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Othello syndrome following chronic stroke and epilepsy: a neurobehavioral case report

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Abstract
Othello syndrome, or delusional jealousy, is a rare but striking neuropsychiatric manifestation that can arise from structural brain lesions. It is characterized by a fixed belief of a partner's infidelity, often accompanied by emotional volatility and social dysfunction. We report a case of a 58-year-old man who developed persistent delusional jealousy following a chronic thromboembolic stroke involving the right frontotemporal region, later complicated by focal epilepsy. Neuroimaging revealed right-sided encephalomalacia and gliosis, and EEG demonstrated interictal epileptiform discharges in the same region. His symptoms included paranoid suspicion, irritability, and intrusive checking behaviors, emerging several years after the initial vascular insult. The presentation suggested an organic etiology rather than a primary psychiatric disorder. Combined neurological and psychiatric management, including antiepileptic optimization and low-dose risperidone, led to partial remission of delusional intensity and improvement in daily functioning. This case highlights the importance of considering secondary neurobehavioral syndromes in patients with focal brain lesions, especially when behavioral changes are disproportionate to psychosocial stressors. Early multidisciplinary recognition can guide appropriate treatment and reduce the risk of chronic disability.
Keywords: Othello syndrome, delusional jealousy, frontotemporal lesion, stroke, focal epilepsy.
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Синдром Отелло в результате хронической ишемии головного мозга и эпилепсии: клинический случай неврологических и поведенческих нарушений

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Аннотация
Синдром Отелло, или бред ревности, представляет собой редкое, но яркое проявление нервно-психического расстройства, которое может возникнуть из-за структурных изменений головного мозга. Для него характерна твердая убежденность в неверности партнера, которую часто сопровождают эмоциональная неустойчивость и социальная дисфункция. В статье рассмотрен случай 58-летнего мужчины, у которого устойчивый бред ревности развился в результате хронической вызванной тромбозом ишемии головного мозга в правой лобно-височной области, позднее осложнившейся фокальной эпилепсией. Методами нейровизуализации выявлены энцефаломаляция и глиоз справа, на электроэнцефалографии видна интериктальная эпилептиформная активность в той же области. У него были следующие симптомы: подозрительность параноидного характера, раздражительность и компульсивное контролирующее поведение, которые появились через несколько лет после первого инсульта. Клиническая картина позволила предположить органическое поражение, а не первичное психическое расстройство. Комплексное лечение неврологическими и психиатрическими препаратами, которое включало в себя оптимизацию противосудорожной терапии и использование низких доз рисперидона, привело к частичной ремиссии и затуханию бреда, а также к улучшению повседневного функционирования. Представленный случай подчеркивает важность учета вторичных неврологических и поведенческих синдромов у пациентов с очаговыми поражениями головного мозга, особенно в случаях, когда поведенческие изменения непропорциональны психосоциальным стрессорам. Раннее выявление с применением мультидисциплинарного подхода может помочь назначить правильное лечение и снизить риск хронической инвалидности.
Ключевые слова: синдром Отелло, бред ревности, поражение лобной и височной долей, ишемия головного мозга, фокальная эпилепсия.
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Introduction

Othello syndrome, also known as delusional jealousy, is a rare psychiatric manifestation characterized by a fixed, false belief of a partner's infidelity despite the absence of evidence. While it has been traditionally described in association with psychiatric disorders such as schizophrenia, delusional disorder, or substance use, emerging reports have linked it to structural brain lesions and neurological diseases [1, 2]. Lesions involving the frontal and temporal regions, particularly in the right hemisphere, have been most frequently implicated. These areas are crucial for executive control, social cognition, and emotional regulation, and damage can distort the interpretation of interpersonal cues, fostering pathological jealousy [1, 2].

Organic causes of Othello syndrome, although uncommon, are important to recognize because they carry different prognostic and therapeutic implications compared to primary psychiatric forms. In patients with epilepsy or cerebrovascular disease, delusional jealousy may arise as part of an interictal behavioral change or as a result of injury to frontotemporal networks. Neuroimaging and electroencephalographic studies therefore play a key role in differentiating secondary from primary etiologies [1–3].

