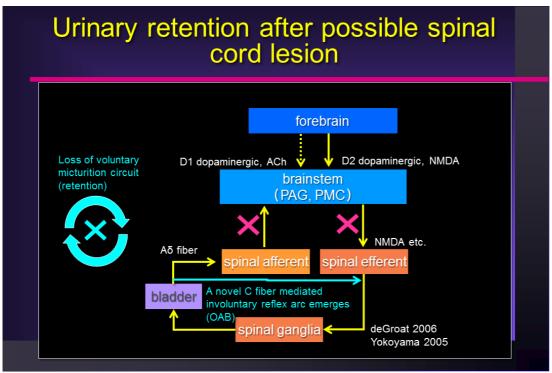
Concluding message
Although rare, MRS is a disorder that both urologists and neurologists may encounter. MRS should be listed in the differential diagnosis of acute urinary retention.

Brain MRI scan — Toho Sakura

high signal lesion in the splenium of corpus callosum (mild white matter abnormality)

Brain MRI scan of a patient with meningitis-retention syndrome.
A high signal lesion in the splenium of corpus callosum (silent, mild white matter abnormality) was seen.

Possible mechanism for DHIC in meningitis-retention syndrome.
Urinary retention: loss of voluntary micturition circuit due possibly to upper spinal cord lesion.
OAB: a novel C-fiber-mediated involuntary reflex arc possibly in the sacral cord.