



Case report

Sexsomnia: A case of sleep masturbation documented by video-polysomnography in a young adult male with sleepwalking

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ABSTRACT

The first case of video-polysomnography (vPSG) documented sleep masturbation in a male is reported, and the second reported case of shift work induced sexsomnia. A 20 y.o. soldier with childhood sleepwalking (SW) developed sleep masturbation and SW triggered by military shift work. vPSG documented two episodes of sleep masturbation from N2 sleep in the fourth sleep cycle and from N3 sleep during the fifth sleep cycle. There was no sleep-disordered breathing nor periodic limb movements. vPSG thus confirmed confusional arousals from NREM sleep as the cause of the masturbation. Bedtime clonazepam therapy controlled the SW but not the masturbation.

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1. Introduction

Masturbation during sleep as a clinical disorder was first reported in 1986 [1]. A 34-year-old married man masturbated to ejaculation every night after being asleep for 2–3 h. The nightly sleep masturbation (from which he could not be aroused) occurred despite having sexual intercourse with his wife every evening before bedtime. There was considerable marital distress from the sleep masturbation. Video-polysomnography (vPSG) was not performed. The current peer-reviewed world literature on sleep masturbation as a parasomnia contains 11 cases (7 females, 4 males) [2,3]. Another three cases of sleep masturbation in females were mentioned in a recent abstract [4]. Only one prior case of sleep masturbation has been documented by vPSG, involving a 60-year-old woman whose sleep masturbation emerged during N3 sleep [5]. Her sleep masturbation emerged late in the course of a longstanding, complex parasomnia history, which is typical for most reported cases of sexual behaviors during sleep (i.e. sexsomnia; sleepsex) [2,3,6], apart from those cases associated with

obstructive sleep apnea [2,3,7]. We now report the first vPSG documented case of sleep masturbation in a male, which is also the second vPSG documented case of any form of sexsomnia. Shift work played a strong role in the emergence of the sleep masturbation.

2. Case report

A 20-year-old Taiwanese man serving obligatory military duty presented to the sleep clinic of S-B Y because of sleepwalking (SW) and sleep masturbation episodes on his military base. His SW history began at the age of 6 years, which remitted approximately 5 years later. After graduating from high school, he began serving his military duty. No SW occurred while he was a new recruit at the training base, when he had a regular sleep-wake schedule and no sleep deprivation. However, SW emerged soon after he left the new recruit training base to begin his formal soldier duties, standing sentry and going on military training missions that entailed a frequently irregular sleep-wake schedule and sleep deprivation. He was observed by other soldiers to have sleep talking and to engage in SW episodes to other bedrooms on the military base. Military personnel also observed that he would masturbate while asleep. When told about this, he did not believe it, but rather

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thought they were “just kidding around” with him. He was always completely amnesic for any observed episode of sleep masturbation. When he came home on holidays from the military, his mother also observed SW episodes, which prompted his presentation to the sleep clinic.

Medical history, and physical and neurologic examinations were negative, without birth injury, head trauma, loss of consciousness, psychiatric history or positive family sleep history. Brain MRI was normal.

Overnight, hospital-based, vPSG monitoring was performed, utilizing standard recording and scoring methods [8]. This included eye movements; expanded EEG (seizure montage) with fast recording speeds; submental and anterior tibialis electromyograms (EMGs); airflow, chest and abdomen respiratory effort; electrocardiogram; and continuous time-synchronized audiovisual recording. He was not taking any medication. His sleep-wake schedule for the 4 days before the vPSG study was as follows: He had been sleep-deprived during the third and fourth days before the vPSG while standing sentry for the military at night, followed by daytime training missions. For the two days before the vPSG study, he slept at home from approximately 11 pm to 7 am.

