

# Nocturnal Panic Attacks Mistaken For Frontal Lobe Epilepsy

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## Abstract

Panic attacks are a frequent non-epileptic seizure (pseudoseizure) presentation in the epileptic population. At times they may be misdiagnosed as a new seizure phenomena in an otherwise well controlled seizure patient and an erroneous decision to treat them might be made 1,2. This exposes the patient to unwarranted drug side-effects which may be potentially life-threatening. This is even more important when considering the vulnerable population of epileptic pregnant women. We present here a 33-year-old pregnant woman with a long standing history of "seizures" who presented for evaluation of nocturnal episodes of sudden awakening with a gagging sensation followed by arm and body jerks. Video-electroencephalography (Video-EEG) rightly characterized these episodes as nocturnal panic attacks. The overlap between nocturnal panic attacks and frontal lobe seizures is discussed.

## CASE REPORT

A-33-year old right handed woman was admitted for Video-EEG characterization of her nocturnal spells. Patient gave history of nocturnal episodes where-in she would wake up from sleep with a gagging and choking sensation and then have shaking of her hands and feet. She carried a diagnosis of epilepsy and volunteered history of a generalized convulsion at the age of 16. At the time of presentation she was three months pregnant. Her neurologist had recently increased her Levitiracetam dosage to 1000 mg twice daily due to increased frequency of the nocturnal events. The first night of monitoring she had four typical events of nocturnal awakening from stage 2 sleep. She was noted to get up abruptly, gag repeatedly and then shake her hands vigorously. Then she fell back to sleep. She was able to recall these episodes in the morning. There was no electrographic correlate to these events apart from muscle and motion artifact. After recording multiple similar clinical events without any electrographic correlate while off her anti-epileptic drug regime, an overnight polysomnographic study was carried out. Similar clinical events were recorded; the apnea hypnea index (AHI) was 2, with the lowest SaO<sub>2</sub> of 91%. The patient was seen in consultation by an expert in sleep medicine<sup>3</sup> and the nocturnal events were diagnosed as panic attacks. Due to her remote history of a generalized convulsion, at the time of this writing, she is maintained on Levitiracetam 500 mg a day. She is receiving psychotherapy

with the aim of initiating treatment with an anxiolytic once she delivers.

## DISCUSSION

A panic attack is characterized by intense emotion and accompanied by signs of sympathetic over-activity such as tachycardia, palpitations, diaphoresis and air hunger. Feelings of depersonalization and/ or derealization may accompany the episode and the patient may feel that he or she is about to die. According to the Diagnostic and Statistical Manual (DSM IV) of mental disorders in order to be considered a panic disorder the attack must be followed by at least one month of worry or concern regarding another attack. Many patients that report daytime panic attacks also have nocturnal panic attacks. Studies have reported an incidence of nocturnal panic attacks ranging anywhere from 44-71% in this population. The prevalence of nocturnal panic in the general population is estimated to be between three to five percent. Some studies have suggested that patients having nocturnal panic attacks may have a more severe form of panic disorder. Others have refuted this claim.

Nocturnal panic attacks typically occur within three hours of sleep onset and are most commonly seen in the transition from stage 2 to stage 3 sleep<sup>3</sup>. Patient's can recall the episode in the morning and this frequently leads to distress and concern about another attack. This aids in differentiating

nocturnal panics from other parasomnias with similar behavioral manifestations such as night terrors, which typically occur out of stage 3-4 sleep or nightmares which commonly occur in rapid eye movement (REM) sleep. Further night terrors are accompanied by screaming and intense fear; the individual falls back to sleep and frequently has no recollection of the episode upon awakening in the morning. Nightmares often tend to occur towards the early morning hours and are frequently accompanied by a strong visual component. Some studies have reported an increased incidence of microapneas (apneas that fall short of the 10-second criteria) in individuals who suffer from panic disorder. Historically heterogeneous sleep related disturbances like panic attacks have been difficult to delineate as a distinct syndrome from nocturnal frontal lobe epilepsy (NFLE). Etiological conclusions of various studies has often been conflicting, suggesting either an epileptic or a non-epileptic origin of these nocturnal events<sup>4</sup>. EEG's are uninformative being either normal or may show non-specific findings like slow activity over the frontal areas. In studies which employed depth electrode monitoring the epileptic origin of these some of these atypical "nocturnal" phenomena was clearly demonstrated. Provini et al. reported a clinical and polygraphic overview of 100 cases where-in they distinguished three movement-related subtypes of frontal lobe epilepsy namely paroxysmal arousals (brief recurrent motor paroxysmal behavior), nocturnal paroxysmal dystonia characterized by motor attacks with dystonic and dyskinetic features and lastly episodic nocturnal wandering consisting of stereotypical agitated somnambulism<sup>5</sup>. Distinguishing between the parasomnias and nocturnal seizures (morpheic epilepsy) especially those arising from the frontal lobes (nocturnal frontal lobe epilepsy) remains difficult clinically and a detailed video electroencephalographic as well as polysomnographic study may aid in clarifying the diagnosis. The parasomnias as a

rule do not present with extrapyramidal features of dystonic posturing, tremor and choreo-athetosis. Genetic studies like nucleotide sequence analysis may also aid in the diagnosis of some epilepsies specially the autosomal dominant nocturnal frontal lobe variety<sup>3</sup>. This is vital as treatments for both conditions are vastly different, panic attacks respond well to conventional anxiolytics like clomipramine while NFLE responds well to anti-epileptics like carbamazepine. Our patient's nocturnal events were diagnosed as panic attacks. As she reported a generalized convulsion at the age of 16 and was pregnant, we decided against withdrawing her anti-epileptic completely. We did reduce the dosage significantly, thus possibly avoiding teratogenic side-effects of Levitiracetam that have been reported in the literature.

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### References

1. Genton P, Bartolomei F, Guerrini R. Panic attacks mistaken for relapse of epilepsy. *Epilepsia*. 1995 Jan; 36(1):48-51.
2. Daly KA, Kushner MG, Clayton PJ, Crow S, Knopman D. Seizure disorder is in the differential diagnosis of panic disorder. *Psychosomatics*. 2000 Sep; 41:5.
3. Ebben MR, Spielman AJ. Sleep and quality of life in anxiety disorders. *Sleep and Quality of Life in Medical Illnesses*. The Humana Press Inc. (in press)
4. Oldani A, Zucconi M, Asselta R, Modugno M, Bonati MT, Dalpra L, Malcovati M, Tenchini ML, Smirne S, Strambi LF. Autosomal dominant nocturnal frontal lobe epilepsy. A video-polysomnographic and genetic appraisal of 40 patients and delineation of the epileptic syndrome. *Brain*. 1998, Feb; 121:205-23.
5. Provini F, Plazzi G, Tinuper P, Vandi S, Lugaresi E, Montagna P. Nocturnal frontal lobe epilepsy. A clinical and polygraphic overview of 100 consecutive cases. *Brain*. 1999, Jun; 122: 1017-31.

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