Case report

Aseptic Meningitis with Acute Urinary Retention

ABSTRACT:

AIM: To know the clinical importance of acute urinary retention in aseptic meningitis.

CASE PRESENTATION: Reporting a case of a 19-year-old male, presented with signs and symptoms of meningitis and later developed urinary retention. CSF analysis was consistent with aseptic meningitis. MRI brain and CSF meningoencephalitis panel was normal. Urinary retention in the context of meningitis is known as Meningitis retention syndrome (MRS). MRS is rare but it is an important complication in meningitis. Early treatment with antiviral therapy was associated with favorable outcome in our patient.

DISCUSSION: Aseptic meningitis is an inflammation of the meninges caused by agents including viruses, non-viral pathogens, non-infectious conditions and chemicals. Meningitis-retention syndrome (MRS) is a peculiar combination of aseptic meningitis (AM) and acute urinary retention without other neurological symptoms which is often self-limiting.

CONCLUSION: Our case demonstrates the importance of recognizing MRS as a unique neuro-urological condition and a rare complication which is often self-limiting. The awareness of MRS and its clinical course by both neurologists and urologists may help prevent unnecessary

investigation and treatment and can reduce patients' anxiety.

INTRODUCTION:

Acute urinary retention, usually considered as a urological emergency. Urinary retention is common in elderly men, and it is usually attributed to prostate hypertrophy. However, urinary retention in childhood, young adults, and in women is very uncommon, and may reflect a neurological disorder [1].

Urinary retention resulting from a neurological etiology is less common from obstructive causes in men. The causes of neurogenic urinary retention may be divided into three main categories: cortical and subcortical lesions, spinal cord lesions above the conus medullaris, and lesions of the conus medullaris and motor and sensory nerves to the bladder. [2]

The development of urinary retention in the context of meningitis and CSF pleocytosis without any lumbosacral radiculomyelitis is known as Meningitis Retention Syndrome (MRS) [3]. Presents with fever, headache, stiff neck, and minor pyramidal signs with urinary retention. It is a rare entity and only a few case reports were documented so far.

In the present study we are reporting such a rare presentation of Aseptic meningitis with acute urinary retention.

CASE PRESENTATION:

A 19-year-old male is a polytechnic student from kodungloor, with no known comorbidities was admitted under the department of general medicine in our hospital with high grade intermittent fever with chills for 1 week and severe headache for 4 days. On examination he was febrile with stable vitals. Nervous system examination showed terminal neck rigidity with no other signs of meningeal irritation. Rest of his neurological examination also did not find any other abnormalities. Other systemic examinations were within normal limits. Initial blood investigations were within normal limits. (CRP – 0.20, Leucocyte count: 8220) Blood and urine cultures were sent and they showed no growth. In view of severe headache ophthalmology consultation was taken and they opined as bilateral evolving papilledema. Meningitis was considered and MRI Brain with contrast (Image 1) was taken and it showed no meningeal enhancement. On 2nd day of admission, he started complaining of decreased urine output and abdominal pain. Per abdominal examination revealed a full bladder. He also gave a history of urge to pass urine but he had difficulty and he was unable to void urine. In view of painful urinary retention foley's catheterization was done and post catheterization there was around 1.2 L urine output. In view of urinary retention ultrasound abdomen was done and it was found to be normal. MRI Spine was planned to rule out the causes for urinary retention but withheld due to financial constraints. During stay in the hospital he also has persistent hiccups. Serum electrolytes were sent and they are within normal limits. For which he was started on Prokinetics and muscle relaxants. Lumbar puncture was performed and CSF analysis showed Protein of 159, CSF Glucose 38.8 CSF ADA 2.5 and CSF total cells 315 (90% Mononuclear and 10% segmented cells). CSF cultures were sent and they showed no growth. CSF analysis was suggestive of viral meningitis, and he was treated with Inj acyclovir, ceftriaxone and steroids. CSF was sent for the Meningoencephalitis

panel (Table-1) (panel comprises -Epstein-Barr virus, Human cytomegalovirus, Varicella-zoster virus, Enterovirus, Human Parvovirus B19, Adenovirus, Herpes simplex Virus 1, Herpes simplex Virus 2, Human herpesvirus 6, Human herpesvirus 7, Parechovirus and Japanese encephalitis virus.
Gram positive bacteria: Staphylococcus spp., Staphylococcus aureus, Enterococcus spp., Streptococcus spp, Streptococcus pneumoniae, Streptococcus agalactiae, Listeria monocytogenes. Gram negative bacteria: Pseudomonas aeruginosa, Acinetobacter baumannii, Stenotrophomona maltophilia, Escherichia coli, Klebsiella pneumoniae, Serratia marcescens, Enterobacteriaceae, Proteus spp., Morganella morganii, Neisseria meningitidis Fungi: Candida spp., C.albicans Resistance markers: mecA, vanA, vanB, blaSHV, blaCTX-M, KPC, SME, NMC-IMI, GES, VIM, GIM, SPM, NDM, SIM, IMP, OXA23, OXA24, OXA48, OXA51, OXA58.) and it was found to be normal. After 10 days, repeat Lumbar puncture was taken and it showed CSF Glucose-63.7 , CSF Protein- 52, CSF Total cells 80(Mononuclear cells) . Prior to discharge foley's catheter was removed and his urine output was monitored for next 48hrs. After removing foley`s catheter he was not having any difficulty in voiding. He was discharged and advised to review in general medicine OPD after 2 weeks. At the time of review, he was completely asymptomatic and he was not having difficulty while voiding.

