

## Atypical presentation of anti-Ma2-associated encephalitis mimicking diencephalic demyelinating syndrome

Mohamed Amine MNAILI <sup>1,2,\*</sup>, Zakaria TOUFGA <sup>3</sup> and Ahmed BOURAZZA <sup>4</sup>

<sup>1</sup> Department of Neurology, Agadir Military Hospital, Agadir, Morocco.

<sup>2</sup> Department of Neurology, Hassan II University, Casablanca, Morocco.

<sup>3</sup> Department of Radiology, Agadir Military Hospital, Agadir, Morocco.

<sup>4</sup> Department of Neurology, Mohammed V Military Hospital, Rabat, Morocco.

World Journal of Advanced Research and Reviews, 2024, 22(01), 223–225

Publication history: Received on 25 February 2024; revised on 02 April 2024; accepted on 05 April 2024

Article DOI: <https://doi.org/10.30574/wjarr.2024.22.1.1077>

### Abstract

Anti Ma 2 encephalitis is an autoimmune encephalitis, usually paraneoplastic, characterized by isolated or combined limbic, diencephalic, or brainstem dysfunction. It most commonly affects males with testicular or small cell lung cancer, though cases have been reported in females with gynecologic malignancies [1].

We describe an unusual presentation of a paraneoplastic neurologic syndrome presenting with predominant involvement of the hypothalamus and deep grey nuclei secondary to a testicular cancer associated with anti-Ma2 antibody.

**Keywords:** Paraneoplastic encephalitis; Diencephalic lesion; Autoimmunity; Anti-ma2 antibody.

### 1. Introduction

Paraneoplastic syndromes can cause several clinical presentations: metabolic, endocrine, dermatological, hematological and neurological. Paraneoplastic neurological syndrome (PNS) is rare and can affect both the central or peripheral nervous system.

Ma2-associated autoimmune encephalitis primarily presents as limbic, mesodiencephalic, or brainstem encephalitis. However, the overall prognosis of this encephalitis is good if the underlying malignancy can be identified and treated, with more than 50% of affected patients showing clinical improvement after treatment of the tumor, such as the case of our patient [1].