There was one episode of sleep talking lasting 12 s during N3 sleep during the first sleep cycle, and two episodes of sleep

masturbation. The first episode of masturbation (5:37:48 a.m. to 5:40:21 a.m.) occurred from N2 sleep during the fourth sleep cycle (video 1; Fig. 1). The second episode of masturbation (6:34:22 a.m. to 6:39:15 a.m.) occurred from N3 sleep during the fifth sleep cycle (video 2; Fig. 2). A hypnogram depicts these two episodes of sleep masturbation during the overnight sleep cycling (Fig. 3). His body position was in the supine position during the two sleep masturbation episodes, and he remained in light sleep during both episodes (Figs. 1,2). Snoring occurred, without any sleep hypopnea/apnea or oxygen desaturation. Snoring was not the proximal trigger for either episode of sleep masturbation. In the morning, he was completely amnesic for his two episodes of sleep masturbation. REM sleep atonia was preserved, and there were no periodic limb movements. The macro sleep structure was intact over a total of five sleep cycles. Total sleep time was 5 h, 57.5 min. Sleep efficiency was 96.5%. Sleep latency was 6.5 min. REM latency was 78 min. Sleep stage distributions were N1, 3.0%; N2, 58.2%; N3, 15.2%; and stage REM, 21.1%. WASO (wake time after sleep onset) was 6.5 min. The sleep architecture was therefore normal.

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The final diagnoses were SW, sexsomnia during confusional arousals as a NREM parasomnia [6], and sleep talking. Clonazepam,

