

## Case

## MERS and Psychotic Attack: Etiology or Comorbidity? A Case Report

### Authors & Affiliations

Seda Erbaş, Sami Arslanoğlu, İlayda Albayrak, Naciyenur Bilen Ağca

Hasan Kalyoncu University, Gaziantep, Türkiye

**Corresponding Author:** İlayda Albayrak, M.D., Hasan Kalyoncu University, Gaziantep, Türkiye

**E-mail:** ilaydaalbayrak084@gmail.com

Submitted at: 13.06.2025 - Accepted at: 09.11.2025 - Published at: 19.12.2025

The journal is licensed under: Attribution 4.0 International (CC BY 4.0)

Avicenna Anatol J Med. Year; 2025, Volume: 2, Issue: 3

 [10.5281/zenodo.17969830](https://doi.org/10.5281/zenodo.17969830)

### Abstract

Psychotic disorder is characterized by disturbances in thought, perception, movement, and behavior, and can arise from psychiatric conditions or underlying medical issues. However, adolescents exhibiting psychotic symptoms are often directed to psychiatric services without adequate consideration for a differential diagnosis. This article aims to underscore the importance of concurrent evaluation by child psychiatry and child neurology for a comprehensive differential diagnosis in cases of acute/subacute psychiatric illnesses. We highlight this necessity through a case presentation involving a rare condition, Mild Encephalopathy with Reversible Splenial Lesion (MERS). Such cases initially present with conspicuous psychiatric symptoms like sudden behavioral changes and suicide attempts, leading to referrals to child psychiatry despite normal initial neurological examinations. This emphasizes the critical need for thorough evaluation in cases of acute/subacute psychiatric disorders to ensure accurate diagnosis and appropriate management.

**Keywords:** Encephalopathy, MERS, Psychotic Attack

### INTRODUCTION

Psychotic disorder manifests with symptoms affecting thought, perception, emotion, movement, and behavior, potentially leading to functional impairment. It can be seen in psychiatric disorders such as schizophrenia, major depression, and bipolar disorder, but may also be indicative of an underlying medical condition. The prevalence of schizophrenia in the general population is reported to be 1.0%, with a prevalence of 0.01% in children under 10 years old and 0.04% in those under 15 years old. If the disorder begins before the age of 18, it is classified as early-onset schizophrenia, and if it begins before the age of 13, it is classified as very early-onset schizophrenia. Various factors contribute to the etiology of psychosis, including genetic factors, structural brain changes, neurochemical alterations, neurophysiological differences, endocrine factors, receptor pathologies, and psychosocial influences. While no specific brain structural abnormalities have been identified for schizophrenia and other psychotic disorders, the DSM-IV acknowledges that psychotic disorders can be due to general medical conditions, reinforcing the idea that some organic diseases can present with psychiatric symptoms. The onset of psychosis is an important diagnostic element, with acute onset more commonly associated with an underlying medical condition than a psychiatric disorder.

### CASE

A 17-year-old female patient was brought to the emergency department by ambulance after attempting suicide by jumping off a balcony, believing that her body was burning. According to her family, she had no known medical history, but had suddenly begun exhibiting meaningless speech and behaviors, visual and auditory hallucinations, failure to recognize her parents, and refusal to eat over the previous four days. Her initial neurological examination in the emergency department was normal, leading to a psychiatric consultation.

During her first psychiatric evaluation in the emergency department, she was found to be conscious but with impaired orientation and cooperation, poor collaboration, elevated mood, inappropriate affect, decreased attention, increased psychomotor activity, increased speech rate and volume, flight of ideas, paranoia, referential thinking, religious preoccupations, visual and auditory hallucinations, and self-harming behaviors.

The patient's psychomotor agitation and aggression were initially managed with 10 mg olanzapine, which led to a partial improvement in symptoms. However, she became agitated again and was administered 5 mg haloperidol and 2 mg biperiden intramuscularly. Laboratory tests revealed an elevated CRP and leukocytosis. Given the acute and severe onset of symptoms, the absence

of previous psychiatric symptoms, lack of substance use, and no family history of psychiatric disorders, a neurology consultation was recommended. Diffusion-weighted MRI showed a focal, oval-shaped restricted diffusion area in the splenium of the corpus callosum, with corresponding T2-FLAIR hyperintensity, consistent with a diagnosis of MERS (Mild Encephalitis/Encephalopathy with Reversible Splenial Lesion). The patient was transferred to the pediatric ward.

#### Post-Discharge Follow-up and Neurological/Psychiatric Status

At discharge, the patient was alert and conscious, fully oriented to time, place, and person.

