

A case of Cyber Fraud-Induced Psychosis and Cognitive Impairment Post-Meningioma

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Highlights:

- Cyber-coercion adds risks to psychosis and cognitive decline in an older adult with post-meningioma frontal–executive vulnerability.
- Reversible psychosis and cognitive impairment following online fraud, with recovery is found when a tailored multimodal intervention (family, community, and clinical support) is provided.
- Digital environments as a novel risk factor for neuropsychiatric decompensation in cognitively vulnerable older adults, underscoring the need for targeted screening and prevention.

Elderly with frontal-executive vulnerability face emerging risks in digital environments, yet neuropsychiatric sequelae from cyber-coercion in brain-injured patients remain unreported. This case addresses the gap by documenting a novel trajectory linking online exploitation to reversible psychosis and cognitive impairment

The intersection of cognition decline and digital vulnerability in older adults represents an emerging clinical challenge, particularly involving frontal-executive dysfunction. Moreover, little is known about the financial, emotional, psychological, and physical impacts of fraud experiences amongst older generations in digital society^[1]. This case describes a novel neuropsychiatric trajectory: a meningioma-resected patient who

developed depression, psychosis and cognitive impairment following coercive online influence.

In this case report from mainland China, the patient's medical history, records and images were reviewed. Ethics committee approval was not necessary as the case fell within the standard of medical care. The patient understands that her name and initials will not be published and due efforts will be made to conceal her identity, but anonymity cannot be guaranteed. Informed consent on the clinical information and images were given by the patient.

A 61-year-old woman with a history of meningioma resection (2010) presented with acute psychiatric deterioration following restricted internet access. In January 2025, she engaged intensively with live-streaming platforms, adopting hosts' teachings to "promote positive energy and altruism." She produced daily videos advocating "truth, kindness, and beauty," shared them in family groups, sought hosts' guidance for family conflicts, and spent approximately ¥30,000 on online courses within two months. When relatives urged fraud reporting, she insisted participation was voluntary, citing hosts' "support with domestic issues and advice to relax." After family confiscated her phone in February 2025, she developed severe insomnia (2–3 hr/night), social withdrawal, persecutory delusions (belief of being surveilled/filmed publicly), and disinhibited wandering resulting in two lost episodes requiring police intervention. Finally, she was referred to psychiatric services for further treatment.

Her postoperative course after meningioma surgery revealed chronic cognitive sequelae: impaired decision-making (e.g., repeated costly purchases of health supplements) and heightened environmental susceptibility. On our initial evaluation, physiological reflex was normal, while pathological reflex and meningeal irritation were not elicited. There was no muscle atrophy of extremities. Muscle strength was 5/5 in upper and lower extremities. Neurocognitive testing on admission showed mild deficits (MMSE 26/30; MoCA 23/30). EEG showed no abnormality. Brain MRI demonstrated bilateral hippocampal atrophy

(MTA Grade I), frontoparietal ischemic foci, periventricular leukoaraiosis, and surgical changes. Cerebrospinal fluid analysis revealed elevated opening pressure (270 mmH₂O) but normal Alzheimer's biomarkers (p-Tau181/Aβ42/Aβ40), autoimmune encephalitis antibodies, and infectious workup. A final diagnosis of Personality and behavioural disorders due to brain disease, damage and dysfunction (F07) was made according to the criteria of the International Statistical Classification of Diseases and Related Health Problems 10th Revision.

Initial pharmacotherapy (risperidone and valproate) yielded minimal improvement over three weeks. Psychotherapy uncovered lifelong emotional neglect, marital strain, and post-tumor unemployment leading to physically demanding labor. She perceived hosts as validating unmet needs through mantras like "helping others helps oneself." A multimodal intervention was implemented: Family system restructuring: Replaced conflict (phone confiscation) with collaborative rules (usage agreements, joint financial oversight); Community reintegration: Redirected to offline activities (community college gardening/handicraft courses); Safety net enhancement: Neighborhood committee anti-fraud home visits. Within two months, psychotic symptoms resolved and mood stabilized. MoCA improved significantly to 30/30, reflecting cognitive recovery.

This case report describes a unique neuropsychiatric trajectory in an elderly patient with a history of meningioma resection who developed psychotic symptoms centered on delusion following coercive online fraud manipulation. This case profoundly illustrates the profoundly devastating impact of targeted online fraud on the emotional and mental well-being of elderly individuals: Fraudsters exploit victims' physiological vulnerabilities (e.g., potential post-operative neurocognitive sequelae, age-related sensory deficits, and cognitive decline) and psychosocial weaknesses, employing highly coercive manipulation tactics to inflict severe psychological trauma.

