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Anti-NMDA Receptor Encephalitis Induced by Ovarian Teratoma: A Case Study of Diagnosis, Treatment, and Recovery

Seyedeh Haniyeh Mortazavi[1,2*] and Majid Ahmadi[2,3]

[1]Kermanshah University of Medical Sciences, Kermanshah, Iran.

[2]Ordibehesht Advanced Research Center, Ordibehesht Hospital, Shiraz, Iran.

[3]Department of Neuroscience, Division of Research in Intraoperative Neurophysiological Monitoring (IONM), Iran University of Medical Sciences, Tehran, Iran.

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*Corresponding author: Seyedeh Haniyeh Mortazavi, Kermanshah University of Medical Sciences, Kermanshah, Iran.

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Abstract:

Background: Anti-N-methyl-D-aspartate receptor (anti-NMDAR) encephalitis is an autoimmune disorder that often presents with a combination of psychiatric, neurological, and autonomic symptoms. It is frequently associated with ovarian teratomas, which are thought to trigger an immune response leading to the production of antibodies against NMDARs. Early diagnosis and treatment are crucial for improving patient outcomes.

Case Presentation: A 24-year-old female with no prior history of psychiatric illness presented with acute onset psychosis, including paranoia and auditory hallucinations, accompanied by seizures and autonomic instability. Neurological examination revealed altered mental status and hyperreflexia. Initial brain MRI and cerebrospinal fluid (CSF) analysis were unremarkable, but CSF testing revealed the presence of anti-NMDAR antibodies, leading to a diagnosis of anti-NMDAR encephalitis. A pelvic ultrasound and MRI identified a mature ovarian teratoma, which was surgically removed. The patient was treated with high-dose corticosteroids, intravenous immunoglobulin (IVIG), and plasmapheresis, resulting in significant clinical improvement. Due to persistent cognitive deficits, the patient was transitioned to rituximab for long-term immunosuppressive therapy.

Discussion: Ovarian teratomas are among the most common neoplastic triggers for anti-NMDAR encephalitis, with neural tissue in the tumor potentially initiating an immune response. The clinical course of anti-NMDAR encephalitis can vary, and early intervention with tumor removal and immunotherapy is essential to improve prognosis. This case emphasizes the importance of considering anti-NMDAR encephalitis in young females presenting with psychiatric and neurological symptoms, especially in the presence of ovarian teratomas. While the prognosis with early treatment is generally favorable, some patients may require long-term management of cognitive deficits.

Conclusion: Anti-NMDAR encephalitis remains a critical diagnosis in young females with unexplained psychiatric and neurological symptoms. Timely identification of the underlying ovarian teratoma and early treatment with immunotherapy and tumor resection are essential for optimal recovery. Further research is needed to explore more effective

treatments and strategies for managing long-term cognitive sequelae in these patients.

Keywords:

Anti-NMDAR encephalitis; ovarian teratoma; autoimmune encephalitis; neuropsychiatric symptoms; tumor resection; immunotherapy; corticosteroids; intravenous immunoglobulin (IVIG); plasmapheresis; rituximab; encephalopathy; orofacial dyskinesia.

Introduction:

Anti-N-methyl-D-aspartate receptor (NMDAR) encephalitis is a rare yet potentially life-threatening autoimmune disorder that primarily affects the central nervous system, leading to a broad range of neuropsychiatric symptoms. Patients with NMDAR encephalitis typically present with acute psychiatric disturbances, such as psychosis, mood swings, anxiety, and aggression, followed by neurological manifestations that can include seizures, dyskinesias, autonomic instability, and cognitive deficits (Mitra AD, 2018). These symptoms often evolve over a short period, leading to rapid deterioration in the patient's condition. The hallmark of NMDAR encephalitis is the presence of antibodies against the NMDARs, which are critical for synaptic transmission and plasticity, particularly in areas of the brain involved in cognition, memory, and emotional regulation.

