

## A CASE OF VIRAL MENINGITIS WITH CHRONIC SIADH PRESENTING WITH SEIZURES.

**1. Dr G S Sanjay Surya**

Email : [gs.sanjaysurya@gmail.com](mailto:gs.sanjaysurya@gmail.com)

**2. Dr Priya Venugopalan**

Email : [priya9593@yahoo.co.uk](mailto:priya9593@yahoo.co.uk)

**3. Dr Gowtham Hanumanram**

Email : [gow.gauti@gmail.com](mailto:gow.gauti@gmail.com)

**4. Dr Kannan Rajendran**

Email : [endork@yahoo.com](mailto:endork@yahoo.com)

**5. Dr Gowrishankar A**

Email : [19drags55@gmail.com](mailto:19drags55@gmail.com)

### Abstract

A 67yrs old male hypertensive on irregular treatment presented to emergency room in a drowsy state. Patient had history of one episode of generalized tonic clonic seizures with altered sensorium, evaluated and was found to have chronic hyponatremia. Fever, throat pain, fatigue and vomiting were also present. A history of fever and multiple vesicles over body, CSF analysis, TZANC smear positive with multiple varicella zoster lesions were pointing towards viral meningitis. Patient was treated for viral meningitis with acyclovir and he improved significantly. Thus, here we report an interesting case of viral meningitis with chronic SIADH presenting with seizures.

Keywords : SIADH, Seizures, Hyponatremia, Viral Meningitis.

### Introduction

Hyponatremia, defined as a serum sodium concentration of  $<135$  mmol/L, is particularly common in neurological patients because of the major role of the central nervous system (CNS) in the regulation of sodium and water homeostasis.<sup>1</sup> Hyponatremia is commonly noted in encephalitis, meningitis, subarachnoid hemorrhage and head injury.<sup>2,3</sup> Human herpes simplex viruses 1, 2 and the varicella zoster virus are associated with infections in adults and are responsible for significant neurological morbidity and mortality.<sup>4</sup> Past studies have shown the association between hyponatremia and CNS infection such as meningitis and encephalitis.<sup>5,6</sup> Zoster usually occurs above 60 years of age.<sup>7</sup> The incidence of neurologic complications associated with varicella is estimated to be 1–3 per 10,000 cases.<sup>8</sup> Here we report a case of viral meningitis with chronic SIADH presenting with seizures in an elderly male of 67 years old.

### Case Presentation

A 67 yrs old male, recently diagnosed hypertensive on irregular treatment, presented to ER in a drowsy state. He had history of 1 episode of GTCS at 2 am the day before night. Patient had history of high grade, intermittent fever and cough with expectoration since 1 week. He had a past history of throat pain and myalgia for 1 week, generalized weakness and fatigue, decreased appetite since 2 weeks and vomiting 3 episodes in 2 days. Patient didn't have history of chest pain, palpitations or breathlessness. He didn't have any history of syncope, abdominal pain or burning micturition.

On physical examination patient was drowsy, unable to respond to oral commands, able to move all 4 limbs. Pupils - equal in size and reacting to light. Multiple vesicular lesions were seen over the chest, back, trunk and right leg (Figure 1). Systemic examination of CVS, RS and per abdomen was normal. CNS examination revealed GCS 7/15. Plantar bilateral Flexor was seen.

Lab Investigations revealed hemoglobin with 8.7 gm/dl, platelet count 1.6 lakhs/ cu.mm, TLC 7960 cells/cu.mm and neutrophils with 94%. Total bilirubin and direct bilirubin were 3.58 and 0.73 respectively. SGOT level was 290 and SGPT was 146. Alkaline phosphatase was 96 IU/L. Albumin

was 4.2 g/dl. The electrolytes levels were (sodium – 114, potassium- 3.9, chloride-81, bicarbonate-19.9, calcium-8.5, phosphorus-3.5 and magnesium-1.3). Antibodies of HIV/HBSAG/HCV were found to be negative. RTPCR using rapid antigen, dengue, leptospirosis, scrub typhus, blood culture and urine culture were negative. Urine spot sodium and potassium were 58mEq/L (40-220mEq/L) and 18.4mEq/l (25-125mEq/L) respectively. Vitamin b12 was 201(160-900 pg/ml). LDH was elevated and it was 363 IU/L (100-300 IU/L). Total CPK was highly elevated 886 mcg/L(10-120mcg/L).

CSF analysis revealed the following: Total cells - 68, lymphocytes-100%, Total protein-6.99, Total glucose-50, adenosine deaminase- 7.1. CSF culture sensitivity showed no growth. CSF HSV 1&2 IGM / IGG were negative, myoglobinuria was negative. TZANC smear was done and cytology positive for viral cytopathic changes.

CRP was 17 mg/L, ESR – 27 mm/ hr and HBA1C was 9.4%. Serum ferritin was 202, uric acid - 5.2 Phosphorus was 4.1. Urine test was found to be normal. CT brain showed no abnormality. Serum HSV IGM/IGG was negative. Serum varicella zoster IGG was strong positive which was >4000 (ref value - <150) which is in strong correlation with vesicular lesions to rule out viral etiology .