DISCUSSION:

Acute urinary retention referring to the state of not being able to void urine by oneself is caused by bladder outlet obstruction and impaired detrusor muscle contractility and is prevalent in the old and rare in children and adolescents [4] Most common cause of urinary retention is

usually seen in elderly and it is due to benign prostatic hyperplasia. Urinary retention in Meningitis is a rare entity and which is self-limiting.

The term aseptic meningitis refers to patients who have clinical and laboratory evidence for meningeal inflammation with negative routine bacterial cultures. The most common causes are the enteroviruses. Additional etiologies include other infections (mycobacteria, fungi, spirochetes), Para meningeal infections, medications, and malignancies [5].

Here we are reporting a case of acute urinary retention due to Meningitis in a normal healthy individual with no urinary symptoms prior to the onset of disease. Even though Meningitis is a commonly seen neurological disorder, acute urinary retention with meningitis is a rare presentation.

Several hypotheses have been put forward to explain the detrusor hypo functioning and urinary retention in MRS, including spinal shock secondary to meningeal irritation, inflammation of tracts of the spinal cord (leading to upper neuron dysfunction), direct viral invasion, or the development of postinfectious acute disseminated encephalomyelitis (ADEM) [6]. In our patient, however, no lesion could be documented after screening the whole brain. MRI SPINE Screening was planned but couldn't be done due to financial constraints. Trial of treatment and its response was tried.

Case described in this report has almost the same clinical manifestations as those observed in other literature, patients with MRS. All patients described so far had high fever with meningeal irritation manifesting as headache, stiff neck, and positive Kernig sign, and then developed urinary retention. CSF analysis revealed mononuclear leukocytosis, increased protein levels, and decreased glucose content,

therefore, aseptic meningitis was suggested, MRS was diagnosed. Abhishek Krishna et al case report [3] showed similar clinical presentation, and viral CSF findings with CSF-PCR HSV- 2 positivity. But in the current case, CSF PCR HCV-2 was negative. However, Inj acyclovir was given in both scenarios and the patients were recovered without any intervention.

If we compare the current case scenario with F. Ntziora et al case report [7] there was similar presentation but F. Ntziora et al case report showed IgM EBV positive and similarly the patient's urinary retention was recovered after starting acyclovir and no intervention was done. In Gen Ishii Et al case [8], patient CSF herpes simplex (HSV) and herpes zoster viruses (VZV) both were negative but the patient was found to have IgM and IgG HSV titers elevation in the blood. Whereas in Abhishek Krishna et al case CSF-PCR HSV- 2 was positive. Both showed features of MRS and both of them recovered after starting treatment with Acyclovir without any urological complications.

Abhishek Krishna et al case report [3] showed the patient had symptoms from day 3. CT Scan was taken and it showed a Distended bladder. On day 5 Urodynamic study was undertaken and it revealed an atonic bladder. MRI spine was performed and it didn't reveal any features suggesting myelitis/radiculitis. But it was self-limited and the patient was able to void urine with no difficulty after 2 weeks of disease onset. Whereas in the current case the patient had Urinary retention after 6 days and had recovery and was able to void without difficulty after 16 days. Akiyuki Hiraga Et al [9] had done a study on meningitis-retention syndrome, 37 Aseptic Meningitis cases were taken, of which 3 patients (8%) were found to have MRS. Study also showed, the mean latency between the onset of meningeal symptoms (headache and/or fever) and the three clinical course milestones (the onset of voiding difficulty,

urinary retention and recovery of no residual urine volume) were 8, 9.3 and 18 days, respectively. All patients with MRS recovered without a specific treatment, and the mean hospital stay was 18 days. so this can be taken as consideration that MRS Presentation is often seen in Aseptic meningitis and it is self-limiting and has an average recovery of around 12 days to 18 days.
However, sometimes patients with MRS have only undiagnosed fever and urinary voiding difficulty, with few symptoms of meningeal irritation. Such cases are difficult to diagnose, but the possibility of MRS should be considered.

CONCLUSION:

In conclusion, MRS may have been underreported or overlooked and may, therefore, be more common than is currently believed. It is important to recognize that adults may have MRS that has a good long-term prognosis. The awareness of MRS and its clinical course by both neurologists and urologists may help prevent unnecessary investigation and treatment and can reduce patients' anxiety. Further studies are required to resolve the mechanism underlying these syndromes.

References

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Image 1: MRI Brain with contrast No leptomeningeal enhancement

seen

RESULT DETAILS:	COMMENTS:
Epstein-Barr virus, Human cytomegalovirus, Varicella-zoster virus, Enterovirus , Human Parvovirus B19, Adenovirus, Herpes simplex Virus 1, Herpes simplex Virus 2, Human herpes virus 6, Human herpes virus 7,Parechovirus and Japanese encephalitis virus.	Not detected
Gram positive bacteria: Staphylococcus spp.,Staphylococcus aureus, Enterococcus spp., Streptococcus spp, Streptococcus pneumoniae, Streptococcus agalactiae, Listeria monocytogenes.	Not detected
Gram negative bacteria: Pseudomonas aeruginosa, Acinetobacter baumannii, Stenotrophomona maltophilia, Escherichia coli, Klebsiella pneumoniae, Serratia marcescens, Enterobacteriaceae, Proteus spp., Morganella morganii, Neisseria meningitides	Not detected
Fungi: Candida spp., C.albicans	Not detected
Resistance markers: mecA, vanA, vanB, blaSHV, blaCTX-M, KPC, SME, NMC-IMI, GES, VIM, GIM, SPM, NDM, SIM, IMP, OXA23, OXA24, OXA48, OXA51, OXA58.	Not detected

Table 1: CSF Meningoencephalitis panel