# Paraneoplastic Anti-Ma2 Encephalitis Presenting with Non-Convulsive Status Epilepticus and Cognitive-Behavioral Syndrome: A Case Report

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## BACKGROUND

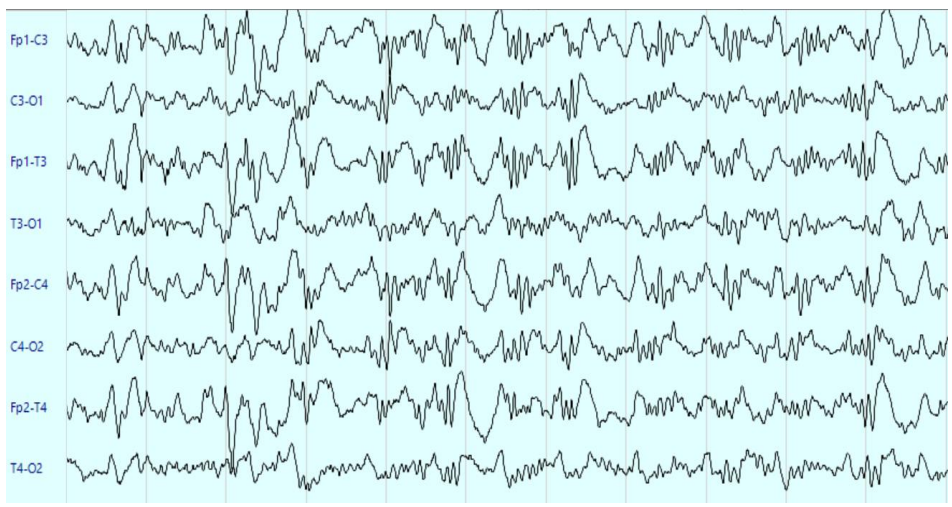
Paraneoplastic encephalitis is an autoimmune brain inflammation driven by onconeural antibodies targeting tumor-related neuronal antigens. We report a case of anti-Ma2 paraneoplastic encephalitis presenting with new-onset seizures and subacute cognitive-behavioural changes, in which initial negative tests contributed to diagnostic complexity as well as the absence of a primary tumor; a multidisciplinary approach was important to guide diagnostic investigations.

## MEDICAL HISTORY

A 63-year-old male with a past medical history of hypertension and atrial fibrillation was admitted to the ICU for sudden-onset unresponsiveness and morsus sign. His wife recently reported behavioural changes, stereotyped speech and significant weight loss.

## CLINICAL EVALUATION & DIAGNOSTIC TESTS

- Routine laboratory tests, brain imaging (CT, MRI), initial EEG recordings: unremarkable
- Neurological status fluctuated: episodes of ***aphasia***, ***stereotyped language***, ***obsessive thoughts*** and ***confusion*** during which **EEG** recording revealed **non-convulsive status epilepticus (NCSE)**, treated acutely with diazepam and lacosamide, later with chronic valproate and levetiracetam due to bradycardia
- **CSF**: negative except for **borderline positivity for anti-Ma2 antibodies**, also found in serum.

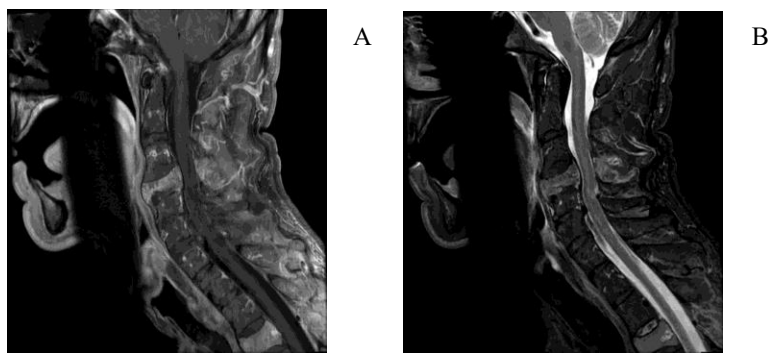



*EEG excerpt: bilateral frontotemporal spike-wave and polyspike-wave complexes, with a tendency to posterior propagation, occurring periodically, consistent with non-convulsive status epilepticus (NCSE)*

## SUBSEQUENT DIAGNOSTIC WORK-UP

The patient was managed by a multidisciplinary team including neurologists, neurosurgeons, oncologists, urologists and radiologists.

- Total body CT → **bone alterations suggestive for metastases**: sternal manubrium, C4, D3, left femur
- PET imaging → **significant FDG uptake** in axial bones, prostate, and gastric wall.
- **Tumor markers** → PSA, AFP, chromogranin A **moderately elevated**
- Cervicothoracic spine **MRI** → supported the **suspicion** of **neoplastic etiology** of the **vertebral alterations**
- Bone **biopsy** at D3 → aspecific
- EGDS → normal
- Prostate MRI → signs of prostatitis, no tumor signs
- Testicular ultrasound → bilateral hydrocele with parenchymal calcifications in the left testis.




*T1-weighted post-contrast (A) and STIR (B) sagittal MRI images of cervicothoracic vertebral alterations (C4, D3)*

## THERAPY & RESULTS

- ✓ Five days of **methylprednisolone** (1 g/day IV) led to **significant** clinical and electroencephalographic **improvement**
- ✓ Clinical presentation, bone alterations and antibody profile supported a **diagnosis of paraneoplastic anti-Ma2 encephalitis, with occult primary tumor, suspicious bone metastases and elevation of tumor markers**
- ✓ The patient was **discharged seizure-free** on **double antiepileptic therapy**, without language or cognitive-behavioral disorders, awaiting vertebral stabilization with histological diagnosis to define the primary tumor. Diagnostic work-up may also require further periodical radiological and PET checks
- ✓ **Empirical orchiectomy** will be **considered** as second diagnostic option in light of the **hypothesis of** intratubular germ cell neoplasia (**ITGCN**), which is an established etiology of anti-Ma2 encephalitis, even in the absence of a testicular mass. A multidisciplinary approach is essential for appropriate management.

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