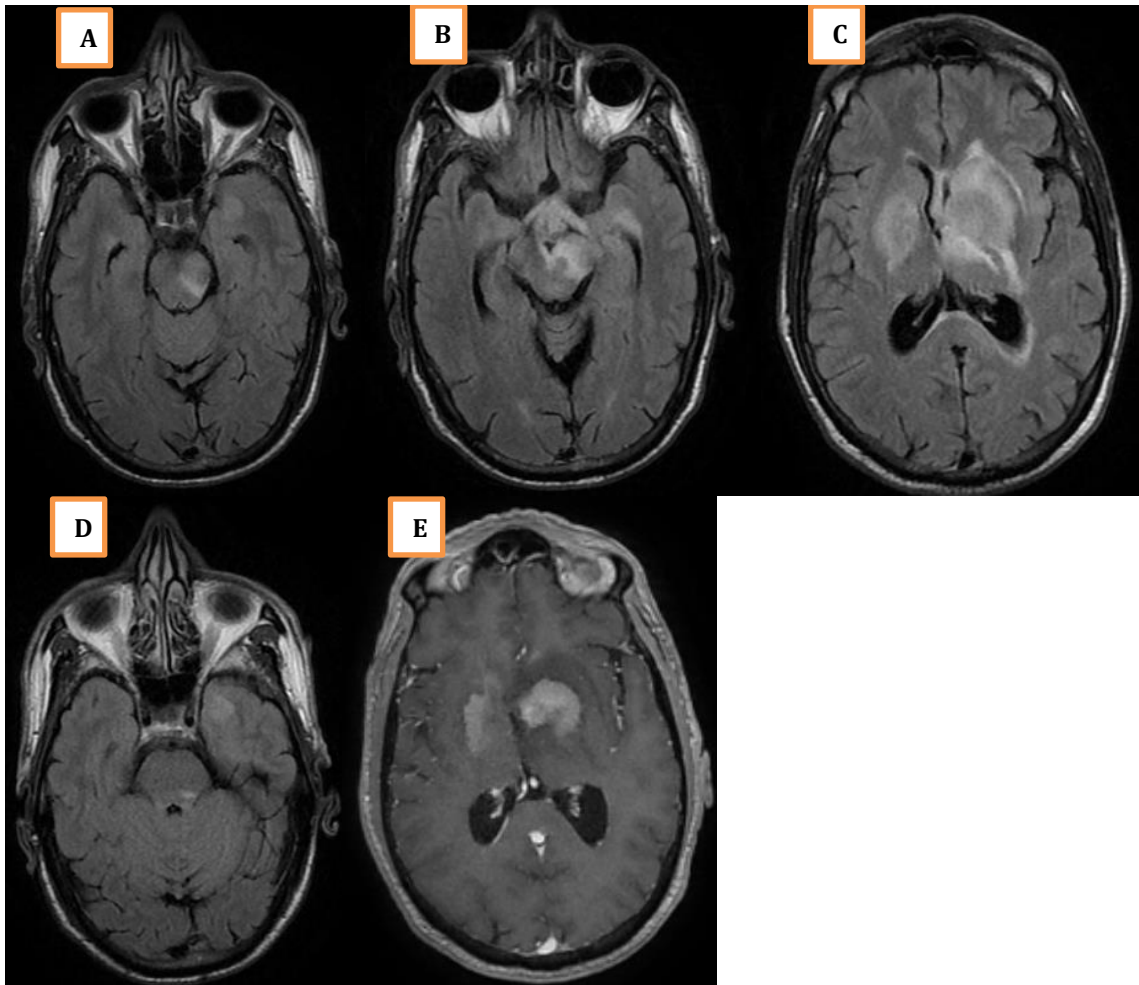
Here we present an unusual clinical presentation of Ma2-associated autoimmune encephalitis.

### 2. Case presentation

A 42-year-old man presented two months before admission with episodes of narcolepsy that gradually progressed to drowsiness with slowness in walking. During the year preceding her first presentation at our hospital, the patient became progressively erratic and aggressive towards her family, particularly with verbal abuse. He also suffered from memory problems and mood instability. The patient didn't present headache, fever, behavioral manifestations, or any other systemic or neurological signs or symptoms. On neurological examination, he was also apathetic and had global aphasia with akinetorigid parkinsonian syndrome.

\* Corresponding author: Mohamed Amine MNAILI

The brain magnetic resonance image showed increased T2-weighted fluid attenuated inversion recovery signal intensity in the basal ganglia, thalami, hypothalamus and anterior midbrain. Increased signal was also noted involving both medial temporal lobes, left greater than right. These regions showed avid enhancement. (Figure 1) This is suggestive of inflammatory, infectious or neoplastic etiology.



**Figure 1 (A-D)** Axial Fluid Attenuation Inversion Recovery (FLAIR) imaging demonstrating asymmetric increased signal involving the basal ganglia and the left thalami, (b) Increased signal intensity is also noted in the hypothalamus, anterior midbrain and in left temporal lobes (E) Axial T1-weighted post-contrast imaging demonstrating avid enhancement corresponding to the regions of T2/FLAIR signal abnormality.

Lumbar puncture revealed normal opening pressures. Cerebrospinal fluid analysis revealed negative cytopathology, elevated protein level, oligoclonal bands, and was negative for Epstein-Barr Virus (EBV), cytomegalovirus (CMV), herpes simplex virus (HSV), tumor markers and anti-ACE. VDRL screening, fungus, bacterioscopy, tuberculosis screening and AQP4 antibody were negative in CSF. Anti-Ma2 antibodies were positive in both blood and cerebrospinal fluid.

