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CASE REPORTS

An Interesting Case of Late Age at Onset of Narcolepsy with Cataplexy

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The usual age at onset of narcolepsy with cataplexy is in the second or third decade. In cases with late onset narcolepsy with cataplexy, symptoms are usually mild with relatively less severe daytime sleepiness and less frequent cataplexy. Here we present a case of narcolepsy with cataplexy with onset of symptoms around sixty years of age. This case is unique, with severe daytime sleepiness both by subjective report as well as on objective Multiple Sleep Latency Test and having multiple cataplexy episodes in a day.

Keywords: Narcolepsy, cataplexy, late onset

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Narcolepsy is characterized by excessive daytime sleepiness (EDS) and REM-sleep abnormalities including cataplexy, sleep paralysis, and hypnagogic and hypnopompic hallucinations. The usual age at onset is in the second or third decade with a small peak in the fourth decade.[1,2] Few studies indicate possible late onset; however, older age group is associated with relatively less daytime sleepiness, less frequent and milder cataplexy, and relatively longer mean sleep latency on a Multiple Sleep Latency Test (MSLT).[3-6] Here we present a case with late age at onset of narcolepsy with severe symptoms and very short sleep onset latency on MSLT.

REPORT OF CASE

GH is a 60-year-old male who presented with EDS for the past one year. His EDS was characterized by sudden onset of sleepiness without any preceding tiredness. He fell asleep during reading the newspaper, working on the computer, watching television, talking on the phone, and was drowsy while driving. In order to stay awake he started engaging in various activities like painting walls at home, exercising, or listening to loud music while driving. He started having cataplexy attacks two months prior to visiting the sleep clinic. The frequency of cataplexy episodes varied depending on his emotional state and ranged between 5/day to more than 15 in 5 minutes. These episodes commonly occurred while watching emotionally laden television shows and also were triggered by sharing jokes, anger, unexpectedly meeting a relative, being the center of attention or when excited (e.g., during bowling). They lasted for 5-6 sec on average, with a maximum duration of around 20 sec. During such episodes his face and shoulders drooped, he appeared emotionless, and became immobile with a sense of weakness in his legs. He could not resist a cataplexy attack once it started but learned to prevent it by avoiding emotional situations. He also reported visual hallucinations of seeing snakes while awakening from sleep; however, he did not have sleep paralysis. Although he did not have any difficulty initiating sleep, he woke up several times through the night. His past medical history included a few episodes of generalized seizures, each lasting for seconds. They were associated with fever at 8 years of age, which is suggestive of febrile seizures. He did not have any history of head injury nor did he report flu-like illness, immunization, sleep apnea, or restless legs syndrome. He did not have any history of current/previous substance abuse and did not report any recent life stressors.

He scored 24/24 on the Epworth Sleepiness Scale, indicating very severe EDS. The overnight PSG showed a REM sleep latency of 5.5 minutes without sleep apnea or periodic limb movements during sleep (**Table 1**). The MSLT revealed severe daytime sleepiness with sleep onset REM periods (SOREM) in all 4 naps on the MSLT (see **Table 2** and **Figure 1**). We decided not to continue with the fifth nap as each of the initial 4 naps showed short sleep latency and a SOREM period. A normal CT scan and MRI of head ruled out secondary causes of narcolepsy. An autoimmune work up including HLA typing was not done, as the diagnosis of idiopathic narcolepsy with cataplexy was obvious from the history, MSLT, and neuroimaging.

He was initially put on modafinil 200 mg daily and later was on armodafinil 250 mg daily, each for 4 weeks without any improvement. Subsequently he tried taking methylphenidate initially at 10 mg twice a day, later increased to 30 mg/day. Along with the medications, scheduled napping was also recommended, but he was not able to follow it as he fell asleep irresistibly at odd time and places. Although he had improvement in EDS with methylphenidate, he continued to have a substantial degree of daytime sleepiness 3 h after a dose of methylphenidate, with side effects (headache, shaking, jittery, and talking fast). Therefore, we switched him to a long-acting stimulant, a combination of amphetamine and dextroamphetamine (Adderall XR), which improved his EDS dramatically. The EDS reduced to a brief scheduled nap after returning from work. He was able to stay alert, read a newspaper, watch TV,

Figure 1—Hypnogram showing sleep onset REM periods (SOREMs)