One of the most important associations in the pathogenesis of NMDAR encephalitis is its frequent occurrence in patients with ovarian teratomas. Teratomas are germ cell tumors that contain tissues from multiple germ layers, including neural tissue. This neural tissue within the teratoma expresses NMDARs, which may lead the immune system to mistakenly target and attack the receptors in the brain, causing encephalitic symptoms (Banach W, 2024). The autoimmune response is believed to be initiated when these neural tissues in the teratoma stimulate the production of antibodies against the NMDARs, which then cross-react with the receptors in the brain. As a result, this can lead to inflammation and dysfunction in areas critical for normal cognitive and emotional functioning, contributing to the diverse clinical manifestations of the disease.

The diagnosis of anti-NMDAR encephalitis requires careful clinical evaluation, as it is often confused with psychiatric disorders such as schizophrenia or viral encephalitis in its early stages. Diagnosis is typically confirmed through the detection of anti-NMDAR antibodies in the cerebrospinal fluid (CSF) or serum. Brain imaging, including MRI, may show nonspecific changes, and electroencephalograms (EEGs) often reveal epileptiform activity. Early recognition of the disease is critical, as prompt treatment can significantly alter the patient's outcome (Chua KH, 2017). Treatment strategies generally involve a combination of tumor resection to remove the ovarian teratoma and immunosuppressive therapies, such as corticosteroids, intravenous immunoglobulin (IVIG), and plasmapheresis, aimed at controlling the autoimmune response. In refractory cases, more aggressive immunosuppressive therapies like rituximab or cyclophosphamide may be required.

The prognosis for anti-NMDAR encephalitis has improved significantly over the past decade due to advances in early diagnosis and treatment. However, some patients may experience long-term sequelae, including cognitive deficits and psychiatric symptoms, which can require ongoing management (Schiavi M, 2021). The identification and removal of the triggering tumor, combined with immunotherapy, remain the cornerstone of treatment, and ongoing research continues to improve our understanding of the pathophysiology, diagnosis, and treatment of this condition. This case report highlights the importance of considering anti-NMDAR encephalitis in the differential diagnosis of young women presenting with acute psychiatric and neurological symptoms, particularly in the presence of ovarian teratomas. Early intervention and multidisciplinary management are key to optimizing recovery and minimizing the long-term impact of the disease.

Case Presentation:

A 22-year-old female, previously healthy with no prior psychiatric history, presented to the emergency department with sudden onset of acute behavioral changes. Her symptoms began with agitation, paranoia, and auditory hallucinations, which rapidly escalated over the next 48 hours. Initially, she exhibited confusion and disorientation, which prompted her family to seek medical attention. She also showed signs of emotional lability and extreme mood swings. These psychiatric symptoms were so severe that they led to significant distress, both for the patient and her family. Given her young age and absence of any prior psychiatric issues, her presentation was highly concerning, especially for

an organic cause rather than a primary psychiatric disorder.

Within a few days, her condition worsened. The patient developed involuntary movements, including orofacial dyskinesia, which involved repetitive and abnormal movements of the mouth and tongue. She also exhibited significant autonomic instability, with fluctuating blood pressure and heart rate, which raised concerns for a more serious neurological condition. Despite initially normal results from brain MRI, the clinical picture was highly suggestive of an autoimmune encephalitis, and her condition rapidly deteriorated. She began experiencing generalized tonic-clonic seizures, which required intensive care unit (ICU) admission for close monitoring and immediate management.

Given her acute presentation and the development of neurological symptoms, cerebrospinal fluid (CSF) analysis was performed to investigate possible infectious, inflammatory, or autoimmune etiologies. While the brain MRI did not reveal any structural abnormalities, the CSF analysis revealed the presence of NMDAR antibodies, a hallmark of anti-NMDAR encephalitis. The detection of these antibodies confirmed the diagnosis, supporting the suspicion that her symptoms were secondary to this rare but serious condition (Voit A, 2024).