We describe a middle-aged man who developed Othello syndrome in the setting of a chronic thromboembolic stroke and focal epilepsy. The case underscores the complex interaction between structural brain injury, epileptiform activity, and neurobehavioral symptoms, and highlights the importance of multidisciplinary management in patients presenting with neuropsychiatric sequelae of brain lesions.

Case Presentation

A 58-year-old right-handed man presented with progressive behavioral changes characterized by irritability, suspiciousness toward his wife, and intrusive jealousy over a two-year period. He repeatedly accused her of infidelity without evidence, monitored her communications, and occasionally became verbally aggressive. The behavior emerged gradually, nearly three years after a thromboembolic stroke involving the right frontotemporal region, which had initially caused mild left hemiparesis and cognitive slowing. His medical history also included well-controlled hypertension and focal epilepsy secondary to the old infarct.

Neurological examination showed mild left-sided weakness and subtle executive dysfunction. Mental status examination revealed a fixed, non-bizarre delusion of infidelity without hallucinations or disorganization. His affect was tense but reactive. There was no family or personal psychiatric history. He scored within the normal range on the Mini-Mental State Examination (MMSE 27/30), and cognitive testing indicated preserved memory and visuospatial function with mild deficits in attention and impulse control. Brain MRI revealed encephalomalacia and gliotic changes in the right frontal and temporal cortices, consistent with chronic ischemic injury. EEG demonstrated intermittent right frontotemporal sharp waves, consistent with interictal epileptiform discharges. Routine blood work, thyroid profile, and metabolic panels were unremarkable.

Given the temporal association with structural brain injury and epileptiform activity, a diagnosis of secondary Othello syndrome due to right frontotemporal stroke with post-stroke epilepsy was made. The patient was managed jointly by neurology and psychiatry teams. His antiepileptic regimen was optimized, and low-dose risperidone (1 mg nightly) was initiated. Over the following three months, the intensity of his delusional beliefs lessened, and his interpersonal behavior improved, though occasional mistrust persisted. Family counseling and psychoeducation were provided to reduce interpersonal conflict and improve medication adherence. At six-month follow-up, he remained seizure-free and socially stable. The persistence of mild delusional ideas despite neurological stability highlighted the complex interaction between structural, electrophysiological, and psychological factors contributing to neurobehavioral syndromes after focal brain injury.

Discussion

This case describes a secondary form of Othello syndrome that developed after a right frontotemporal lesion in a patient with chronic thromboembolic stroke and focal epilepsy. The patient presented with a fixed delusion of spousal infidelity that began after the vascular event, with no prior psychiatric history or other psychotic symptoms. The close temporal link between the neurological insult, seizure onset, and behavioral change supported an organic cause rather than a primary psychiatric disorder. According to the DSM-5, this presentation fulfills the criteria for a delusional disorder of the jealous type. The delusion was well systematized, limited to the theme of infidelity, and occurred in the context of otherwise preserved cognition and functioning. Given the structural brain injury and subsequent epileptic activity, this case is best characterized as an organic delusional disorder consistent with Othello syndrome.

Neuroimaging revealed involvement of the orbitofrontal cortex, anterior temporal lobe, insula, and striatum, which are responsible for evaluating social information and regulating emotional responses. Damage to these regions can impair the ability to assess beliefs, interpret social cues, and correct false assumptions, which may explain the persistence of delusional jealousy. Epileptic activity in adjacent regions likely contributed to emotional dysregulation and reinforced paranoid interpretations [4]. Several factors supported an organic etiology, including the late onset, focal neurological findings, and consistency between clinical presentation, imaging, and electrophysiological results. Differential diagnoses such as schizophrenia, frontotemporal dementia, and mood disorder with psychotic features were excluded based on detailed cognitive assessment and clinical course. Treatment prioritized stabilization of neurological function and control of seizures. Low-dose antipsychotic medication was used cautiously, and psychoeducation for both patient and family was central to care. Addressing safety concerns and reducing interpersonal conflict were also essential [1, 5].

This case emphasizes the importance of recognizing Othello syndrome as a possible neurobehavioral manifestation of brain injury. Early identification, combined neurological and psychiatric assessment, and coordinated care can improve outcomes and reduce the psychological and social burden on patients and families.

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