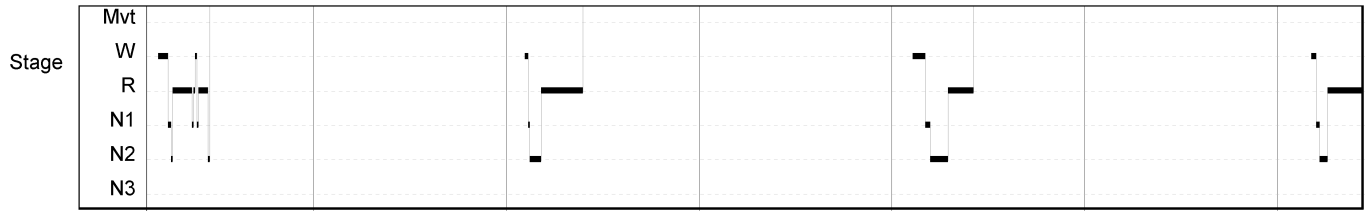

Table 1—Sleep study results

Sleep latency	5.5 min
REM latency	5.5 min
Total sleep time	345 min
Sleep efficiency	71.7%
% Stage I sleep	10%
% Stage II sleep	60%
% Slow wave sleep	14.1%
% REM sleep	15.9%
Apnea-hypopnea index	0.7
Periodic leg movement index	2.1

Table 2—Mean sleep latency test (MSLT) results

MSLT/Nap Sleep Data				
Start time	**Stop time**	**Sleep latency (min)**	**REM latency (min)**	**Total sleep time (min)**
08:11	08:27	3.3	1.5	12.5
10:05	10:23	1.4	4.0	17.0
12:05	12:25	4.8	7.0	15.0
14:09	14:26	1.7	3.5	14.5
	Average:	***2.8***	***4.0***	***14.8***

work on the computer, and drive without difficulty. Although there was an initial improvement in cataplexy with stimulants, after a few months he reported having cataplexy episodes despite continued improvement in daytime sleepiness. As a result he was started on sodium oxybate 2.25 g at bedtime and 2.25 g 4 h later (total of 4.5 g/day), which was gradually titrated to 7.5g/day, at which he reported more than a 90% decrease in cataplexy attacks.

DISCUSSION

The diagnosis of narcolepsy with cataplexy was established based on EDS, frequent cataplexy, hypnopompic hallucinations, short REM latency during an overnight polysomnogram, and short mean sleep onset latency (2.8 min) and four SOREMs during an MSLT. In this case the age at onset of symptoms of narcolepsy with cataplexy was more than 59 years. Narcolepsy with cataplexy with age at onset after 40 years is uncommon. Quick et al.[7] reported a case of narcolepsy with cataplexy with onset at 74 years of age with an unusual presentation of continuous musical hallucinations. However, the MSLTs were normal and the patient had comorbid mild obstructive sleep apnea. Rye et al.[8] described a series of cases of narcolepsy with late onset but none of the late onset cases had cataplexy. Younger age at onset is associated with more severe symptoms with a higher frequency of cataplexy and shorter mean sleep latency,[4] while studies in older age found relatively longer sleep latency on MSLT.[6]

In this report we describe a case of classic narcolepsy but late age of onset and severe symptoms including severe daytime sleepiness and frequent cataplexy attacks. He would fall asleep more than 50 times in the daytime. To our knowledge narcolepsy with cataplexy with such severe symptoms and late age of onset has not been previously reported. We considered a possible neurological cause for late age of onset and severe symptoms but imaging studies including CT scan and MRI of brain were normal. Worsening of his EDS secondary to age related decline in sleep efficiency can be a possibility but has been proven otherwise by a previous study.[9]

In this case the patient did not have any response with FDA approved first-line agents including modafinil or armodafinil and only had a short-lasting response with methylphenidate but reported substantial improvement in his daytime sleepiness with amphetamine/dextroamphetamine (Adderall XR). The cataplexy episodes decreased substantially with sodium oxybate. This suggests the possibility that in narcoleptic patients with late age of onset, the first-line FDA approved agents (modafinil and armodafinil) may not show a good response, and one should consider other medications including stimulants and sodium oxybate.

Narcolepsy is often misdiagnosed, and/or the diagnosis may be delayed. Considering the potential for significant impairment on an individual's functioning and increased risk of accidents, early diagnosis is critical. The presented case suggests that narcolepsy can present at a very late age. Physicians should thoroughly evaluate individuals with complaints of excessive daytime sleepiness for possible narcolepsy irrespective of age.

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