

Clinical Corner

Adult Headbanging: Sleep Studies and Treatment

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Summary. Headbanging is a rhythmic movement disorder (RMD) along with headrolling, bodyrocking and bodyrolling. The International Classification of Sleep Disorders defines RMD as a group of stereotyped, repetitive movements involving large muscles, usually of the head and neck, that typically occur immediately prior to sleep onset and are sustained into light sleep. The average onset is 9 months, and by 10 years of age the majority of subjects no longer complain of headbanging. If it continues, it is usually associated with mental retardation or autism. Headbanging is said to occur during presleep drowsiness or early non-rapid eye movement sleep. Often there is no need for treatment other than reassurance. Behavior modification has had little success. Benzodiazepines (such as oxazepam and diazepam) and tricyclic antidepressants have been used with variable success. We present two cases of headbanging with polysomnographic findings and treatment. The patients are two healthy adult males. They both experienced significant daytime somnolence and repeatedly wakened their partners. Only one of our patients had recorded head movements during his overnight sleep study. There was evidence of headbanging during stage 1 and stage 2 sleep but also during slow wave sleep. Headbanging was recorded during 14% of the epochs. Both patients responded to treatment with clonazepam (at a dose of 1.0 mg nightly) with decreased frequency and severity of headbanging. Although headbanging is most common in childhood, there may be a significant number of cases that persist into adulthood. To our knowledge, this is the first report of the treatment of headbanging with clonazepam. Both patients benefited from this treatment. **Key Words:** Headbanging—Rhythmic movement disorder—Treatment—Clonazepam—Polysomnography.

Rhythmic movement disorder (RMD) is the preferred term for headbanging or jactatio capitis nocturna. This category also includes headrolling, bodyrocking and bodyrolling (1,2). Headbanging is considered a disorder of childhood. The average age of onset is 9 months (1,3,4,5), and it is rarely present at 10 years of age (5). Headbanging usually occurs during presleep drowsiness and early non-rapid eye movement (NREM) sleep (1,2,6). For the majority of headbangers no treatment is required except reassurance (2,7). Benzodiazepines and tricyclic antidepressants have been reported to be occasionally helpful (2,3) in more severe cases.

We will describe two cases of adult males who headbang at night. The investigation included polysomnography. Sleep findings and treatment are discussed. These cases highlight that headbanging occurs

in healthy adults without neurological or psychiatric pathology and can be managed with clonazepam.

CASE REPORTS

Patient TE

TE is a 24-year-old life insurance agent who is married with two children. He has been a headbanger since birth. He finds that the headbanging is worse when he is stressed or if he eats chocolate.

Typically during the headbanging he is lying in bed in the prone position and repeatedly strikes his forehead against the pillow. He remains asleep when this happens. It happens almost nightly. This behavior interferes with his wife's sleeping. He finds that he tires himself quickly, and thus the episodes are shorter, if he sleeps on a hard surface such as a floor, and he often does this. He has obtained some minor abrasions. In the bed partner questionnaire, his wife reported "My husband bangs his head violently just about every night. He bangs it for 10 to 16 times in a row, stops for a

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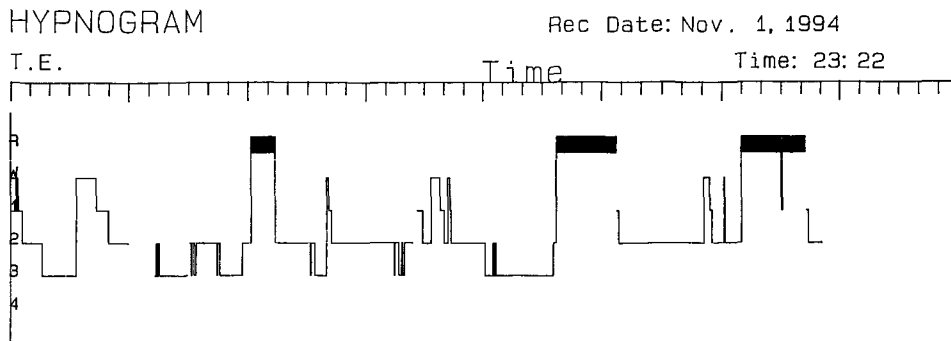


FIG. 1. Histogram of sleep; patient TE.

minute and then continues again. It continues through the night and he is not aware of it". Despite sleeping from 11:30 p.m. to 07:30 a.m. he does not feel restored in the morning and has a degree of daytime sleepiness that is most worrisome when driving. He fell asleep once when driving but did not have an accident or injury. He often falls asleep while watching television but never during business meetings.