Anti-NMDAR encephalitis is an autoimmune disorder in which the body's immune system mistakenly targets the NMDARs in the brain, leading to neurological dysfunction. It is often associated with ovarian teratomas, tumors that contain a variety of tissues, including neural tissue that can trigger an immune response. Given this strong association, further imaging studies were conducted to evaluate for the presence of an ovarian mass. Pelvic ultrasound and MRI revealed the presence of a mature ovarian teratoma, which was considered the likely trigger for the autoimmune encephalitis.

The diagnosis of anti-NMDAR encephalitis associated with an ovarian teratoma prompted urgent surgical intervention. The patient underwent an ovarian cystectomy for the resection of the teratoma. Tumor resection is a critical component of treatment as it removes the source of the autoimmune attack, providing a potential pathway for recovery. Following surgery, the patient was started on high-dose corticosteroids to reduce the immune response and decrease inflammation in the brain. Additionally, intravenous immunoglobulin (IVIG) and plasmapheresis were initiated to further modulate the immune system. These therapies have been shown to be effective in reducing the severity of symptoms and promoting recovery in cases of anti-NMDAR encephalitis (Banach W, 2024).

The patient began to show gradual improvement after several weeks of immunotherapy. The orofacial dyskinesia and seizures decreased significantly, and her psychiatric symptoms, including paranoia and hallucinations, also started to subside. However, despite these improvements, she continued to experience persistent cognitive deficits, including memory problems and difficulty with concentration, which remained a significant concern. Due to the ongoing cognitive symptoms, the decision was made to initiate rituximab therapy for long-term immunosuppression. Rituximab is a monoclonal antibody that targets and depletes B-cells, which are implicated in the autoimmune response in anti-NMDAR encephalitis (Hu Z, 2023). This therapy aims to prevent relapse and further neurological deterioration.

In the months following treatment, the patient showed steady progress. Cognitive rehabilitation and supportive care were also part of her recovery plan. She was monitored closely for any signs of relapse, with frequent follow-up visits to assess her neurological status and adjust her immunosuppressive therapy as needed. Over time, she regained much of her cognitive function, although some mild deficits persisted.

This case underscores the importance of early recognition of anti-NMDAR encephalitis, especially in young women presenting with acute psychiatric and neurological symptoms. The strong association with ovarian teratomas highlights the need for thorough gynecologic evaluation in these cases. Surgical removal of the teratoma, coupled with immunotherapy, offers the best chance for recovery, though some patients may experience long-term neurological sequelae despite treatment.

Table summarizing the key aspects of the **Case Presentation** for your case report:

Aspect	Details
Patient Information	22-year-old female, previously healthy with no psychiatric history.
Initial Symptoms	Acute behavioral changes: agitation, paranoia, auditory hallucinations, confusion, emotional lability.
Progression of Symptoms	Development of orofacial dyskinesia, autonomic instability, generalized tonic-clonic seizures.
Diagnostic Imaging	Brain MRI: unremarkable. Pelvic ultrasound and MRI: identified a mature ovarian teratoma.
Cerebrospinal Fluid (CSF)	CSF analysis: NMDAR antibodies detected, confirming diagnosis of anti-NMDAR encephalitis.
Diagnosis	Anti-NMDAR encephalitis secondary to ovarian teratoma.
Surgical Intervention	Ovarian teratoma resected via cystectomy.
Treatment Initiated	High-dose corticosteroids, intravenous immunoglobulin (IVIG), plasmapheresis.
Post-Surgical Treatment	Transitioned to rituximab for long-term immunosuppression due to persistent cognitive deficits.
Clinical Outcome	Gradual improvement: reduction in dyskinesia, seizures, and psychiatric symptoms. Persistent cognitive deficits.
Follow-up Care	Cognitive rehabilitation, immunosuppressive therapy, and regular follow-up visits for monitoring.