Academic interest extends beyond the prevalence and typologies of fraud affecting older persons to the significant impact of this victimization. Aside from economic

consequences, victimization by fraud has been shown to have psychological effects, cause mental and physical health problems, damage a person's reputation, and produce positive and negative behavior changes^[2]. For older individuals, research demonstrates that health and well-being can be compromised even without financial loss^[3].

Meningiomas are the most common primary intracranial tumors in adults, comprising approximately one-third of all primary brain tumors, with a median age at diagnosis of 66 years^[4]. Incidence is increasing due to population aging and advances in neuroimaging^[5], and females have a lifetime risk approximately 2.3 times higher than males^[6]. Surgery remains the primary treatment; however, long-term sequelae are frequently overlooked. Postoperative cognitive or emotional impairments (e.g., anxiety, depression) affect up to 40% of patients^[7]. Studies link impairments in attention, memory, language, executive function, emotion, and adaptive functioning to tumor size and location, with adaptive deficits being particularly pronounced following resection of ventromedial prefrontal cortex (vmPFC) meningiomas^[8]. Furthermore, significant long-term limitations in health-related quality of life (HRQoL), including persistent cognitive, emotional, and social dysfunction, fatigue, and sleep disturbances, often persist for over a decade post-surgery^[9]. Collectively, these findings demonstrate that meningiomas and their surgical resection can induce enduring neuropsychiatric sequelae.

Critically, this case highlights the extreme therapeutic complexity arising from this situation: Diagnostic efforts necessitate disentangling the interplay between trauma-induced symptoms and underlying organic factors; Treatment encounters multifaceted challenges, including heightened medication sensitivity in the elderly, lack of insight related to trauma-associated delusions, difficulty establishing clinician-patient trust, and limitations on psychological interventions imposed by active psychosis. Pharmacotherapy requires extreme prudence: antipsychotics, essential for psychotic symptoms, must be initiated at very low doses and titrated exceptionally slowly to mitigate heightened vulnerability to adverse effects, coupled with vigilant monitoring. Crucially, expectations must be tempered, as response to pharmacotherapy is often suboptimal compared to

primary psychotic disorders. Initial therapy must prioritize stabilization through supportive techniques, psychoeducation, safety planning, and crisis management; trauma-focused interventions are contraindicated until psychosis remits. Addressing delusions requires indirect strategies: empathetic validation of underlying emotions, exploring potential links to the traumatic scam experience, gentle redirection towards reality-based functioning and problem-solving, and distraction, avoiding direct confrontation which is counterproductive. Rebuilding the social support network is vital, involving active family reconciliation and education about the neuropsychiatric basis of the disorder and trauma's impact to foster understanding and support. Concurrent social work intervention is essential to manage the scam's practical consequences (legal, financial, housing instability).

REFERENCE

1. Kemp S, Erades Pérez N. Consumer Fraud against Older Adults in Digital Society: Examining Victimization and Its Impact. *Int J Environ Res Public Health*. 2023 Apr 5;20(7):5404.
2. Button M., Lewis C., Tapley J. Not a Victimless Crime: The Impact of Fraud on Individual Victims and Their Families. *Secur. J*. 2014;27:36–54.
3. Bailey J., Taylor L., Kingston P., Watts G. Older Adults and “Scams”: Evidence from the Mass Observation Archive. *J. Adult Prot*. 2021;23:57–69.
4. Ostrom, Q.T., et al., CBTRUS Statistical Report: Primary Brain and Other Central Nervous System Tumors Diagnosed in the United States in 2012-2016. *Neuro Oncol*, 2019. 21(Suppl 5): p. v1-v100.
5. Wang, J.Z., et al., Meningioma: International Consortium on Meningiomas consensus review on scientific advances and treatment paradigms for clinicians, researchers, and patients. *Neuro Oncol*, 2024. 26(10): p. 1742-1780.
6. Ostrom, Q.T., et al., CBTRUS Statistical Report: Primary Brain and Other Central Nervous System Tumors Diagnosed in the United States in 2015-2019. *Neuro Oncol*, 2022. 24(Suppl 5): p. v1-v95.
7. Goldbrunner, R., et al., EANO guidelines for the diagnosis and treatment of

meningiomas. *Lancet Oncol*, 2016. 17(9): p. e383-91.

8. Abel, T.J., et al., The cognitive and behavioral effects of meningioma lesions involving the ventromedial prefrontal cortex. *J Neurosurg*, 2016. 124(6): p. 1568-77.

9. Nassiri, F., et al., Life after surgical resection of a meningioma: a prospective cross-sectional study evaluating health-related quality of life. *Neuro Oncol*, 2019. 21(Suppl 1): p. i32-i43.



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