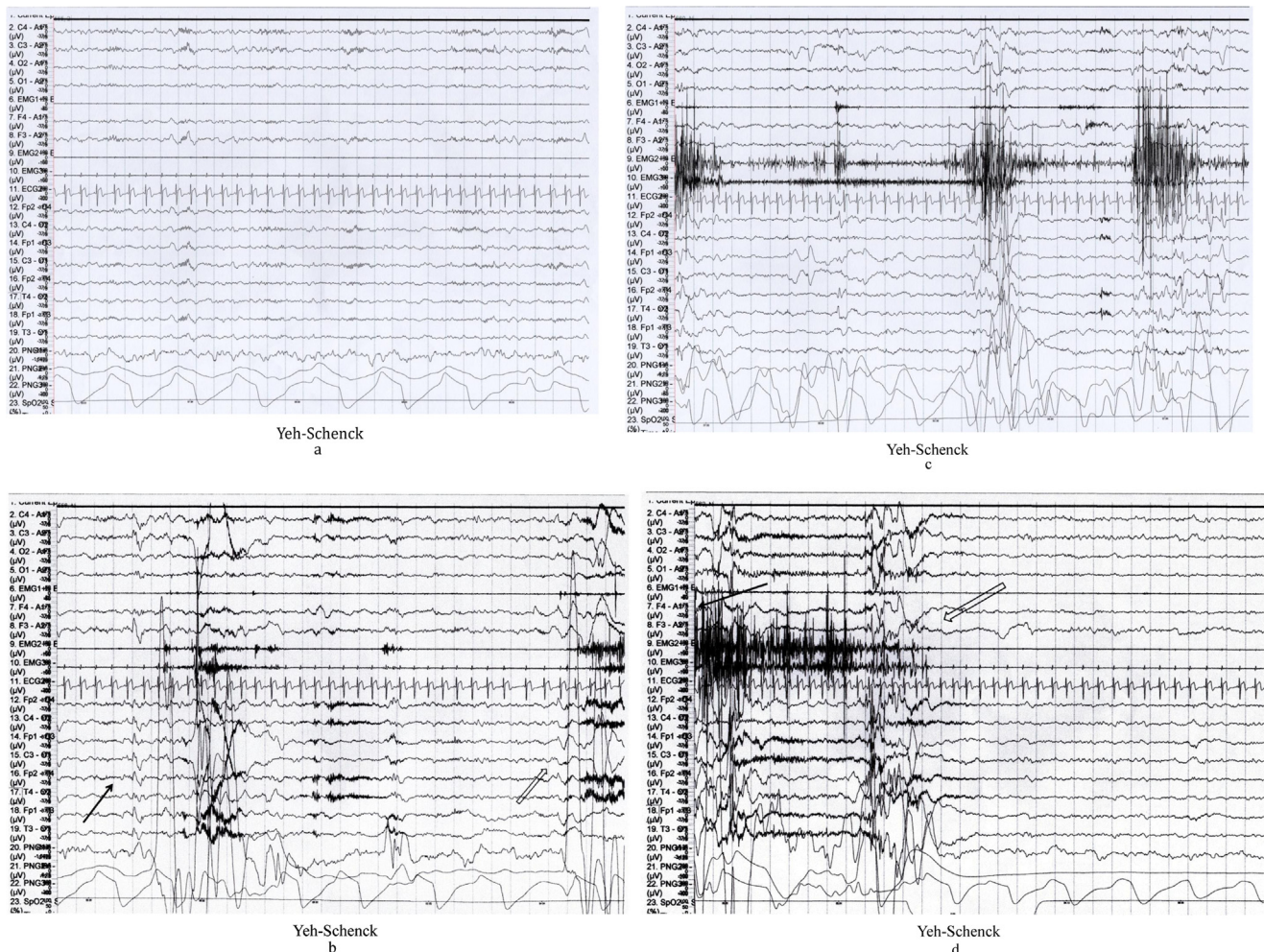


Fig. 1. (a) Nocturnal polysomnogram (PSG) (30 s per epoch) during N2 sleep (epoch 555) immediately preceding the first sleep masturbation episode (epoch 556 – Fig. 1b). EEG montage (channels 12–19) shows K-complexes and spindles. The electrooculogram (channels 7–8) indicates no rapid eye movements. The electrocardiogram (channel 11) shows no change in heart rate. Channels 20–23 represent the nasal/oral airflow, chest respiratory effort, abdomen respiratory effort and O₂ saturation, which do not show any sleep apnea or oxygen desaturation during the epoch. (b) Onset of first sleep masturbation episode from N2 sleep (epoch 556). The spontaneous arousal began at 5:37:25 a.m. (solid arrow), and the masturbation started at 5:37:48 a.m. (hollow arrow). (c) Epoch 560 during the first episode of sleep masturbation. Light sleep persists during the masturbation. (d) The ending epoch (epoch 562) of the first sleep masturbation episode. The patient partially arises from the bed and stops masturbating at 5:40:34 a.m. (solid arrow). He then lays down on the bed at 5:40:21 a.m. (hollow arrow), and continues sleeping.

