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## Opsoclonus in Alcohol Withdrawal Syndrome with Chronic Liver Disease and Hepatic Encephalopathy

To the editor,

Opsoclonus is defined as involuntary chaotic, multidirectional movements of the eye.<sup>1,2</sup> Most commonly seen in viral infections and in association with neuroblastoma.<sup>1,2</sup> Opsoclonus is also seen in toxic/metabolic conditions and drugs.<sup>1,2</sup> We report opsoclonus in an alcohol withdrawal patient with severe liver failure and hepatic encephalopathy, a rare association.

### Case Report

BD, a 48-year-old male, was admitted on 8th June 2023 with alcohol withdrawal associated with delirium tremens along with underlying hepatic encephalopathy. He was a known case of alcohol-related decompensated chronic liver disease with portal hypertension, oesophageal varices, jaundice and ascites. He had been taking alcohol daily for the last 10 years. His last alcohol intake was six days back. He initially presented to this hospital in August 2022. In this presentation, he was diagnosed with alcohol-related liver disease and managed appropriately. Following that he was being treated at an addiction treatment centre for about three months.

But after discharge, he relapsed into daily alcohol consumption. At the time of presentation in this recent admission, he had decompensated liver failure with features of severe encephalopathy. He was unresponsive to verbal commands with his eyes open. He was moving all four limbs aggressively involuntarily. There were coarse tremors of hands and in between he was aggressive and talking irrelevant. His eye examination revealed opsoclonus (Figure 1). His model of end-stage liver disease (MELD) score was 19 and sequential organ failure assessment (SOFA) score was 10. The patient was managed for liver failure, delirium tremens and alcohol withdrawal state by the ICU team comprising of a hepatologist, critical care specialist; neurology and psychiatry consultant. The patient was intubated in view of worsening sensorium on 08/06/23 afternoon (same day of admission). He was started on intravenous (IV) fluids, albumin, antibiotics, anti-fungal, anti-coma measures and other supportive measures. Non-contrast CT head showed diffuse cerebral atrophy. Electroencephalograph showed a background of beta activity with low amplitude suggestive of severe encephalopathy. His initial laboratory data revealed normal complete blood count and renal functions. His liver functions were deranged with a serum bilirubin of 9.34 mg/dl (direct of 5.7 mg/dl), AST-210 and ALT-41, ammonia

**FIGURE 1.**

**Still Image from Video of the Patient with Opsoclonus.**



196, PT-18.7 and INR-1.57, fibrinogen of 268.6, CRP 109. Viral markers—HbsAg/HCV/HIV I/II were non-reactive. Urine revealed proteinuria, 30–50 red blood cells, 50–60 pus cells, granular casts 2–4 and bacteriuria. Galactomannan was 12.18, Gram stain was negative, potassium hydroxide mount showed septate fungal hyphae. Antibiotics and anti-fungal were optimised in view of the above reports. High-resolution CT Chest showed bilateral mild pleural effusion with dependent collapse/consolidation in bilateral lungs, mostly lower lobes, along with an enlarged lymph node in right parabrachial

location, few tiny nodules in both upper & right middle lobes were seen. In view of these CT findings, patient was started on modified ATT. Levetiracetam 1 gm IV twice a day was added in treatment in view of severe sepsis and encephalopathy. Unfortunately, the patient passed away on 22nd June 2023.

## Discussion

Opsoclonus is an involuntary oculomotor movement disorder with rapid, repetitive conjugate eye movements which are arrhythmic, chaotic and multidirectional.<sup>1,2</sup> Malignancy, virus infections, toxic metabolic conditions and drugs are the main causes of opsoclonus.<sup>1-4</sup> Lung cancer, breast carcinoma, ovarian teratoma, non-Hodgkin's lymphoma, malignant melanoma, renal adenocarcinoma, neuroblastoma, ganglioneuroma, ganglion neuroblastoma result opsoclonus in adults. Various virus infections, HIV, mycoplasma, salmonella, rickettsia conorii, Lyme disease, rotavirus, cytomegalovirus, human herpes virus 6, hepatitis C, West Nile virus and varicella-zoster virus have been reported causing opsoclonus. Poisoning with organophosphates, strychnine, thallium, toluene, and drugs like lithium, cocaine, amitriptyline, phenytoin and diazepam can cause opsoclonus. Ethanol withdrawal is known to produce abnormal movements like delirium tremens.<sup>5</sup> Ethanol is known to cause eye movement impairment, resulting in slow eye movement velocity and impaired saccades.<sup>6</sup> Our patient had delirium tremens, encephalopathy and opsoclonus. Ethanol is

one of the rare toxic substances which can produce opsoclonus.<sup>2</sup> In PubMed and Google search only one reference is there in association with alcohol withdrawal.<sup>2</sup> Ocular flutter in association with alcohol has also been reported before.<sup>7</sup> Ocular flutter is also an involuntary eye movement disorder but occurs in horizontal plane only.

Exact mechanism for opsoclonus manifestation is not clear. Damage to omnipause neurons controlling saccadic movements of eyes, alteration in synaptic membrane properties of burst cells and failure to inhibit the fastigial nucleus in the cerebellum due to Purkinje cell damage of the cerebellum cause opsoclonus. Humoral and cell-mediated immune mechanisms, paraneoplastic association to idiopathic origin have been postulated.<sup>1-4</sup>

## Note

As the patient has expired, written permission for publication of the case report and figure was obtained from the relative of the patient. The same is in the custody of the authors.

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