Patient was initially evaluated for altered sensorium and seizures , was suspected to be due to chronic hyponatremia (SIADH) , but a history of fever and presence of multiple fluid filled skin lesions over body with myalgia with fatigue for a week with continuous altered sensorium despite electrolyte correction raised suspicion of viral meningitis , CSF analysis confirming viral picture , with TZANC smear positive with multiple varicella zoster lesions , patient was treated for viral meningitis with acyclovir and patient improved dramatically in two days , sensorium improved to E4V4M5. Within a course of 1 week, patient recovered and fever spikes subsided. Patient improved clinically and was discharged and then came for review and is on regular follow up.



Figures (1) , (2) arrows showing multiple fluid filled vesicles present over the body .

## Discussion

Herpesviruses, human herpes simplex viruses and the varicella zoster virus (VZV) are known to be associated with central nervous system (CNS) infections in adults.<sup>4</sup> Among the disorders of CNS, hyponatremia is commonly noticed and its incidence varies according to the disease.<sup>2,3</sup>

Our patient was initially evaluated for cause of altered sensorium and seizures, was suspected to be due to chronic hyponatremia (SIADH). Multiple fluid filled skin lesions over the patient's body raised suspicion of viral meningitis. CSF analysis confirmed multiple varicella lesions. Past studies have reported that serum sodium levels were significantly lower in patients with HSV-1 infection than those infected by VZV.<sup>9</sup> Our patient also had severe hyponatremia.

Vomiting, headache, and lethargy; nuchal rigidity and nystagmus occur in about 25% of patients. Seizures are usually seen in 29%–52% of cases of VZV.<sup>10</sup> Most of the time non convulsive seizures are usually underdiagnosed.

Studies have reported that 55% of cases with VZV doesn't have cutaneous lesions.<sup>11</sup> Our patient had cutaneous lesions which helped in the quick diagnosis and treatment. So after confirming the diagnosis, patient was treated with acyclovir as it is the widely recommended treatment for varicella. Our patient improved after one week of treatment and is still under regular follow up

## Conclusion

VZV meningitis was previously considered to be a rare cause of aseptic meningitis due to the lack of appropriate detection tests; however with PCR testing the diagnosis is made easy. Undiagnosed condition may result in coma and death. Clinicians should take a note on each and every clinical symptom and diagnose appropriately. Severe morbidity and mortality can be avoided if the patient is treated in the right time.

## References

1. Spasovski G, Vanholder R, Allolio B, Annane D, Ball S, Bichet D, et al. Clinical practice guideline on diagnosis and treatment of hyponatraemia. *Nephrol Dial Transplant.* (2014) 29 (Suppl. 2):i1–39. doi: 10.1093/ndt/gfu040
2. Czupryna P, Moniuszko A, Garkowski A, Pancewicz S, Zajkowska J. Comparison of hyponatremia and SIADH frequency in patients with tick borne encephalitis and meningitis of other origin. *Scand J Clin Lab Invest.* (2016) 76:159–64. doi: 10.3109/00365513.2015.1129669
3. Human T, Cook AM, Anger B, Bledsoe K, Castle A, Deen D, et al. Treatment of hyponatremia in patients with acute neurological injury. *Neurocrit Care.* (2017) 27:242–8. doi: 10.1007/s12028-016-0343-x
4. Steiner I, Kennedy PG, Pachner AR. The neurotropic herpes viruses: herpes simplex and varicella-zoster. *Lancet Neurol* 2007;6:1015–28.
5. Brouwer, M.C.; van de Beek, D.; Heckenberg, S.G.; Spanjaard, L.; de Gans, J. Hyponatraemia in adults with community-acquired bacterial meningitis. *J. Assoc. Physicians* 2007, 100, 37–40
6. Karandanis, D.; Shulman, J.A. Recent survey of infectious meningitis in adults: Review of laboratory findings in bacterial, tuberculous, and aseptic meningitis. *South. Med. J.* 1976, 69, 449–457.
7. Gilden DH, Kleinschmidt-DeMasters BK, LaGuardia JJ, Mahalingam R, Cohrs RJ. Neurologic complications of the reactivation of varicella–zoster virus. *New England Journal of Medicine.* 2000 Mar 2;342(9):635–45.
8. Guess HA. Population-based studies of varicella complications, *Pediatrics*, 1986, vol. 78 (pg. 723-7)

9. Lee GH, Kim J, Kim HW, Cho JW. Herpes simplex viruses (1 and 2) and varicella-zoster virus infections in an adult population with aseptic meningitis or encephalitis: A nine-year retrospective clinical study. *Medicine*. 2021 Nov 19;100(46).
10. Gibbs FA, Gibbs EL, Spies HW, Carpenter PR. Common types of childhood encephalitis, *Arch Neurol*, 1964, vol. 10 (pg. 15-25)
11. Alexandra Mailles, Stahl JP: Infectious encephalitis in France in 2007: a national prospective study. *Clin Infect Dis*. 2009, 49:1838-1847. 10.1086/648419
12. The pharmacokinetic basis of oral valacyclovir treatment of herpes simplex virus (HSV) or varicella zoster virus (VZV) meningitis, meningoencephalitis or encephalitis in adults *J Chemother* (Florence, Italy) (2015), p. 29, 10.1179/1973947815Y.