- Attention and Concentration: The patient was intact. The patient successfully and fluently performed a serial subtraction of seven from a hundred.
- Memory: Both recent memory (he could recall three words given five minutes earlier) and remote memory were intact.
- Speech (no dysarthria or aphasia): Fluent, expressive, and clear articulation was present. Naming, repetition, and comprehension skills were fully preserved.
- Cranial Nerves: Pupillary light reflexes were bilaterally symmetrical and brisk. The eyelids were normal, with no ptosis. Extraocular movements were complete and coordinated in all directions, with no nystagmus. The facial muscles were symmetrical. The patient had strong and symmetrical eyebrow raises, eye closures, smiles, and cheek puffing.
- Muscle Strength: 5/5 (normal strength) in all major proximal and distal muscle groups, including shoulder abduction, elbow flexion/extension, wrist extension, finger abduction, hip flexion, knee extension, and ankle dorsiflexion/plantar flexion.
- Muscle Tone: Normal tone in all extremities, with no signs of spasticity or rigidity.
- Muscle Appearance: Muscle volume and trophism were age-appropriate. No atrophy, hypertrophy, or fasciculation was observed.
- Deep Tendon Reflexes: Bilaterally symmetric and normoreflexic (2+), including biceps, brachioradialis, triceps, patellar, and Achilles reflexes.
- Superficial Reflexes:
- Plantar Response (Babinski): Bilateral flexor (normal).
- Abdominal Reflexes: Present and symmetric.

The patient's psychotic symptoms showed a steady remission during follow-up, and approximately two weeks after discharge, she showed complete resolution of hallucinations, disorganized behavior, and mood symptoms. No neurological deficits or cognitive impairments were observed at one-month follow-up.

## DISCUSSION

Mild Encephalopathy with Reversible Splenial Lesion (MERS) represents a distinct clinico-radiological entity characterized by transient lesions in the splenium of the corpus callosum, typically reversible within days to weeks. Initially described in association with viral infections such as influenza and rotavirus, MERS has since been linked to a broader spectrum of etiologies,

including bacterial infections, metabolic disturbances, antiepileptic drug withdrawal, and autoimmune processes (6, 8). The underlying pathophysiology remains incompletely understood, but proposed mechanisms include intramyelinic edema, inflammatory cytokine-mediated cytotoxicity, and transient blood-brain barrier dysfunction (10). Although neurological manifestations such as seizures, confusion, and ataxia are well-documented, psychiatric symptoms may occasionally dominate the clinical picture, complicating differential diagnosis (3, 5).

In the present case, the patient initially presented with prominent psychiatric symptoms—psychosis, hallucinations, and disorganized behavior—leading to an initial referral to psychiatry. This clinical course aligns with reports indicating that MERS can mimic acute psychiatric disorders, particularly in adolescents, when neurological signs are subtle or absent (7,8). Early misclassification of such cases as primary psychosis or mania can delay appropriate neuroimaging and treatment. Our findings underscore the diagnostic challenge in differentiating between primary psychiatric illness and secondary psychosis due to organic brain dysfunction. This case reinforces the importance of joint psychiatric and neurological assessment in acute-onset psychiatric presentations with atypical features, such as sudden behavioral changes, fluctuating consciousness, or poor response to antipsychotic medication.

Neuroimaging plays a pivotal role in distinguishing MERS from other encephalopathies. The hallmark MRI finding—restricted diffusion in the splenium of the corpus callosum with corresponding T2/FLAIR hyperintensity—is typically reversible within two to four weeks and correlates with favorable prognosis (1). In this case, diffusion-weighted MRI confirmed the classic splenial lesion, supporting the diagnosis. The absence of persistent radiological or neurological deficits further aligns with previous reports of complete clinical recovery in MERS (11). While the mechanism linking splenial lesions to psychiatric manifestations remains debated, disruption of interhemispheric communication and transient alterations in callosal connectivity have been proposed as contributing factors to acute psychosis (9). Functional MRI studies indicate that the corpus callosum modulates affective and cognitive integration; thus, transient lesions may result in the disinhibition and perceptual disturbances seen in this patient (4).

The psychiatric manifestations of MERS often resemble delirious mania, acute psychosis, or affective disorders, emphasizing the need for clinicians to maintain a high index of suspicion when confronted with atypical presentations. Case reports have documented rapid remission of psychiatric symptoms following resolution of splenial lesions, suggesting a reversible pathophysiological substrate rather than a chronic psychiatric process (3,7). Moreover, the temporal association between symptom onset and radiological findings supports a causal rather than coincidental relationship. The patient's complete remission of symptoms within two weeks and the absence of residual

deficits are consistent with the benign and self-limiting nature of MERS (2).