Discussion:

Anti-N-methyl-D-aspartate receptor (NMDAR) encephalitis is an autoimmune disorder that has gained increasing recognition over the past two decades as a major cause of both neuropsychiatric and neurological symptoms. Initially, this condition was thought to be rare and primarily seen in young women with ovarian teratomas. However, recent studies have revealed that it is a more common and serious condition than previously believed, especially when associated with ovarian teratomas. Ovarian teratomas are the most common neoplastic trigger for anti-NMDAR encephalitis, with up to 58% of affected females harboring these tumors (Banach W, 2024). The presence of ovarian teratomas is particularly concerning, as these tumors contain various types of tissues, including neural elements that may contribute to the production of antibodies against the NMDARs.

Ovarian Teratomas as Triggers for Anti-NMDAR Encephalitis:

The relationship between ovarian teratomas and anti-NMDAR encephalitis highlights the role of autoimmunity in the pathophysiology of this condition. Ovarian teratomas are tumors that contain a variety of tissues, such as skin, hair, muscle, and neural tissue. This neural tissue often includes components of the central nervous system, such as neurons or glial cells. These teratomas have been identified as the main culprit for initiating the autoimmune response that leads to anti-NMDAR encephalitis. The presence of neural tissue within the teratoma is believed to provoke an immune response in which the body's immune system mistakenly targets its own NMDARs, located in the brain.

The exact mechanism behind this immune response remains an area of active research, but several theories have been proposed. One possibility is that the neural tissue within the teratoma produces proteins that closely resemble the NMDARs on neurons. The immune system, upon detecting these foreign proteins, initiates an inflammatory response that targets the NMDARs on neurons, resulting in the neurological dysfunction seen in these patients. This autoimmune attack on the NMDARs leads to alterations in neurotransmission, which in turn produces a wide range of symptoms such as psychosis, seizures, dyskinesia, and autonomic instability (Mitra AD, 2018).

Up to 58% of women diagnosed with anti-NMDAR encephalitis have an underlying ovarian teratoma (Banach W, 2024), emphasizing the strong correlation between this tumor and the development of the encephalitis. However, the precise mechanism by which ovarian teratomas induce this autoimmune process remains unclear. Studies suggest that the presence of teratomas containing neural tissue may lead to the formation of antibodies that cross-react with the NMDARs in the brain, thus triggering an inflammatory cascade that culminates in encephalitic symptoms (Schiavi M, 2021).

Importance of Early Diagnosis and Tumor Removal:

The diagnosis of anti-NMDAR encephalitis can be difficult due to the overlap of symptoms with other neuropsychiatric disorders. Early recognition is critical, as prompt treatment can significantly improve outcomes and reduce the risk of long-term neurological impairment. In the case presented, early identification

of the NMDAR antibodies in cerebrospinal fluid (CSF) was essential in confirming the diagnosis. Once the diagnosis was made, surgical removal of the ovarian teratoma was promptly performed, which is the cornerstone of treatment. Tumor resection helps eliminate the source of the autoimmune response, thereby mitigating the inflammatory process.

Several studies have demonstrated that patients who undergo early surgical intervention and immunosuppressive therapy tend to have a better prognosis than those who experience delays in treatment. The removal of the teratoma is crucial because it eliminates the antigenic stimulus that perpetuates the autoimmune attack on NMDARs. As observed in the case presented, the patient showed substantial improvement following tumor resection and immunotherapy. On the other hand, delayed diagnosis and treatment may result in irreversible neurological damage, including persistent cognitive deficits, movement disorders, and psychiatric symptoms. Studies have shown that a delay in treatment can lead to long-term neurological sequelae and worsen the overall prognosis (Schiavi M, 2021).

Challenges in Diagnosis and Imaging:

Despite advances in diagnostic imaging and serologic testing, the diagnosis of anti-NMDAR encephalitis remains a challenge, especially in the early stages of the disease. Neuropsychiatric symptoms, including agitation, paranoia, and hallucinations, are commonly observed in patients with this condition. These symptoms can often be misinterpreted as a primary psychiatric disorder, leading to delays in diagnosis. In some cases, the symptoms of anti-NMDAR encephalitis may be mistaken for conditions such as schizophrenia, leading to inappropriate treatments and missed opportunities for timely intervention.

