Teaching NeuroImages: Leptomeningeal and pachymeningeal enhancement in a patient with spontaneous CSF leak

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A 35-year-old man presented with fever, headache, and vomiting. Lumbar puncture showed low pressure (50 mm H₂O), raised levels of protein (4.96 g/L) and white cell count (2,500; 85% polymorphs), and a glucose level of 1.61 mmol/L. MRI demonstrated diffuse leptomeningeal and pachymeningeal enhancement (figure, A), suggesting meningitis and intracranial hypotension due to spontaneous skull base CSF leaks, which were confirmed by CSF culture finding of *Streptococcus pneumoniae*, CT (figure, B), and radionuclide cisternography (figure, C). Pachymeningeal enhancement without leptomeningeal involvement is a well-known MRI feature of intracranial hypotension due to CSF leaks. Unlike spinal CSF leaks, skull base CSF leaks frequently cause infectious meningitis, which generally presents as leptomeningeal enhancement.

This recognition is important because diagnosis and treatment strategies of the 2 types of CSF leak are different.

**REFERENCES**

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