**Desafios em Neurologia – Casos Clínicos**

**XXX Congresso da Academia Brasileira de Neurologia**

**An unusual cause of opsoclonus–myoclonus-ataxia syndrome**

**Identifying Data:**

V.S.A is a 27-year-old single female, right-handed, born and raised in São Paulo, SP – Brazil, who is currently unemployed.

**Diagnostic Hypotheses:**

> Syndromic: Extrapyramidal Syndrome + Cerebellar Syndrome + Cognitive-behavioral syndrome

> Topographic: Medulla + Pons/Cerebellum

> Nosological: Inflammatory/Demyelinating

> Etiologic: Multiple sclerosis

**Chief Complaint**:

Nausea, vision and walking difficulties

**History of the Present Illness:**

Our patient presented to the emergency department with initial complaints of blurred and bouncing vision, associated with non-specific dizziness seven months prior to admission. Her family members further noted chaotic eye movement and occasional abrupt flexion jerks of the head. Over a few weeks, she developed recurrent episodes of nausea and vomiting, and was evaluated in several institutions for these problems but no specific diagnosis was made.

Four months before presentation, the patient developed a subacute onset of imbalance and gait disturbance, followed by irritability and anterograde amnesia. A 16 kg weight loss was also reported, which she attributed to poor appetite due to persistent nausea. No history of comorbidities, smoking, alcohol abuse, toxin exposure, recent infection, or vaccination was reported. Her family history was also unremarkable.

The neurological examination showed multidirectional saccadic eye movements with abnormal intersaccadic intervals, mild dysarthria, and myoclonic jerks in the face and limbs. There were no motor or sensory deficits. The patient only exhibited hyperreflexia of the left lower extremity with flexor plantar reflex. She had left-sided dysmetria on finger-to-nose and heel-to-shin tests. Her gait was wide-based and unsteady, requiring assistance for household level ambulation. She was unable to walk with a tandem gait, and Romberg sign was negative. Systemic examination did not reveal any abnormalities.

Given our patient's opsoclonus, myoclonic jerks, cerebellar ataxia, and behavioral and cognitive changes, a diagnosis of opsoclonus–myoclonus-ataxia syndrome (OMAS) was made and she was evaluated.

**Initial diagnostic studies:**

* **Complete Blood Cell Count:** Hb 12 / WBC 4,500 / Plt 200,000
* **Electrolytes:** Sodium 140 / Potassium 4
* **Kidney Function:** BUN 20 / Cr 0.8
* **Liver Function:** ALT 13 / AST 12 / ALP 79 / GGT 48 / INR 1.09 / Bilirubin 0.38 / Albumin 4.1
* **Inflammation Markers:** CRP 4 / ESR 5
* **Brain CT:** No abnormality was noted.

Due to the broad range of differential diagnoses, she underwent extensive workup for malignant, infectious, and immunologic diseases.

**Complementary Tests:**

* **Serological testing:** Tests for anti-HIV 1/2, HBsAg, VDRL and anti-HCV were all negative.
* **Immunological parameters:** Complement serum levels (CH50, C3, C4), anti- nuclear antibody (ANA), positive anti-double stranded DNA (anti-ds DNA), rheumatoid factor (RF), anti-aquaporin-4 antibody (AQP4) and anti-myelin oligodendrocyte glycoprotein antibody (MOG) were unremarkable.
* **CSF analyses:** Glucose 58 / Protein 23.9 / WBC count 2.3 / IgG index 3.8.
* **Screening for Malignant Neoplasms:**
	+ Serum tumor markers (alpha-fetoprotein, beta-hCG, CEA, CA19-9, CA 15-3, and CA-125) were all within the normal range.
	+ Transvaginal and thyroid ultrasound examination, thoracoabdominal-pelvic computed tomographic scan, breast magnetic resonance imaging (MRI), and upper gastrointestinal endoscopy were normal.
	+ CSF examinations were performed repeatedly, but malignant cells were not detected.
* **Brain and spinal cord MRI:** Multiple ovoid T2-hyperintense lesions in the periventricular white matter, perpendicular to the ventricles and involving the corpus callosum, as well as juxtacortical, infratentorial, and cervical cord areas (Figure 1); with both gadolinium-enhancing and non-enhancing lesions.

Our patient showed no elevated tumor markers, and imaging studies revealed no underlying malignancy. Hence, we considered the paraneoplastic syndrome to be excluded as a differential diagnosis, although the follow-up period was less than two years. Clinical course, laboratory data (including cerebrospinal fluid analyses), and brain imaging findings ruled out other possible etiologies such as parainfectious syndrome, central nervous system infections, cerebrovascular injury, and toxic-metabolic causes.

Reasonable historical evidence of previous relapses, high CSF IgG index and imaging findings were compatible with the revised 2017 McDonald Criteria for dissemination in space and time. Therefore, multiple sclerosis was the final diagnosis, and the neurological symptoms were attributed to it. The patient was treated with intravenous methylprednisolone (1g/d) for five days, and given topiramate for symptom management. Her nausea, walking and balancing abilities improved moderately after initial treatment, and she was discharged from the hospital.

The patient was started on natalizumab, and she is currently being monitored on an outpatient basis. The evolution was favorable. Symptoms of nausea and vomiting resolved, and her weight increased to its former level. Patient’s ataxia markedly improved to the extent that she was able to walk independently. She reported some alleviation of oscillopsia, though opsoclonus persisted to the present. Her myoclonus and cognitive impairment have remained stable up to now (Supplementary Video 1). Subsequent follow-up of the patient to date did not show evidence of disease progression.