He had been treated with an antidepressant in the past (of unknown dose, type and duration). He was adopted and has no knowledge of any family history of similar behavior. As a child he had an episode of sleepwalking on one occasion only. He is happily married and enjoys his work. He is extremely conscientious and works long hours. He has chronic mild anxiety. Medically he is generally well, with mild asthma and Gilbert's disease. He does not smoke and drinks alcohol and coffee infrequently.

TE had an overnight study, spending 410 minutes in bed with 92% sleep efficiency (histogram, Fig. 1). His sleep pattern was normal for his age range [20% rapid eye movement (REM) sleep, 57% stage 2 sleep, 19% slow wave sleep]. Time spent in REM sleep was in the high normal range. Headbanging was recorded during 14% of the epochs. He had headbanging in the following stages: wake, stage 1, stage 2 and slow wave sleep. During stage 1 sleep, 54% was spent headbanging. Significant amounts of headbanging also occurred during stage 2 and slow wave sleep (Table 1). Figures

TABLE 1. Percentage of headbanging in specific sleep stages; patient TE

Sleep stage	Number of epochs recorded	Percent of total sleep time	Number of epochs with head-banging	Percent head-banging per stage
Wake	47	—	2	4%
Stage 1	31	4%	17	54%
Stage 2	440	57%	81	18%
Slow wave	147	19%	17	12%
REM	154	20%	0	0%
Total	819	100%	117	14%

2 and 3 show headbanging during light and deep sleep, respectively. There were no significant respiratory or cardiovascular changes during headbanging.

TE was followed for a period of 5 months. During this period he was asked to keep a sleep diary, and his wife filled out the bed partner questionnaire twice. He was given behavioral advice regarding improving sleep hygiene, as is routine in the Sleep Disorders Clinic. He was started on clonazepam 0.5 mg, which resulted in less severe headbanging (fewer episodes per night), but the activity continued almost nightly. At a dose of 1 mg nightly his headbanging activity was significantly reduced. TE recorded in his sleep diary that he was headbanging twice weekly, but his wife noted that it continued four to five times weekly

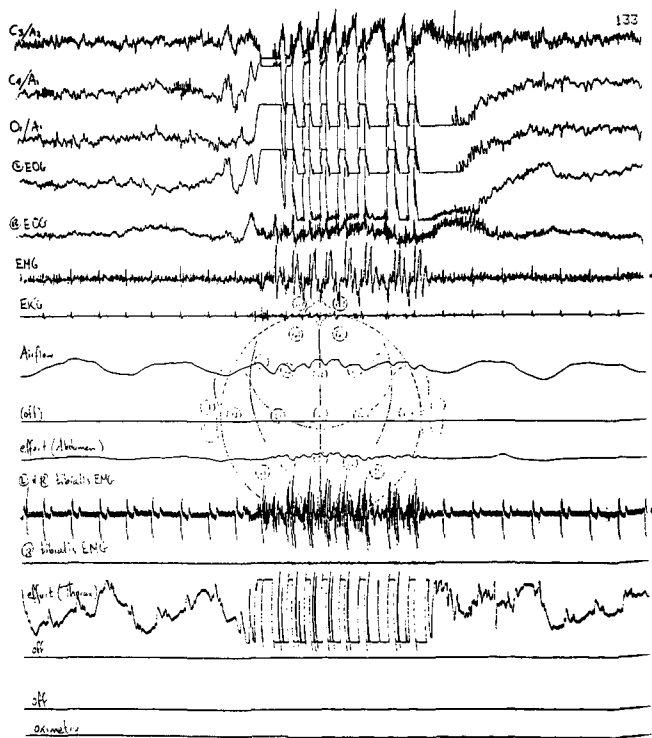


FIG. 2. Sleep study recording showing headbanging during stage 2 sleep; patient TE.

