ASEPTIC MENINGITIS SECONDARY TO NSAID USE IN A 73-YEAR-OLD FEMALE

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BACKGROUND

Aseptic meningitis is characterized by meningeal inflammation without identifiable bacterial infection, often linked to drugs, viruses, or autoimmune conditions. Nonsteroidal anti-inflammatory drugs (NSAIDs), such as ibuprofen, are rare but recognized causes of drug-induced aseptic meningitis. This condition presents with headache, fever, and meningismus, mimicking infectious meningitis. Early recognition is critical to avoid unnecessary antimicrobial therapy and ensure timely drug withdrawal. This case describes a 73-year-old female with suspected NSAID-induced aseptic meningitis following ibuprofen use, highlighting diagnostic challenges and management.

CASE PRESENTATION

We present a case of 73 years old lady with a past medical History of Ménière's disease.

Presentation: The patient reported a one-day history of severe headache (rated 10/10), worsening vomiting, and inability to tolerate fluids after taking Neurofen (NSAID).

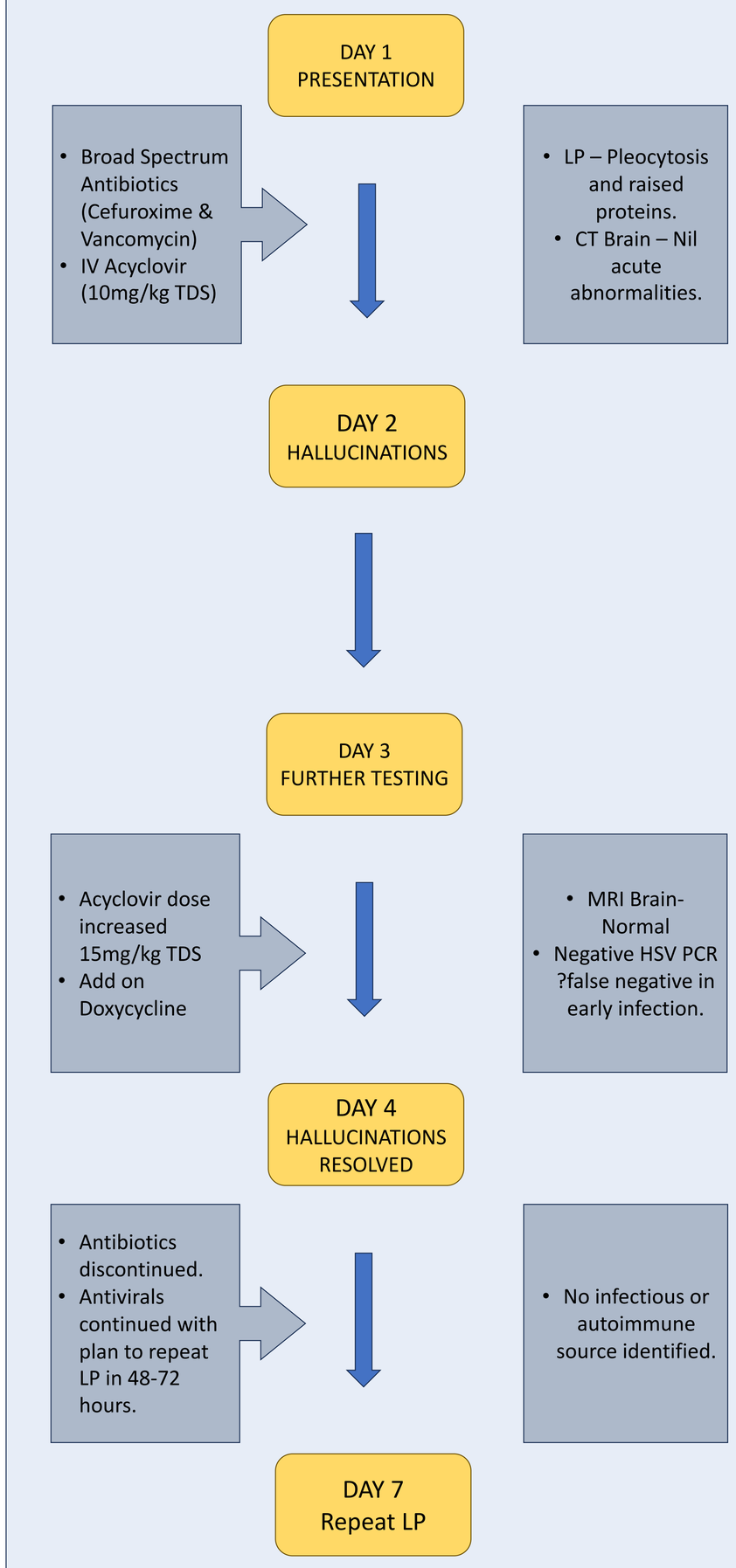
Initial Evaluation: On examination, she was fully alert (Glasgow Coma Scale 15/15), with normal system exam. Laboratory results revealed elevated inflammatory markers. COVID-19 and influenza swabs were negative. Given the severity of her headache and systemic symptoms, differential diagnoses included encephalitis or meningitis.). A computed tomography (CT) scan of the brain showed no acute abnormalities. Lumbar puncture (LP) revealed a white cell count (WCC) of 65/mm³, red cell count (RCC) of 10/mm³, glucose of 2.3 mmol/L, and elevated protein of 1094 mg/L. Viral polymerase chain reaction (PCR), Gram stain, and culture were negative.