Brain MRI often appears unremarkable in the early stages of the disease, as seen in the case presented, which can further complicate the diagnosis. Although advanced neuroimaging techniques like positron emission tomography (PET) or single-photon emission computed tomography (SPECT) have shown some promise in detecting abnormalities associated with anti-NMDAR encephalitis, these tools are not widely available in all clinical settings. Cerebrospinal fluid (CSF) analysis remains the gold standard for diagnosis, with the detection of NMDAR antibodies being highly specific for this condition. However, patients without detectable ovarian masses on initial imaging may present an additional diagnostic challenge (English K, 2024). In such cases, repeated imaging or additional diagnostic tools may be necessary to identify the underlying tumor.

Despite these challenges, clinical suspicion remains paramount. Early clinical recognition of the characteristic psychiatric and neurological symptoms of anti-NMDAR encephalitis can guide appropriate diagnostic testing and lead to more rapid intervention. Testing for NMDAR antibodies in CSF is a key step in confirming the diagnosis. As anti-NMDAR encephalitis is an autoimmune condition, identifying the underlying trigger—often an ovarian teratoma—is equally important to guide treatment decisions.

Immunotherapy and Refractory Cases:

Immunotherapy is the cornerstone of treatment for anti-NMDAR encephalitis. Once the diagnosis is established, immunosuppressive treatments such as corticosteroids, intravenous immunoglobulin (IVIG), and plasmapheresis are typically initiated to modulate the immune response and reduce the inflammation in the brain. These therapies have been shown to improve clinical outcomes, as they target the underlying autoimmune process and suppress the production of harmful antibodies. In the case presented, the patient received high-dose corticosteroids, IVIG, and plasmapheresis, which led to gradual improvement in her symptoms (Banach W, 2024).

However, despite the effectiveness of these treatments in many patients, some cases of anti-NMDAR encephalitis may prove refractory to first-line therapies. In these cases, more aggressive immunosuppressive therapies may be required. Cyclophosphamide and rituximab are two drugs that have been used in refractory cases of anti-NMDAR encephalitis. Cyclophosphamide is an alkylating agent that suppresses B-cell and T-cell function, while rituximab is a monoclonal antibody that targets and depletes B-cells. Both of these treatments have shown promise in managing patients with refractory disease (Joseph M, 2024).

Rituximab, in particular, has gained attention as an effective treatment option for long-term management of anti-NMDAR encephalitis. It works by targeting and depleting B-cells, which are responsible for producing the autoantibodies against NMDARs. Rituximab has

been shown to reduce the relapse rate and improve outcomes in patients with persistent cognitive deficits or those who experience recurrent episodes of encephalitis (Joseph M, 2024). In the case presented, the patient was transitioned to rituximab due to ongoing cognitive issues despite initial improvement, which has become an increasingly common approach in refractory cases.

Prognosis and Long-Term Outcomes:

The prognosis for patients with anti-NMDAR encephalitis is highly variable and depends on several factors, including the timing of diagnosis and treatment, the severity of the initial symptoms, and the presence of any long-term complications. Early diagnosis and treatment significantly improve outcomes, as shown in this case. However, even with timely intervention, some patients may experience persistent cognitive and psychiatric deficits, which may require long-term rehabilitation and ongoing monitoring.

Overall, anti-NMDAR encephalitis associated with ovarian teratomas has a relatively favorable prognosis if diagnosed and treated early. However, long-term outcomes can be complicated by cognitive impairment, psychiatric symptoms, and movement disorders. Ongoing research is needed to better understand the pathophysiology of this condition and to optimize treatment strategies, particularly for patients with refractory disease or those who develop long-term complications.

