

# General Psychiatry 'Brain on Fire': an extraordinary cinematic depiction of the phenomenon of diagnostic overshadowing

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Diagnostic overshadowing refers to a phenomenon commonly characterised by a person with pre-existing or recently diagnosed mental illness receiving inadequate attention for symptoms of physical illness, which are then misattributed as manifestations of the mental illness. There are potentially several underlying reasons for this, including diagnostic challenges in establishing a medical cause for the presenting symptoms, likely lack of expertise in medicine, stigma directed towards mental illness, a protean or polymorphic presentation not immediately relating to an established nosology, lack of a reliable evidence base in the area leading to an inability to correlate with established medical diagnoses as well as biases towards treating surface-level symptoms instead of identifying the underlying causes.<sup>1</sup> The movie *Brain on Fire* is based on the real life of the *New York Post* journalist, Susanna Cahalan. She is the protagonist of the movie which vividly dramatises a presentation characterised by psychotic symptoms with an underlying oft-underdiagnosed autoimmune pathology. Her symptoms included subtle perceptual disturbances, fatigue, depressed mood and apparent withdrawal. Gradually, these progressed to frank paranoia and unstable mood. Thus, her presentation was quite polymorphic where symptoms could have been classified as a psychotic or mood disorder. Further striking changes appeared with the onset of seizure episodes, which pointed towards a neurological illness. However, these were disregarded following a lack of clear radiographic and electroencephalographic evidences.

Eventually, Cahalan was hospitalised following agitation, disorientation and multiple seizure episodes. Her family faced considerable distress due to an uncertain diagnosis leading to inconsistent and ultimately ineffectual treatment. Psychiatric

diagnosis was considered when there was no apparent investigative finding. The bedside clinical lobar function tests conducted by her brilliant neurologist ultimately established the need for a brain biopsy, an invasive investigation not part of routine practice. The brain biopsy established the diagnosis of anti-NMDA encephalitis that could be treated with plasmapheresis and corticosteroids.

It is now common knowledge that dramatic psychiatric symptoms can manifest as the early signs of illness in 60% of autoimmune encephalitis cases. The misattribution of these presentations leads to a significant delay in instituting effective treatment.<sup>2</sup> Adequate training to increase the knowledge of the appropriate clinical warning signs can lead to a significant reduction in the time taken to achieve a diagnosis of an autoimmune neuropsychiatric condition.<sup>3</sup> In fact, there have been reports of cases of autoimmune encephalitis, which were diagnosed following a negative autoantibody test result (31.4%, according to a few studies), leading to further delays in exact diagnostic identification of the condition.<sup>4</sup> Furthermore, the access to immunological and laboratory testing is limited, leading to further delays in determination of the diagnosis.<sup>5</sup> This process is further complicated in the elderly population whose autoimmune conditions may not be considered as differential diagnoses for neuropsychiatric presentations.<sup>6</sup>

The film, therefore, contains numerous lessons. First, it demonstrates the need for a thorough neurological assessment along with maintaining a high index suspicion for organic possibility in every ostensibly atypical psychiatric presentation. Second, a trainee psychiatrist should consider the possibility of diagnostic overshadowing and its attendant iatrogenic risks. The film can potentially act as a teaching aid for students of psychiatry and neurology.<sup>7</sup>



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