

# Agoraphobia with Panic Disorder Manifesting after Traumatic Brain Injury: A Case Report

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## Case Report

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## ABSTRACT

The emergence of anxiety disorder after traumatic brain injury is poorly understood and largely unexplored. The aim of this study was to report a case of a patient who developed agoraphobia with panic disorder for prolonged duration following TBI. A 60 years old male patient who developed panic disorder with agoraphobia for prolonged duration following traumatic brain injury is reported and the condition is briefly discussed. The case reported suggests that TBI may cause decades-lasting psychiatric disorder in some individuals, emphasizing the importance of psychiatric follow-up of all patients after TBI.

## INTRODUCTION

Road traffic accident (RTA) data for 2015 reveals that almost 5 lakh accidents occurred last year, leading to death of 1,46,000 people and leaving thrice the number injured. About 1,374 RTAs and 400 deaths take place every day on Indian roads. It has been reported that 54.1% people killed in RTAs ranged from 15-34 years<sup>[1]</sup>. Psychiatric disorders are not uncommon following traumatic brain injury (TBI) since the parts of the brain most susceptible to damage from trauma are the frontal and the parietal lobes, which are also known to be the location of most psychiatric disorders. In a large study of 939 TBI patients the prevalence of a psychiatric disorder in the first year was 49% with moderate to severe TBI and 34% with mild TBI. The authors concluded that while moderate to severe TBI is associated with a higher initial risk, mild TBI is associated with persistent psychiatric disorders<sup>[2]</sup>. In another study common psychiatric disorders after TBI were major depression (44%), substance abuse (22%), posttraumatic stress disorder (PTSD) (14%), obsessive compulsive disorder (OCD) (6.5%), mania (4%) and psychosis (1%)<sup>[3]</sup>. A follow up study of sixty patients about 30 years after TBI revealed that 29 (48.3%) had developed an axis I disorder after the injury, including major depression (26.7%), alcohol abuse or dependence (11.7%), panic disorder (8.3%), specific phobia (8.3%), and psychotic disorders (6.7%)<sup>[4]</sup>. Though the development of psychiatric disorders after traumatic brain injury is well established, there is limited literature on agoraphobia after TBI<sup>[5]</sup>. The aim of this study was to report a case of a patient who developed agoraphobia with panic disorder for prolonged duration following TBI.

## CASE REPORT

60 year old married male from a suburban area of Pune city was brought to Psychiatry Out-Patient Department (OPD) by his family members. He complained of apprehension, palpitations, chest tightness, cold and clammy skin along with feeling of impending doom since past 9.5 years. He suffered from phobia of visiting crowded places. The frequency of

panic episodes increased gradually 7-8 times per day with each episode lasting for about 15-20 minutes. The frequent bouts of episodes made him paranoid making him dependent and seeking someone's company all the time to safeguard his life. Two months back he attempted to jump off the train apprehensive that he might die in the crowd. He is sensitive to loud noise and avoids watching television and listening to music. He had become increasingly irritable and was having disturbed sleep with difficulty in falling sleep. He revealed a past incident dating 10 years ago in which he was involved in of a road traffic accident under the influence of alcohol; subsequent to which he suffered TBI followed by loss of consciousness for 4 days. This was followed by altered sensorium for 10 days which resolved over next 6 months, after which the above mentioned symptoms started. During his admission he underwent CT scan of the brain which showed diffuse cerebral edema without any evidence of bleed or fracture skull. He has no memory of the events which led to fall from bike. Speech was normal, no limb weakness, and no abnormal bowel and bladder habits. On clinical examination, he had a pulse rate of 105 beats per minute and blood pressure of 130/80 mmHg, along with sweating of palms. Mental Status Examination revealed anxious worrisome behavior and constant phobia of death. Cognitive assessment revealed a distractible concentration with fair insight and judgement. On Hamilton Anxiety Scale (HAM-A), the patient scored 41/56 (>30: severe anxiety). He satisfied the ICD 10 criteria for diagnosis of Panic Disorder with Agoraphobia. The patient was started on Fluoxetine 10 mg per day and was uptitrated to 80 mg per day over a span of 16 weeks along with behavioural therapy in the form of Graded Exposure. The patient was also given an initial short course of Clonazepam 0.25 mg twice daily for a period of 4 weeks. Tablet Propranolol was also started at a dose of 10 mg per day and was uptitrated to 30 mg daily over a period of 2 weeks. By the end of 4 weeks of treatment patient started showing clinical improvement and the HAM-A score reduced to 20/56 (moderate anxiety). Over the next 12 weeks of treatment the HAM-A score reduced to 14/56 (mild anxiety). He also showed significant improvement in social interactions.

## DISCUSSION

The prevalence of anxiety disorders increased after TBI and range in frequency from 11% to 70% [6]. The disorder may be caused directly due to brain injury, or may be secondary to the stressful life experiences that are associated with trauma [7]. A multicenter prospective cohort study involving 1084 patients with TBI revealed that 22% developed a new psychiatric disorder including depression (9%), generalized anxiety disorder (9%), posttraumatic stress disorder (6%), and agoraphobia (6%) [8]. Despite the reports of high prevalence of PD in subjects following TBI, studies has not been reported well. Apart from one single case study [9], most of the studies have examined the prevalence rates of psychiatric disorders in general in TBI patients, and none specifically focused on PD. One study reported a 1-year prevalence of 9% in a sample of mixed TBI [10]. The authors put forward an interesting hypothesis that, in those with no memory for the traumatic event, PD may be an atypical expression of PTSD. In other two studies the occurrence of post TBI PD was 13% and 4% of the mixed TBI sample studied [11,12]. Few studies have also observed that patients were significantly more likely to develop posttraumatic stress disorder, panic disorder, social phobia, and agoraphobia if they had sustained a mild TBI [8,13]. Further, some have concluded that functional impairment, rather than mild TBI, was the reason for development of psychiatric disorder following mild TBI and offered several explanations to account for this pattern [8]. One reason could be the fact that biological models of anxiety disorder posit that fear is mediated by impaired regulation of the amygdala by the ventral medial prefrontal cortex [14]. Studies have proved that damage to the frontal regions of the brain is common in mild TBI which may increase their vulnerability to anxiety and depression because the neural networks required to regulate emotions are compromised [15]. In addition, closed head injury may produce damage to the hippocampus and amygdala, which are also implicated in anxiety disorders [16]. Further, it is possible for neuropsychological symptoms to influence the prevalence of agoraphobia accompanying PD. Symptoms such as impaired attention, memory, judgement and insight, depending on their expression, may elevate or decrease the prevalence of PD. In addition, if the hypothesis of the etiology of acquired PD being manifestation of amnesic PTSD is true, a more detailed examination of the course of post-injury status is warranted to delineate potential differences in clinical picture and course of the disorder [13]. The occurrence of anxiety disorder after TBI was found to be a strong predictor of social, personal and work dysfunction as was evident in our patient [5]. Compensation claims, however, were not associated with the rate of psychiatric illness [10]. The case reported suggests that TBI may cause decades-lasting psychiatric disorder in some individuals. It further emphasizes the importance of psychiatric follow-up of all patients after TBI.

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