

Paraneoplastic Encephalitis Triggered by a Dermoid Cyst in 19-Year-Old Female, Case Report

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Introduction:

Autoimmune encephalitis (**AE**) is an inflammatory condition of the central nervous system (CNS) associated with specific antibodies targeting neuronal or synaptic proteins, anti N-methyl-D-aspartic acid (**NMDA**) receptor. This report presents a rare case of (AE) presented with seizures, cognitive and behavioral changes, found to be associated with the presence of a **Dermoid cyst**, emphasizing the significance of timely diagnosis and management.

Case description:

- A**19-year-old** female presented to emergency department with status epilepticus, admitted to ICU for stabilization.
- Previous behavioral changes, confusion, memory deficits for the preceding two weeks,

Neurologic exam: Disoriented, with impaired short-term memory and occasional episodes of agitation. No focal deficits.

Investigation:

- Routine lab, brain CT, EEG, CSF analysis & gram stain, bacterial and viral PCR all were unremarkable.
- Brain MRI : limbic encephalitis.
- CSF analysis positive for **Anti-NMDA antibodies**.
- Pelvic MRI: small left ovarian mass 3.5x3 cm mostly **teratoma**. (Figure1)

Managment:

- Initially: empirical antibiotics, antivirals, anti-epileptics and antipsychotics to treat symptoms.
- Steroid pulse therapy, plasmapheresis, IVIG and monoclonal antibodies (Rituximab).
- laparoscopic ovarian cystectomy, (Figure 2). Histopathology: mature teratoma with presence of glial tissue.

Outcome:

- Significant improvement in neurologic and psychiatric symptoms within two weeks post-surgery.
- Complications of long ICU stay (sepsis, acute kidney injury, venous thromboembolism),
- Rehabilitation: motor, language, cognitive and behavioral therapy
- At six-month follow-up, she had no recurrence of symptoms and resumed normal activities.



Figure (1): Pelvic MRI, heterogeneous hyper intense lesion in T2W1



Figure (2): Ovarian mass

Discussion:

- This case highlights the rare association between (**AE**) and a Dermoid cyst which can induce an autoimmune response due to the presence of ectodermal derivatives, including neural tissue.
- The estimated annual incidence of Anti-NMDA encephalitis ~1.5 cases per million persons.¹
- The diagnostic process for (**AE**) presents significant challenges attributed to the overlapping clinical features with other neurological and psychiatric disorders, complicating timely identification and treatment.²
- Early diagnosis and resection of the underlying tumor are critical for preventing further immune-mediated neuronal damage³.

Conclusion:

- Dermoid cysts should be considered in the differential diagnosis of (**AE**), especially in young females with no other apparent etiology. Early recognition, immunotherapy, and tumor removal can lead to favorable outcomes.

References

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