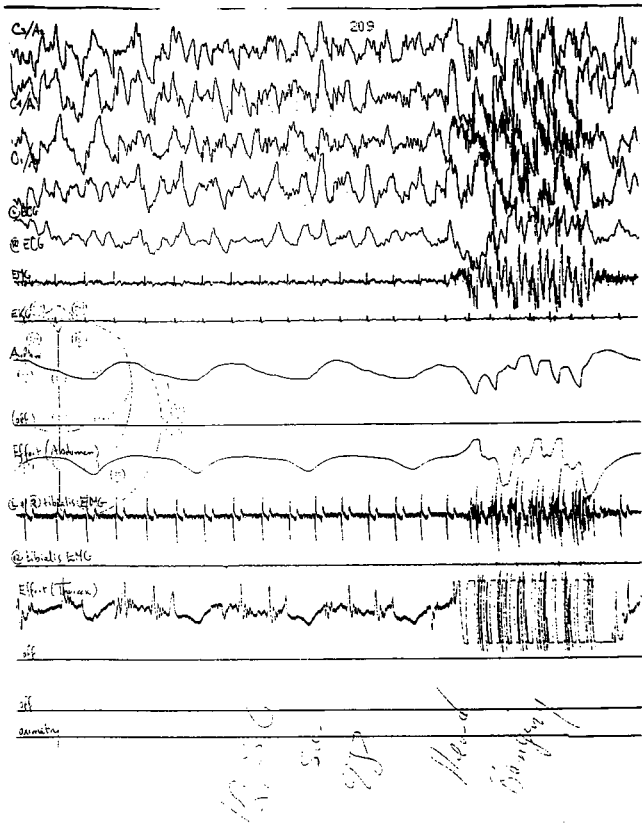


FIG. 3. Sleep study recording showing headbanging during slow wave sleep; patient TE.

(although with a significant decrease in severity). He also began sleeping in his own bed rather than on the floor. Sleep hygiene may also have produced significant changes; he decreased his intake of caffeine and stopped exercising immediately before bedtime. He now uses clonazepam only once or twice weekly. He also uses clonazepam when it is particularly stressful at work or when he is on a business trip.

Patient TC

TC is a 19-year-old male who works part-time in construction. He has a history of both headbanging

and bodyrocking as a child. After 10 years of age, he no longer used headbanging to get to sleep, but he knew that he continued the behavior in his sleep. He thought the behavior had stopped a few years previously, but approximately 2 years prior to this study his girlfriend saw him headbanging. During periods of headbanging the entire bed shakes, and the noise sometimes wakes people in other rooms. He feels that he is dreaming when he awakens from the activity. He wakes two or three times nightly and quickly falls asleep again.

For the last 2 years prior to this study he has had problems with daytime alertness. He wakes feeling rested but this soon wears off. He is sleepy throughout the day, especially when he is sedentary, so tries to keep himself busy to stay awake. He could nap every evening but usually restricts it to 3 or 4 nights weekly for approximately 2 hours. His sleepiness interferes with his work and his exercise. He likes to go to the gym nightly but does not always feel sufficiently energetic to do so.

He continues to have a difficult home life because his parents argue and verbally abuse him. He was physically abused as a child. He has no symptoms of anxiety, post-traumatic stress disorder or major depressive disorder. TC is a healthy male who is being treated with tetracycline for acne. He rarely drinks alcohol and does not smoke.

During his overnight sleep study he slept poorly in the laboratory. Sleep onset was 17 minutes, and he awoke twice at 33 and 80 minutes for prolonged periods. Sleep efficiency was very low, at 59% (time in bed was 461 minutes). His sleep architecture was poor (10% REM, 53% stage 2 and 25% slow wave sleep). TC had only two REM periods; the first REM period had a late onset of 172 minutes. No head movements were recorded during his laboratory study.