Conclusion:

Anti-N-methyl-D-aspartate receptor (anti-NMDAR) encephalitis is an autoimmune disorder that can present with a wide range of neuropsychiatric and neurological symptoms, often leading to severe impairment if not promptly diagnosed and treated. This condition is potentially life-threatening due to its rapid onset and the profound impact it can have on both brain function and overall quality of life. However, as illustrated in this case, early recognition and prompt therapeutic intervention, including tumor resection and immunotherapy, can significantly improve the prognosis and reduce the risk of long-term neurological impairment.

The strong association between ovarian teratomas and anti-NMDAR encephalitis underscores the critical importance of a thorough gynecologic evaluation in young women who present with acute psychiatric and neurological symptoms. In cases where an ovarian teratoma is suspected, appropriate imaging studies and timely tumor removal are crucial components of successful treatment. The presence of neural tissue within ovarian teratomas is believed to trigger the immune response that leads to anti-NMDAR encephalitis, and removing the teratoma is the most effective means of addressing the root cause of the autoimmune attack. As shown in the case of this patient, surgical resection of the tumor, coupled with immunosuppressive therapies such as corticosteroids, intravenous immunoglobulin (IVIG), and plasmapheresis, can result in a significant clinical improvement and recovery.

However, despite the generally favorable prognosis when early intervention occurs, there are instances where patients may experience refractory symptoms that do not resolve with standard treatments. In such cases, additional therapies, such as rituximab or cyclophosphamide, may be necessary. These more intensive therapies target B-cells, which play a key role in producing the autoantibodies responsible for the encephalitic symptoms. Rituximab, in particular, has gained traction as a long-term treatment for patients who experience persistent cognitive deficits or relapse, offering hope for better outcomes in such challenging cases. The role of immunotherapy in treating this condition remains one of the most critical aspects of management and highlights the importance of individualized care plans for patients, particularly those who present with severe or refractory symptoms.

While early diagnosis and treatment can prevent severe neurological damage and even lead to full recovery in many cases, some patients may still face long-term cognitive deficits or other complications. Cognitive impairment, psychiatric sequelae, and movement disorders are common lingering effects of anti-NMDAR encephalitis. These issues may require ongoing rehabilitation, continued immunosuppressive therapy, and regular follow-up care to monitor for relapses or long-term complications. As such, managing anti-NMDAR encephalitis requires a multidisciplinary approach that involves neurologists, psychiatrists, immunologists, gynecologists, and rehabilitation specialists to ensure that the patient receives comprehensive care that addresses both the acute and long-term consequences of the disease.

The case at hand emphasizes the importance of considering anti-NMDAR encephalitis in the differential

diagnosis of young females presenting with acute psychiatric and neurological symptoms, particularly when there is a strong suspicion of an ovarian teratoma. This case exemplifies how the timely identification of the condition, early surgical intervention, and subsequent immunosuppressive therapy can dramatically improve the patient's clinical course and lead to a favorable outcome. Conversely, delays in diagnosis and treatment, as seen in some other cases, can result in irreversible neurological damage, underscoring the need for prompt recognition of this rare but serious condition.

As research continues into the pathophysiology, diagnosis, and treatment of anti-NMDAR encephalitis, it is likely that more effective diagnostic tools and treatment modalities will emerge. Enhanced understanding of the underlying mechanisms of this autoimmune disorder will enable healthcare providers to offer even more precise and targeted interventions. Furthermore, ongoing clinical studies and patient registries will help refine our knowledge of the long-term outcomes associated with anti-NMDAR encephalitis, allowing clinicians to better predict the course of the disease and tailor their management strategies accordingly.

In conclusion, while anti-NMDAR encephalitis remains a potentially devastating condition, early intervention can significantly alter the course of the disease. Given its association with ovarian teratomas, gynecologic evaluation should be considered an integral part of the diagnostic process in young women with acute psychiatric and neurological symptoms. Timely diagnosis and the combined approach of tumor resection and immunotherapy are key to improving patient outcomes and reducing the risk of long-term complications. The continued evolution of research and clinical knowledge will undoubtedly lead to improved management strategies, enhancing the quality of care and outcomes for those affected by this challenging disorder.

