

Case Report

Narcolepsy: A case with polysomnographic findings

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ABSTRACT:

Narcolepsy is a sleep disorder presented with excessive sleepiness. Excessive sleepiness is key symptom of Narcolepsy. In obstructive sleep apnea excessive daytime sleepiness is also a remarkable symptom. Here we presented a 67-year-old female with uncontrollable sleep attacks and hypnagogic hallucination. She was previously diagnosed as obstructive sleep apnea and under BiPAP therapy for last few years. Her multiple sleep latency test become positive to meet diagnostic criteria for Narcolepsy. Clinicians should be cautious about possibilities of coexisting sleep disorders like Narcolepsy and obstructive sleep apnea in excessive day time sleepiness complaining patients.

Keywords: Excessive daytime sleepiness, Obstructive sleep apnea, Multiple sleep latency test, BiPAP.

Introduction:

Narcolepsy is a chronic sleep disorder accompanied with excessive day time sleepiness, sudden and uncontrollable sleep attacks, cataplexy, hypnagogic hallucination and sleep paralysis. Excessive day time sleepiness (EDS) also key symptoms of Obstructive sleep apnea (OSA), Idiopathic hypersomnia, Circadian rhythm sleep-wake disorder, and Insufficient sleep syndrome. Although 87.2% diagnosed OSA patients had complaints of EDS¹. Despite of similar presentation like excessive sleepiness in Narcolepsy and OSA but very likely to be neglected who had both conditions. High BMI and central fat deposition around the neck and abdomen increased risk factor for OSA². Usually age of onset for Narcolepsy was 20 to 30 years with prevalence was 1 in 2000, male predominant but can present in both³. Multiple Sleep Latency Test (MSLT) is gold standard to confirm Narcolepsy diagnosis.

Case Description:

On July 7, 2019, a 67 years old female presented with the complaints of excessive day time sleepiness, sudden and uncontrollable sleep attacks, hypnagogic hallucination and sleep paralysis for last four months. She was previously diagnosed with severe OSA. She was under BiPAP (Bi-level positive airway pressure) therapy since two years back. She used BiPAP with full face mask with Inspiratory positive airway pressure (IPAP) 14 cm H₂O and Expiratory positive

airway pressure (EPAP) 10 cm H₂O at Spontaneous Time (ST) mode along with 2L/min O₂ inhalation during her sleep time regularly. Although she is using BiPAP but her excessive daytime sleepiness did not improve. Her family members also complained of her irresistible sleep attacks in days. She experienced hypnagogic hallucination several times. She also said about her sleep paralysis. Although she denied any cataplexy episodes but had complaints of generalized muscle weakness.

The patient had metabolic syndromes like diabetes, hypertension, and dyslipidemia. She was known to Chronic Obstructive Pulmonary disease (COPD), Parkinson's disease, Ischemic heart disease (IHD), Cerebro-vascular disease. She did not have any depression or other psychiatric disorder. But she regularly took medication for her COPD, IHD and Parkinson's diseases. For her such complaints she underwent various investigations including MRI of Brain. MRI report shows that she had multiple small lacunar infarcts in both para-ventricular, centrum semiovale region and sub cortical white matter of both fronto-parietal lobes and generalized cerebral and cerebellar cortical atrophy of brain. Her Colour Doppler Echo showed no regional wall motion abnormality. Her ejection fraction was 59% and her pulmonary arterial pressure is about 22 mm Hg. Also her Atrial natriotic peptide (ANP), Brain Natriotic peptide (BNP) showed within normal range. Her BMI was 32.8 kg/m² and she was obese according to WHO⁴. Her Epworth Sleepiness Scale (ESS) was 22. Her over night Polysomnography (PSG) with BiPAP with 2L/m O₂ inhalation shows no event of apnea and hypoapnea and her apnea-hypoapnea index (AHI) was about 0.0/h. Her sleep latency was 30 seconds with REM latency from sleep onset was about 2.5 minutes. Her Sleep efficiency was 98.3%. No Period limb movement (PLM) observed during sleep. Her average pulse rate 64 beats per minute during sleep. Mean oxygen saturation was 94% and lowest saturation was 66.2% with duration of 2.0 minutes of total sleep time. Her MSLT shows Mean Sleep latency was 3.4 minutes with presence of Sleep Onset REM Period (SOREMP) in the three naps out of four naps. We did not measure any cerebral spinal fluid hypocretin concentration. As she denied any cataplexy episodes after woke up from sleep. Therefore, she was

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diagnosed with Type 2 Narcolepsy. We prescribed her Tablet modafinil 200mg daily. She continued all other medications as usual schedule. At night time she took BiPAP with 2L/m O₂ inhalation. She came for follow up after four months of her diagnosis at sleep clinic. After receiving her treatment she improved her sleep attacks and daytime sleepiness.

Discussion:

Narcolepsy is a sleep disorder of maintaining wakefulness where symptoms appear in adolescents but also found in old age. Both OSA and Narcolepsy presented with excessive daytime sleepiness. A Study shows that OSA coexists in Narcoleptic patients.⁵ About 24% Narcoleptics have sleep related breathing disorder like OSA⁶. High BMI is a risk factor for both in OSA and Narcolepsy^{7,8}. In narcoleptics, Hypocretin deficiency decreases metabolism and increases food intake which ultimately lead to Obesity. Narcolepsy is also common in patients with Parkinson's disease. In Parkinson's brain neurodegenerative changes may affect the most arousal system⁹. Level 1 PSG followed by MSLT is the most important tool for diagnosis of Narcolepsy. When MSLT displays that mean sleep latency equal or less than 8 minutes with more than 2 SOREM periods are present indicating Narcolepsy¹⁰. Also preceding night PSG is needed to see the sleep efficiency and to exclude other sleep disorders. For healthy adult mean REM sleep appear every 50-150 minutes after sleep onset but in Narcoleptics REM sleep appears within 10-15 minutes¹¹. To improve quality of life for Narcoleptics treatment targeted to relieve symptom.

Physicians should be cautious while patient reports about their excessive sleepiness to identify sleep disorders like Narcolepsy and sleep apnea.

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