Treatment Initiated: She was empirically started on broad-spectrum antibiotics (Cefuroxime & Vancomycin) and antivirals (IV Acyclovir 10mg/kg TDS).

New Symptoms: On Day 2, the patient's headache improved, but she developed visual hallucinations. The presentation, including a history of cold sores 3–4 weeks prior, raised suspicion for herpes simplex virus (HSV) encephalitis despite the negative HSV PCR, as early infection may yield false negatives. Alternative diagnoses included mycoplasma or bacterial meningitis, autoimmune encephalitis (e.g., NMDA receptor-related), or aseptic meningitis possibly triggered by NSAIDs.

Escalation of Treatment: Acyclovir dose was increased to 15 mg/kg three times daily and doxycycline was added pending magnetic resonance imaging (MRI) and further testing. An MRI brain was normal.

Discontinuation of Antibiotics:
CSF analysis remained negative for viral PCR (including HSV), Gram stain, culture, Haemophilus influenzae, Neisseria meningitidis, Streptococcus pneumoniae, and mycoplasma. Hallucinations resolved, and antibiotics were discontinued.



Antivirals were continued, with a plan to repeat LP in 48–72 hours to reassess for HSV. Aseptic meningitis secondary to NSAIDs was considered a diagnosis of exclusion, if HSV PCR remained negative.

Repeat LP: Showed improvement: glucose 3.3 mmol/L, protein 475 mg/L, WCC 30/mm³, RCC 11/mm³, with negative Gram stain, culture, and serology. Antivirals were stopped. The patient's headache responded well to paracetamol, and she reported feeling "almost back to normal" with resolution of symptoms. A final diagnosis of aseptic meningitis secondary to NSAID use was made. She was advised to avoid NSAIDs in the future due to the risk of recurrence and potential gastrointestinal side effects. The patient was discharged on Day 7 with a normal follow-up appointment scheduled with the ID clinic in 3 weeks.

Parameters	Day 1	Day 7
WCC	65/mm3	30/mm3
RCC	10/mm3	11/mm3
Glucose	2.3 mmol/L	3.3mmol/L
Proteins	1094mg/L	475mg/L
Biofire filmarray	Negative	

Table 1: Comparison between Day 1 and Day 7 Lumbar Punctures.

CONCLUSION

This case highlights NSAID-induced aseptic meningitis as a diagnosis of exclusion in an elderly female with severe headache and vomiting. Prompt recognition and cessation of the offending agent led to full recovery. Patients with similar presentations warrant careful drug history review and avoidance of NSAIDs in confirmed cases.

LEARNING POINTS

- To consider NSAID-induced aseptic meningitis in patients with meningitis-like symptoms and recent NSAID use.
- To obtain a detailed medication history to identify potential drug –induced etiologies.
- It is important to exclude potential Infectious, autoimmune or other causes of meningitis before making the diagnosis of aseptic meningitis.

REFERENCES

1. Hoppmann RA, et al. Central nervous system side effects of nonsteroidal anti-inflammatory drugs: aseptic meningitis and cognitive dysfunction. *Arch Intern Med*. 1991;151(7):1309-1313. doi:10.1001/archinte.1991.00400070057007

2. Jolles S, et al. Drug-induced aseptic meningitis: diagnosis and management. *Drug Saf*. 2000;22(3):215-226. doi:10.2165/00002018-200022030-00005

3. Rodríguez SC, et al. Characteristics of meningitis caused by ibuprofen: report of 2 cases with recurrent episodes and review of the literature. *Medicine (Baltimore)*. 2006;85(4):214-220. doi:10.1097/01.md.0000229755.76362.39

4. Marinac JS. Drug- and chemical-induced aseptic meningitis: a review of the literature. *Ann Pharmacother*. 1992;26(6):813-822. doi:10.1177/106002809202600