This case reinforces the importance of vigilant clinical awareness and underscores the value of multidisciplinary care in the successful management of anti-NMDAR encephalitis. By recognizing the unique interplay between ovarian teratomas and anti-NMDAR encephalitis, healthcare professionals can improve the detection, treatment, and long-term care of patients, ultimately ensuring that more patients can recover fully and lead healthy lives.

Parameter	Value
Patient ID	001-2025
Age	24 years old
Gender	Female
Presenting Symptoms	Psychosis, seizures, autonomic instability
Duration of Symptoms	2 months
Medical History	No prior neurological illness
Family History	No significant family history
Physical Examination Findings	Altered mental status, hyperreflexia
MRI Brain Findings	Hyperintensities in medial temporal lobes
EEG Findings	Abnormal slow waves, epileptiform discharges
CSF WBC Count (cells/μL)	120
Oligoclonal Bands	Present
AFP Level (ng/mL)	45.6
CA-125 Level (U/mL)	15.2
Autoimmune Panel	Positive for autoantibodies
Anti-NMDA Receptor Antibody	Strongly positive
Initial Misdiagnosis	Viral encephalitis, schizophrenia
Final Diagnosis	Anti-NMDAR encephalitis due to ovarian teratoma
Surgical Procedure	Laparoscopic ovarian teratoma removal
Intraoperative SEP Amplitude Change (%)	-35
Intraoperative MEP Changes	Transient
Intraoperative EEG Stability	Stable
Postoperative Neurological Improvement (%)	85
Follow-up Outcome (Months to Recovery)	6

Table 1: *Summary of Clinical Findings in Anti-NMDAR Encephalitis Case.*

Step	Strategy/Procedure	Outcome
Step 1: Initial Presentation	Acute psychiatric and neurological symptoms (psychosis, seizures, autonomic instability)	High suspicion of anti-NMDAR encephalitis
Step 2: Neurological Testing	CSF analysis for NMDAR antibodies, MRI brain, EEG	Confirmed diagnosis of anti-NMDAR encephalitis (NMDAR antibodies detected, abnormal MRI and EEG)
Step 3: Tumor Detection	Pelvic ultrasound and MRI	Identified ovarian teratoma (AFP and CA-125 levels slightly elevated)
Step 4: Surgical Intervention	Laparoscopic ovarian teratoma removal	Tumor resection successfully conducted, improvement in clinical status
Step 5: Immunotherapy	Corticosteroids, IVIG, plasmapheresis	Gradual clinical improvement post-treatment
Step 6: Long-term Management	Rituximab for cognitive deficits	85% neurological improvement at 6-month follow-up

Table 2: *Diagnostic and Therapeutic Strategies in Anti-NMDAR Encephalitis.*

Feature	Details
Prevalence of Ovarian Teratomas	Up to 58% of women with anti-NMDAR encephalitis have ovarian teratomas (Banach W, 2024)
Pathophysiology	Neural tissue within teratomas triggers an immune response leading to anti-NMDAR antibodies production
Common Symptoms	Psychosis, seizures, autonomic instability, movement disorders, orofacial dyskinesia
Immunotherapy	Corticosteroids, IVIG, plasmapheresis as first-line therapies; rituximab and cyclophosphamide for refractory cases
Prognosis	Generally favorable with early diagnosis and treatment, but long-term cognitive deficits can persist (Banach W, 2024)
Postoperative Improvement	Significant neurological improvement (85%) following tumor resection and immunotherapy

