CHALLENGING CASE: BEHAVIORAL CHANGES

Recent Onset of Sleepwalking in Early Adolescence*

CASE

A healthy 13-year-old boy experienced two sleepwalking episodes during the last 3 months. Both occurred away from home, after he went to bed later than usual (about midnight), and occurred approximately 2 hours after going to sleep (about 2 a.m.). During the first episode, he fell down some stairs at camp, inflicting minor trauma that awoke him. The second episode occurred at a friend’s home, when he walked outside the house and could not get back in. He has no previous history or family history of sleepwalking. He has no history of night terrors.

Dr. Martin T. Stein

For most behavioral conditions of children and adolescents, a distinct biological marker has not been discovered. An area of behavioral pediatrics, however, in which our understanding of the biology of specific behaviors is at least partially evident, constitutes a group of sleep disorders known as parasomnias. Sleepwalking, confusional arousals, and sleep terrors are different clinical phenomena that share a common alteration or exaggeration of a normal electrophysiological sleep pattern. These disorders of arousal (or partial arousal states) were discovered over 30 years ago by the use of electroencephalographic measurements during sleep. The neurological event in the brain that has been associated with parasomnia is, in fact, an exaggeration of the physiological arousal state that is known to occur periodically through the night between deep (non-rapid eye movement [non-REM]) and lighter (REM) sleep. For clinicians, the important questions are the following: Why are partial arousal events seen in many children but not all? What is the interaction between a constitutional predisposition to these events and experiences in a child’s environment associated with internalizing and externalizing behaviors? When are therapeutic interventions indicated and which treatments are most effective?

Dr. Richard Ferber

Sleepwalking consists of movements related to ambulation (sitting, walking, running) occurring during a partial arousal from (usually) stage IV non-REM sleep.1–4 The behavior actually takes place during a transition from deep sleep to waking, usually at the end of a sleep cycle, ends when the arousal is complete and full wakefulness is reached, and generally is followed by rapid return to sleep. Electrophysiologically, such transitions represent no more than somewhat exaggerated versions of normal transitions that occur nightly in everyone. Typically, there is full amnesia for the event itself, although the child may remember finding himself in an unusual location upon waking. Events usually occur early in the night (typically, 1–3 hr after sleep onset, when the first or second cycle of deep sleep is ending). The somnambulistic child may be quite calm or very upset and agitated. “Sleepwalking may be associated with falls, injuries and . . . walking out of a door into the street.”5 A noise, or even just the act of covering a child, may act as a precipitant; in fact, sleepwalking can be induced in most young children simply by standing them up 1 to 2 hours after they fall asleep.4 Probably the single factor most commonly associated with arousal parasomnias in childhood is that of “being ‘overtired,’” typically from a late bedtime or an unusually active day. Although “arousal events” tend to occur more commonly at home (child is relaxed and sleeps deeply) than in other environments, it is also true that they are common in situations that require behavioral control at times of anxiety (e.g., start of school term or camp), whether the child is home or not. Occasional sleepwalking is reported to occur in about 15% of children (even more in children with strong family histories).6,7 In reality, most children probably have wandered to the bathroom or to their parents’ room at night without fully waking.

Because sleepwalking and other partial arousal symptomatology (sleep terrors, confusional arousals) occur so commonly in children, evaluation beyond careful history and physical examination generally is neither required nor realistic. As described in a recent American Sleep Disorders Association practice parameters article,9 the main indications for obtaining polysomnographic (or electroencephalographic) study are, as follows: (1) the events are likely to be ictal in nature (e.g., tonic-clonic movements, postictal states); (2) they are violent or potentially injurious to

the patient or others (whether suggestive of an ictal etiology or not); (3) they include features atypical for usual arousal parasomnias (this could mean the presence of stereotypical, repetitive, or otherwise unusual motor patterns features, or that the events occur only towards morning, are very long lasting, or recur with unusual frequency); (4) there is failure of conventional therapy (assuming therapy is even required); or (5) forensic evaluation is required.

In the case of the 13-year-old boy described here, an ictal explanation is extremely unlikely. The events as reported are apparently typical of sleepwalking in all respects (time of night, behavioral characteristics, precipitating conditions). For typical sleepwalking events that have occurred only twice, generally no further evaluation is required. Although falling down the stairs and getting locked out of a house are potentially injurious conditions, in this case they seem to have been accidental and are unlikely to be repeated if proper safeguards are taken (as opposed to arousals with wild running, knocking over furniture, swinging at people, or jumping through windows). Thus, only if there were litigation pending (since he fell down at camp and sustained minor injuries) would polysomnography be indicated.