From a therapeutic standpoint, management of MERS primarily involves supportive care and treatment of the underlying trigger, such as infection or metabolic imbalance. Antipsychotics may be required transiently for behavioral control but should be used cautiously, as symptom resolution typically parallels the normalization of the splenial lesion rather than pharmacological intervention (5). In our case, olanzapine and haloperidol were administered for acute agitation, followed by complete recovery after the neurological etiology was identified and treated. This progression highlights the necessity of avoiding premature diagnostic closure in favor of integrated neuropsychiatric evaluation.

## CONCLUSION

Many emergency settings, adolescents presenting with psychotic symptoms are frequently referred to psychiatric services without sufficient differential diagnostic evaluation. This can lead to misdiagnosis and inappropriate management, sometimes resulting in serious underlying organic conditions being overlooked or misdiagnosed as primary psychiatric disorders. In our case, the initial normal neurological examination led to a psychiatric referral; however, the acute onset of symptoms warranted further neurological investigation. This case highlights the importance of simultaneous neurological and psychiatric assessment in acute/subacute psychiatric cases to avoid misdiagnosis and ensure appropriate treatment.

## DECLARATIONS

**Funding:** None

**Author Contributions:** All authors approved the final manuscript and take responsibility for the integrity of the work.

**Competing Interests:** The authors declare no conflict of interest.

**Consent Statement:** Patient consent was obtained.

## REFERENCES

1. Tada H, Takashi J, Barkovich AJ, Oba H, Maeda M, Tsukahara H, Suzuki M, Yamamoto T, Shimono T, Ichiyama T, Taoka T, Sohma O, Yoshikawa H, Kohno Y. Clinically mild encephalitis/encephalopathy with a reversible splenial lesion. *Neurology*. 2004;63(10):1854-1858.
2. Garcia-Monco JC, Cortina IE, Ferreira E, Martinez A, Ruiz L, Cabrera A, Beldarrain MG. Reversible splenial lesion syndrome (RESLES): what's in a name? *J Neuroimaging*. 2011;21(2):e1-14.
3. Yıldız AE, Genç HM, Gürkaş E, Akmaz Ü, Öncel İH, Güven A. Mild encephalitis/encephalopathy with a reversible splenial lesion in children. *Diagn Interv Radiol*. 2018;24(2):108-112.
4. Çelik H, Derinkuyu BE, Aksoy E, Öztoprak Ü, Ceylan N, Azapağası E, Özdem S, Melek Melehat Oğuz M, Yüksel D. Clinically mild encephalitis/encephalopathy with a reversible splenial lesion of the corpus callosum in childhood: a single-center experience. *Turk J Med Sci*. 2022;52(2):405-412.
5. Tsuchida A, Sawada K. Mild encephalitis/encephalopathy with a reversible splenial lesion (MERS). *PCN Rep*. 2024;3(2):e191. Published 2024 Apr 4. doi:10.1002/pcn5.191
6. Feraco P, Porretti G, Marchiò G, Bellizzi M, Recla M. Mild encephalopathy with a reversible splenial lesion (MERS) due to cytomegalovirus: case report and review of the literature. *Neuropediatrics*. 2018;49(1):68-71.
7. Vanderschueren G, Schotsmans K, Maréchal E, Crols R. Mild encephalitis with reversible splenial (MERS) lesion syndrome due to influenza B virus. *Pract Neurol*. 2018;18(5):391-392. doi:10.1136/practneurol-2018-001880
8. Zhuang L. Mild encephalitis/encephalopathy with a reversible splenial lesion (MERS) Type II in an adult: case report and diagnostic insight. *Cureus*. 2025;17(10):e95265.
9. Yuan J, Yang S, Wang S, Qin W, Yang L, Hu W. Mild encephalitis/encephalopathy with reversible splenial lesion (MERS) in adults – case report and literature review. *BMC Neurol*. 2017;17:103.
10. Okamoto T, Sato Y, Yamazaki T, Hayashi A. Clinically mild encephalitis/encephalopathy with a reversible splenial lesion associated with febrile urinary tract infection. *Eur J Pediatr*. 2014;173(4):533-536. doi:10.1007/s00431-013-2199-9
11. Yang J, Han F, Chen Q, et al. Reversible splenial lesion syndrome (RESLES) due to acute intermittent porphyria with a novel mutation in the hydroxymethylbilane synthase gene. *Orphanet J Rare Dis*. 2020;15(1):98. Published 2020 Apr 19. doi:10.1186/s13023-020-01375-y