This patient was also followed for 5 months. He was started on clonazepam 0.5 mg nightly. He had no headbanging for a few days, but then the headbanging resumed. The dose of clonazepam was increased to 1

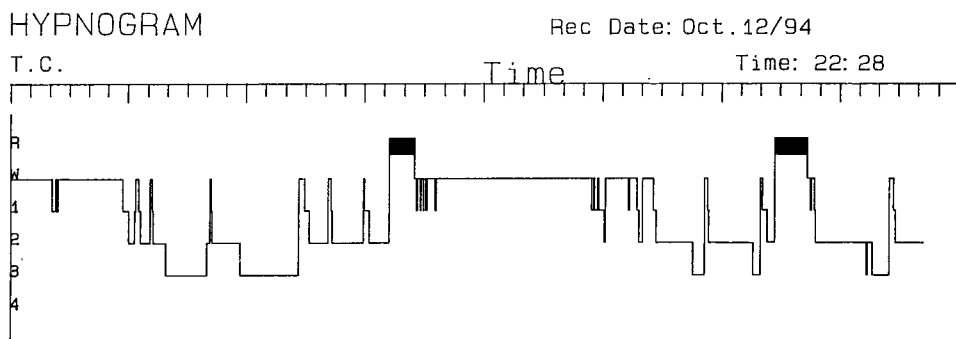


FIG. 4. Histogram of sleep; patient TC.

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mg. Headbanging frequency decreased from nightly to two to three episodes per month, as recorded in his sleep diary, and he had more restful sleep. He no longer awakened his girlfriend. Eventually he decided to take clonazepam occasionally, usually when he was staying with his girlfriend.

DISCUSSION

Three issues pertaining to these case reports will be discussed: age at presentation, underlying pathology and treatment. Both of our patients presented at later than the usual age (19 and 24 years old). Kravitz et al. found that 30% of headbangers continued to have this activity after 4 years of age, but it usually ended by 10 years (5). It has been reported that when the disorder persists into childhood or beyond, it is more often associated with mental retardation, autism or other significant pathology (1,7). Our cases highlight that there may be healthy adults who continue to headbang—without significant developmental, psychiatric or neurological pathology.

Treatment attempts with benzodiazepines have met with variable success. Walsh et al. (8) were successful in using oxazepam in an 8-year-old well-adjusted female who had been bodyrocking and headbanging from the age of 7 months. Oxazepam at a dose of 10–20 mg nightly eliminated or reduced the behavior (8). Frieden et al. (9) had less success with a young child; a 27-month-old male, with headbanging since 10 months of age, had it so severely that he broke the headboard and knocked a hole in the wall. Diazepam 2–8 mg at bedtime controlled the symptoms for only 4 weeks. Imipramine and phenytoin were also unsuccessful (9).

Tricyclic antidepressants have also been used to treat headbanging. One study documented failure of doxepin, amitriptyline and imipramine (10), whereas a second study reported success with imipramine (11).

We decided to treat headbanging in our patients with clonazepam because it has been successfully used to treat other sleep movement disorders (restless leg syndrome, sleepwalking, nocturnal eating disorder and REM behavior disorder). Our patients both improved on clonazepam. A starting dose of 0.5 mg was not

sufficient to decrease the intensity or frequency of the headbanging for a sustained period, but 1.0 mg clonazepam provided the desired effect—a significant decrease in severity and frequency. The effects of clonazepam lasted for the 5-month follow-up period (longer than the 4 weeks reported with diazepam). Both patients eventually decided to use the medicine intermittently. It is important to note that sleep hygiene suggestions may have made a significant improvement in the subjective assessment of sleep by patient TE.

We have presented two cases documenting adult headbanging. Although headbanging is most common in childhood, there may be some cases in which the disorder has persisted into adulthood. Our cases did not have significant psychiatric or neurologic pathology that is said to be a factor in post-childhood headbanging. To our knowledge this is the first report of the treatment of headbanging with clonazepam. The results are encouraging because both patients benefited from this pharmacological intervention.

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