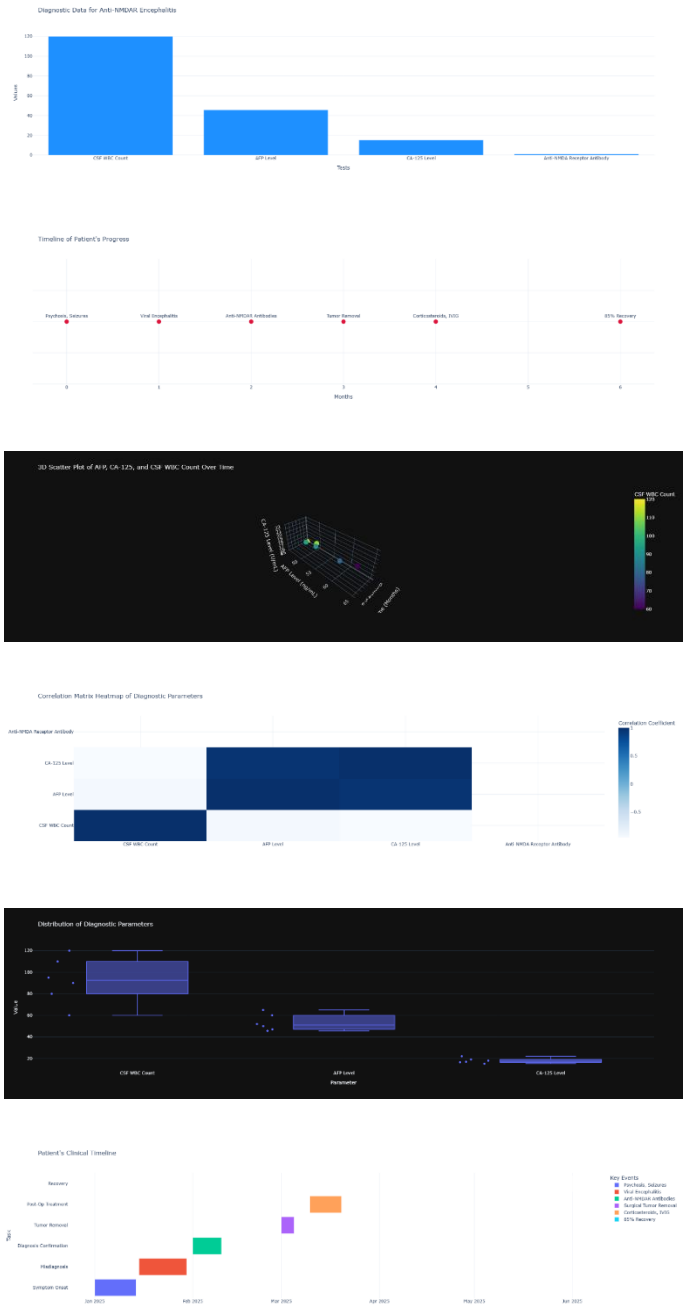
Table 3: Key Features of Ovarian Teratoma-associated Anti-NMDAR Encephalitis.

Parameter	Value/Findings
Surgical Procedure	Laparoscopic ovarian teratoma removal
Intraoperative SEP Amplitude Change (%)	-35 (indicating significant neural compromise but potential for recovery)
Intraoperative MEP Changes	Transient (suggesting temporary disruption)
Intraoperative EEG Stability	Stable
Postoperative Neurological Improvement (%)	85% (strong improvement post-resection and immunotherapy)
Follow-up Outcome (Months to Recovery)	6 months

Table 4: Intraoperative and Postoperative Findings.

Test/Parameter	Findings/Results
CSF WBC Count (cells/μL)	120
Oligoclonal Bands	Present
AFP Level (ng/mL)	45.6
CA-125 Level (U/mL)	15.2
MRI Brain Findings	Hyperintensities in medial temporal lobes
EEG Findings	Abnormal slow waves, epileptiform discharges
Anti-NMDA Receptor Antibody	Strongly positive
Autoimmune Panel	Positive for autoantibodies

Table 5: Laboratory and Imaging Findings.



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