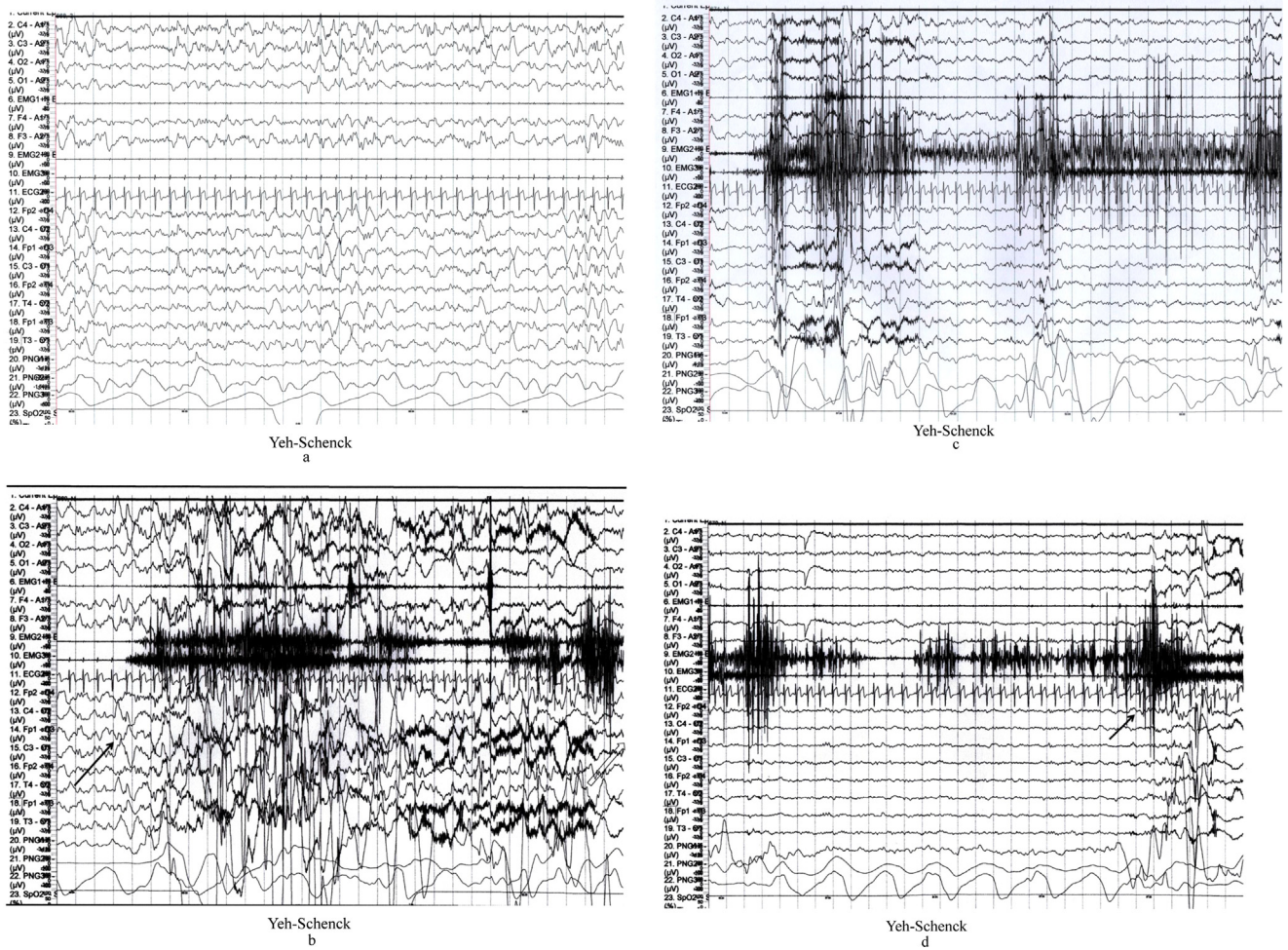


Fig. 2. (a) Nocturnal PSG (30 s per epoch) of epoch 668 during N3 sleep in the epoch immediately preceding the second episode of sleep masturbation (epoch 669 – Fig. 2b). This epoch shows completely uneventful N3 (slow-wave) sleep. (b) Onset of the second episode of sleep masturbation (epoch 669). The spontaneous arousal began at 6:33:55 a.m. (solid arrow), and the masturbation started at 6:34:22 a.m. (hollow arrow). (c) One epoch (epoch 671) during the second episode of sleep masturbation demonstrates the persistence of light sleep. (d) The ending epoch (epoch 679) of the second episode of sleep masturbation. The patient stopped masturbating and awakened at 6:39:15 a.m. (solid arrow).

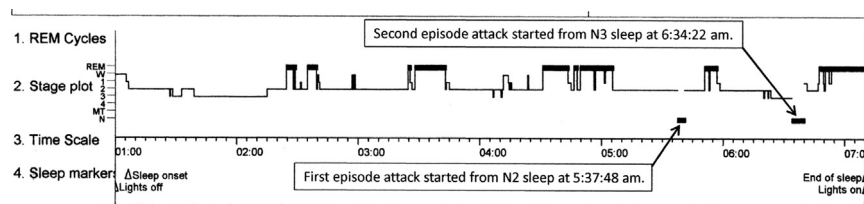


Fig. 3. Hypnogram from the overnight video-polysomnogram depicting (horizontal bars) the first episode (attack) of sleep masturbation emerging from N2 sleep, followed by a second episode (attack) of sleep masturbation emerging from N3 sleep nearly one hour later, very late in the sleep cycle.

0.5 mg at bedtime was prescribed, which improved the SW but did not suppress the sleep masturbation, as observed by the military personnel. The patient decided to stop clonazepam therapy, as he planned to leave the military within a few months (after fulfilling his obligation). He anticipated that after returning home he would resume a normal sleep-wake schedule with adequate sleep duration and with resolution of his sleep masturbation and SW without the need for medication. At the most recent follow-up, the patient has continued to live at home, and has maintained a regular sleep-wake cycle. His mother has not observed any SW episode. He has no girlfriend, and always sleeps alone, and so it is not known whether the sleep masturbation has stopped in tandem with the cessation of his SW.

