Case Presentation:

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- 58-year-old woman transferred from outside hospital (OSH)
- Chief complaint: Headache, confusion
- History of Marfan syndrome, mitral valve prolapse
- No Tobacco, alcohol or drug abuse.

At OSH:
- Lumbar puncture cloudy, turbid cerebrospinal fluid (CSF) (described below)
- Developed hypotension, bradycardia.
- Intubated and mechanically ventilated for airway protection

Physical Examination:
- Neurologic: confused; pupil diameters of 3mm bilaterally sluggishly reactive to light
- Cardiac: 2/6 systolic murmur
- Lungs and abdomen: normal

Laboratory Data:
- WBC 14,400 /cu mm, 77% neutrophils and 9% band forms
- Complete metabolic profile is unremarkable.
- Urine culture grew klebsiella pneumoniae
- Blood cultures were negative.

CSF Results:
- Protein of 906 mg/dL, glucose 0 mg/dL
- WBC 2625 /cu mm, 98% neutrophils
- Culture grew Klebsiella pneumoniae.

Hospital Course:
- Echocardiogram: severely depressed left ventricular dysfunction with estimated EF 25-30%. Moderate to severe mitral regurgitation.
- No vegetations were identified.
- Renal ultrasound: non obstructing left renal stone with no hydronephrosis in either kidneys.
- Brain CT scan: normal.
- Spine MRI: a large arachnoid cyst and a pelvic dural ectasia measuring 6.6x4 cm (figure 1-2).
- The patient was continued on 14 days of IV Ceftriaxone
- Weaned off pressors
- Mental status improved
- Successfully extubated, eventually transferred out of the ICU.

Radiology

Discussion

Gram negative meningitis in adults is extremely rare from a source other than the bloodstream.

We present a case of gram negative meningitis that we suspect occurred from upper urinary tract seeding of a dural ectasia via either lymphatic drainage or sacral venous plexus (see figure 3-4).

Recently, a case has been reported of a patient with Marfan syndrome who developed E.coli meningitis where blood cultures were also negative (1). This patient was also found to have a large dural ectasia and meningocele in the lumbosacral region. It was postulated that this patient most likely developed E. coli meningitis from spread of the bacteria from the GI tract into the CNS via the ectasia (1).

Marfan syndrome is an autosomal dominant disease affecting the connective tissue (2). One manifestation of Marfan syndrome is dural ectasia, that are dilatations of the dura within the lumbosacral region (3). Dural ectasias occur in up to 60 to 90% of patients with Marfan syndrome and usually present with low back pain, headaches, or leg pain (3).

Conclusion

We present a case of gram negative meningitis that we suspect occurred from seeding of a dural ectasia from an upper urinary tract infection via lymphatic drainage or venous plexus.

This mechanism of meningeal infection should be considered in patients with connective tissue disorders such as Marfan syndrome.

References