Given the strong clinical suspicion of a paraneoplastic process, Full-body CT scan showed testicular cancer no alterations, but testicular ultrasound revealed hypoechoic lesions suggestive of. Testicular excision was performed, with pathological findings of seminoma.

Chemotherapy was started and the patient received additional corticosteroid boluses. The patient showed good clinical improvement.

---

### 3. Discussion

Paraneoplastic neurological syndromes result from immunological cross-reactivity between neoplastic antigens and normal neuronal tissues.

Diencephalon lesions can be related to several causes, such as NMOSD, sarcoidosis, Behçet's disease, granulomatosis, ADEM, tuberculosis, fungal and bacterial infection, and autoimmune/paraneoplastic encephalitis [2].

Anti-Ma2 antibodies are usually present in men with testicular tumors, and they may be accompanied by a paraneoplastic syndrome including limbic, diencephalic or brainstem encephalitis [3]. Clinical presentation usually varies according to the region affected. Our patient exhibited many of the most common features of anti-Ma2 encephalitis including memory loss, narcolepsy and parkinsonism.

A series published by Dalmau et al. included 38 patients with anti-Ma2-associated encephalitis, where neurological symptoms preceded tumor diagnosis in 62% of patients [4].

Areas of the brain involved on MRI may include a combination of the medial temporal lobes, hypothalamus, basal ganglia, thalami, or upper brainstem. Abnormal regions demonstrate increased signal on T2WI/FLAIR sequences with almost half of these lesions presenting with contrast enhancement [5].

This case reinforces the importance of thinking in anti-Ma2 as a cause of diencephalic syndrome, even is a rare entity. It is important to consider it as a differential diagnosis in young men with mesencephalic or diencephalic lesions, as its early diagnosis and treatment could halt its progression.

---

### 4. Conclusion

We have presented an unusual case of a paraneoplastic neurological syndrome presenting with narcolepsy and parkinsonism and associated with anti-Ma2 antibodies where the tumor was found secondarily. Although rare, it is important to consider anti-Ma2 encephalitis as differential diagnosis of diencephalic lesion. However, an etiological investigation is necessary to eliminate the differential diagnoses: infectious, demyelinating, neoplastic encephalitis and other autoimmune encephalitis.

---

### Compliance with ethical standards

#### *Disclosure of conflict of interest*

The authors declare that they have no conflicts of interest.

#### *Statement of informed consent*

Informed consent was obtained from all individual participants included in the study.

---

### References

- [1] Lamby N, Leypoldt F, Schulz JB, Tauber SC: Atypical presentation of anti-Ma2-associated encephalitis with choreiform movement. *Neurol Neuroimmunol Neuroinflamm*. 2019, 6:e557. [10.1212/NXI.0000000000000557](https://doi.org/10.1212/NXI.0000000000000557)
- [2] S.N. Saleem, A.-H. Said, D.H. Lee, Lesions of the Hypothalamus: MR Imaging Diagnostic Features, *RadioGraphics* 27 (4) (2007) 1087–1108, <https://doi.org/10.1148/rg.274065123>.
- [3] Ortega, G., Sola-Valls, N., Escudero, D., Saiz, A. & Graus, F. (2018). Anti-Ma and anti-Ma2-associated paraneoplastic neurological syndromes. *Neurología (English Edition)*, 33(1), 18–27. <https://doi.org/10.1016/j.nrleng.2016.05.004>
- [4] Dalmau J, Graus F, Villarejo A, et al. Clinical analysis of anti-Ma2-associated encephalitis. *Brain*. 2004;127(8):1831–1844. <https://doi.org/10.1093/brain/awh203>
- [5] Targonska B, Frost J, Prabhu S. Anti-Ma2-antibody-associated encephalitis: An atypical paraneoplastic neurologic syndrome. *S Afr J Rad*. 2018;22(1), a1310. <https://doi.org/10.4102/sajr.v22i1.1310>