Two episodes of (apparently calm) sleepwalking during a 3-month period should not be considered an indication to start pharmacological (or, for that matter, any other) treatment. In fact, this youngster has had no known episodes except for two nights out of 13 years. The most important consideration is to provide explanation and reassurance to the family. An extra lock could be placed high on the door of the house to make it unlikely for him to simply wander out to the street without making enough noise to alert family members. The stairs need to be kept clear of obstacles. Although a gate could be added to block the stairs, this is probably not necessary for this teenager (calm sleepwalkers rarely fall down familiar stairs, and he has never walked in his sleep at home). For future sleep-overs, the camp and other parents need to be alerted that the boy should not sleep by the door to the cabin at camp, and he should probably not be assigned an upper bunk. Avoiding even occasional late bedtimes is nice in principle but difficult to enforce. If the events should recur when he is away from home, covering such nights with low-dose benzodiazepine treatment (e.g., 0.25–0.5 mg of clonazepam at bedtime) might be considered (especially if patient or family concerns are great).3,9

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The diagnosis of sleepwalking was not difficult in this case. A detailed history from the parent (or other witness) who is asked to describe the event without interruption and in their own words is the first step. Focused questions about frequency, duration, associated events during the day, and circumstances surrounding sleep are usually helpful. The characteristics of the two episodes in this case are consistent with the criteria for sleepwalking as defined by Dr. Ferber.1

When a parent describes an unusual event during sleep associated with motor activity, vocalization, or autonomic responses, in addition to sleepwalking, it is reasonable to consider a nocturnal seizure. Repetitive, stereotypical, or violent behaviors may suggest a partial complex seizure. This should be differentiated from the agitated form of sleepwalking during which speech is garbled or unintelligible, and the child recoils with greater agitation when touched or held. Nocturnal seizures may occur anytime during sleep, but they are more likely to occur during transition states, at the onset of sleep, or just before awakening in the morning. Because seizures at night disturb restful sleep, daytime somnolence may occur. There are many similarities, however, between nocturnal seizures and sleepwalking.2 In both conditions, the patient is unarousable during the event. With a seizure at night, there is confusion followed by wakefulness. During sleepwalking, similar to other partial arousal disorders, the patient is unarousable or very confused if awakened. In both, amnesia for the event is characteristic. A standard electroencephalogram is not a diagnostic tool for sleepwalking but may be useful when the description of the event is ambiguous and suggests a seizure.

Sleepwalking can be conceptualized as a constitutional predisposition to a particular form of a partial arousal state that is most often a spontaneous event and unrelated to precipitating factors. At other times, it is precipitated by an environmental stressor associated with anxiety or a significant life-event change. Parents of susceptible children often report that sleepwalking occurs when their child is overtired.
and when daytime schedules are irregular. Major psychological factors are usually not found in these cases. As children approach adolescence, stressors around home life (marital discord, separation/divorce, family moves), in school (impending test, competitive sport event), interpersonal issues (dating, relationships), and changes in sleep environment (sleep-over and camp, as in the challenging case presentation) may precipitate sleepwalking.

An understanding of the constitutional and precipitating components of sleepwalking guides a reasoned clinical approach. When the events are infrequent, typical of a partial arousal event in timing and motor patterns, associated with overtired periods, and without major psychological stress, then education, reassurance, and attention to the child’s safety, as described by Dr. Ferber, is sufficient. When a developmental or psychosocial history reveals unexpressed feelings of anxiety, sadness, or unresolved stresses related to home, school, or friendships, further exploration is appropriate. Sleepwalking, in many of these situations, may play a minor role but serves as a dramatic symptom that brings the patient to medical attention. Rather than overfocus on the sleepwalking, the clinical encounter should be used to explore the severity of the precipitating condition on a functional dimension and to determine whether further evaluation or treatment is necessary.

Dr. Ferber observed that, in most cases of sleepwalking, education of the child or adolescent and the parents, coupled with reassurance and specific suggestions for the patient’s safety, is sufficient. In rare cases that are resistant to these conservative measures, medications that affect partial arousals may be useful. In addition to clonazepam as recommended by Dr. Ferber, imipramine is also effective before bedtime.3

Two other approaches may be helpful. Self-regulation techniques that teach children relaxation and mental imagery during wakeful states have been used to control nocturnal behaviors. Although studied more extensively in children with sleep terrors,4 relaxation and mental imagery has been used with success in sleepwalking children.5 These techniques require special training that can be applied in a pediatric setting.6 Finally, scheduled awakening for at least 5 minutes approximately 30 minutes before the anticipated sleepwalking has been shown to be effective in some cases.7,8

REFERENCES

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