3. Discussion

There are several notable findings in this case. First, sleep masturbation was diagnosed by vPSG as a NREM parasomnia, emerging during two partial arousals, from N2 sleep and from N3 sleep, with the persistence of sleep EEG activity during the masturbation. Both of the sleep masturbation episodes occurred late in the sleep cycle (cycle #4 and #5 out of 5 cycles). Therefore the late emergence of this NREM parasomnia during the nocturnal sleep period suggests brain immaturity during sleep in a young adult that may have played a predisposing role for his parasomnia. The patient had started SW 14 years before the onset of sexsomnia, which is a typical history for sexsomnia emerging years after the onset of another NREM parasomnia(s) [2,3]. The sleep

masturbation (and reemergent SW) emerged in the context of a disturbed sleep-wake rhythm and sleep deprivation from shift work (as a soldier), which are known triggers for NREM parasomnia episodes in predisposed individuals [6].

Besides this case being the first vPSG documented case of sleep masturbation in a male, it is the first case of sleep masturbation, or any other form of sexomnia, documented in N2 sleep, which is also recognized to occur occasionally with other NREM parasomnias [6]. In the previous vPSG documented case of sleep masturbation involving a 60 year-old woman, the episode of sexomnia, in which she placed a hand under her panty to masturbate, occurred during N3 sleep, and lasted several minutes [5]. The masturbation was preceded by a hypersynchronous delta EEG pattern, and during the episode the EEG pattern showed the persistence of delta rhythms with increasing alpha activity, thus confirming that the sexual behavior occurred during sustained sleep. The persistence of EEG sleep activity was also documented in our case herein.

The lack of benefit from the 0.5 mg dose of clonazepam taken at bedtime in suppressing the sleep masturbation may have been a dose effect, with a higher dose possibly being effective (although the 0.5 mg dose did control the SW). Clonazepam has been reported to be highly effective in controlling sexomnia as a NREM parasomnia [2,3]. Another case of sleep masturbation (but without any masturbation during vPSG) has recently been reported in a 42 year old male who had the Parasomnia Overlap Disorder [6] (NREM parasomnias – confusional arousals, SW, sleep related eating, sexomnia – and RBD), and OSA [9]. Successful treatment of OSA with nasal continuous positive airway pressure CPAP also controlled the SW and sleep related eating, but not the sleep masturbation, which was substantially controlled with bedtime clonazepam. This case, together with our case, and the previously published cases, illustrate the complexity surrounding the determinants of sleep masturbation (and other forms of sexomnia), and the successful management of sexomnia and its comorbidities.

Another case of sexomnia triggered by shift work has been reported, involving a 43 year-old male with a complex NREM parasomnia history whose bed partner reported that he had engaged in episodes of sexual fondling during sleep only after he had changed shifts at work on four separate occasions [10]. Another report on sexomnia emerging with sleep deprivation involved an 18-year-old male who was accused of putting his finger into the vagina of a nearby teenager while he was asleep with recent sleep deprivation [11]. Irregular sleep hours with poor sleep hygiene

occurred in another case of sexomnia (masturbation; fondling the bed partner) affecting a 28-year-old male. The treatment was directed at improving the sleep habits (to “establish regular sleep hours, and obtain 8 hours of total sleep nightly”), and initiating clonazepam therapy [10]. This dual sleep hygiene/clonazepam therapy was beneficial in substantially reducing the frequency of the sexomnia. Therefore, together with our case, there have been four published cases of sexomnia (two involving sleep masturbation) related to a disturbed sleep-wake schedule, in which shift work played a precipitating role for sexomnia episodes in two predisposed individuals with various NREM parasomnias, and in which sleep deprivation/irregular sleep schedule played a precipitating or contributing role for sexomnia episodes in two other individuals. Clinicians evaluating sexomnia patients should therefore inquire about any contribution to the sexomnia from shift work or from an irregular sleep schedule and sleep deprivation. It remains to be investigated whether circadian rhythm disorders other than shift work may contribute to the emergence of sexomnia.

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