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The phenomena of habit cough in adolescent children is reviewed. The case reports of three of six children are given in detail and the general characteristics of the others are described.

HABIT COUGH IN ADOLESCENT CHILDREN

BERNARD A. BERMAN, M.D., F.A.C.A.

Chronic cough in children is frequently encountered by pediatricians. The allergist, however, is no less familiar with this problem because almost every patient afflicted with chronic respiratory allergic disease, coughs at some time or other. Almost always, when the cough is of allergic etiology, or a complication thereof, treatment with techniques familiar to most allergists is usually successful. In a few instances, such as the child with allergic trachitis,¹ or when the cough is chronic and caused by nonallergic disorders, for example—cystic fibrosis, bronchiectasis, tuberculosis—symptoms often are unresponsive to even the most potent drugs for control of cough. Improvement, particularly for the nonallergic group of disorders, is achieved only after specific therapeutic methods are applied for each of the individual disease states.

Habit cough² is an uncommon disorder for which there is meager information available in the medical literature. This condition also deserves the attention of both the allergist and the pediatrician because it too may be disabling and fail to respond to a variety of potent medications.

During the past five years, this author has observed, treated, and obtained follow-up studies of six children, three boys and three girls, between nine and

thirteen years of age, and all afflicted with habit cough.

Case Reports

Case 1: J. G., a boy, aged eleven, was examined and treated in January, 1962. He had been coughing for more than five months. During September, 1961, cough and wheezing were noted after a respiratory infection. The child was offered an antibiotic for infection and a bronchodilator for chest congestion. The wheezing gradually subsided but the cough persisted and during the next four weeks became more intense and severe. Paroxysms of harsh, tight, barking cough recurred frequently during the waking hours, but never during sleep. He was not allowed to attend school because the cough was so disturbing. The first hospitalization occurred in October, 1962, and the second in December of the same year. X-rays of the chest and sinuses, as well as bronchography, during the second hospital stay, were reported to be normal for health. Skin tests for tuberculin and other fungi, as well as complete studies of the blood were all recorded as showing no disease. An ENT consult ruled out diseases of the tonsils, adenoids and larynx.

Allergy was suggested as a possible cause of the cough, and the child was referred for study and treatment. Between the second and fourth year he was treated for three episodes of asthmatic bronchitis. The cough was described by the parents as "barking like a dog," "sounds like a horn," "croupy," and "violent." The cough was not aggravated by exertion, laughter, crying, nor was it influenced by changes in the environment such as dampness or extremes of temperature.

The patient, an only child, was sensitive, shy, but adjusted well with friends and family. His school performance was above aver-

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age. There were no known conflicts between the child, parents, teacher, and, to the parents' knowledge, no serious emotional upset had occurred prior to or during the present illness. He did not appear to be emotionally disturbed.

Physical examination revealed the child to be tired. He was, however, a robust eleven-year-old white male. The turbinates were pale and edematous and the chest was symmetrical. There was no wheezing or rhonchi during periods of quiet or forced expiration. A nasal smear was positive for eosinophiles and confirmed the diagnosis of allergic rhinitis. A diagnosis of habit cough was suspected.

Treatment relied solely on the art of suggestion. The child was told that the cough was a habit; that there was no evidence of disease causing symptoms; therefore, the cough was unnecessary and must stop.

Within one week, the habit cough gradually subsided and has not recurred in the two-year study of follow-up observation. Furthermore, he has not developed other behavior problems.

Case 2: R.A., a female, aged twelve, was studied and treated during February, 1963, because she had been coughing for six months. Between the third and fifth year of age, she had been treated for asthmatic bronchitis. When she was eight years old, she sneezed excessively and complained of itchy eyes. An allergic survey indicated that she was clinically sensitive to the pollens of the trees, grasses, and weeds. The parents requested that hyposensitization therapy be withheld. She was, however, treated with antihistaminic agents. During May and September, 1963, intensification of pollen symptoms were observed and intermittent episodes of early morning cough gradually became unresponsive to medication.

The cough became more troublesome and gradually escaped the effects of a variety of potent anti-tussive agents, bronchodilators, and several courses of broad spectrum antibiotics. From September, 1962, until February, 1963, the cough never lessened in severity during the waking hours but always disappeared during sleep. There was no evidence of loss of appetite or other indications of systemic disease. When awake and when she was so inclined, 20-50 violent paroxysms of cough with occasional episodes of vomiting occurred during any given one-hour period. She was tired because she coughed so much.

She received more than ten courses of antibiotics during the six months that she was

ill. Four physicians found no abnormalities. X-rays of the chest and sinuses were normal on three occasions as were innumerable other laboratory studies including repeated blood tests and chemistries.

She was unable to attend school. A home tutor was engaged and her studies continued uninterrupted.

The patient, the oldest of three children, was described as an average student in school and a model child at home. There had been no evidence of prior disturbed relationship between the patient, friends, teachers, or family.

When examined, the child appeared tired. There was pallor of the turbinates as well as a postnasal discharge. There were no other significant positive findings. The diagnosis appeared to be habit cough and allergic rhinitis.

The techniques that proved so successful in treating the first child (Case 1) were used for this patient, and results were equally as dramatic. The cough improved and finally stopped within a few days. The child was examined every three months during the first year and twice in the second year. The cough did not recur, nor has she developed other emotional problems.

Case 3: R. D., a boy, aged twelve, had been coughing incessantly for five months. He was referred for consultation during March, 1964. He had been in good health until he developed a cold and cough during November, 1963, and was treated with a cough expectorant and nose drops. During the next few weeks, the cough became more severe and intense. The parents described the cough as being croupy, harsh, and barking, and not unlike the symptoms described in the first two case reports. There was no relief after administration of the most potent anti-tussive cough preparations. Despite the many laboratory procedures performed as an out-patient, as well as during one hospitalization, the cause of the cough remained unknown.

The child was adopted at three months of age. Growth and development were normal. Because he was so bright, he was enrolled in a private school which maintained high academic standards. Shortly after the beginning of school, the patient was confined to bed because he developed a cough and cold. He was absent for ten days. Two weeks later he was again sent home from school because the cough became more intense. A home tutor was engaged when it became obvious that the illness would necessitate a lengthy

absence from school. He became more anxious and concerned because he was falling behind in his studies.

The cough was described as being barking, tight, and nonproductive. When he cried, laughed, or exerted himself, the cough was not intensified. During sleep, the cough stopped.

When examined, the child appeared tired. He was a well-developed and well-nourished adolescent with no respiratory distress. There were no other significant positive findings. A diagnosis of habit cough was established.

Separate interviews with the parents, and later with the child, confirmed the suspicion that the school problem was the genesis of the child's anxiety as well as cough. During the next few days, arrangements were completed for transferring the child to a public school where less was expected of him scholastically. The results of this move were immediate and gratifying. The child's mood promptly brightened; gradually within a two-week period, during which three further office interviews were conducted, the cough ceased and has not recurred in a two-year follow-up period.

Discussion

Six children, all of whom shared the same or similar patterns of signs and symptoms, have been carefully studied and treated. A review of the specific and general characteristics of this disorder will clarify and justify the diagnosis of habit cough, and further, how this disorder can be differentiated from diseases with which it might be confused.

Habit cough often referred to by some as psychogenic cough or respiratory tic, occurs infrequently, although the exact incidence is unknown. From the material of this study, and reports of others, it would appear that most cases occurred during puberty. All six children in this series were between nine and thirteen years of age.

Bernstein³ referred to this disorder as "the barking cough of puberty" when describing a case of a twelve-year-old female who improved after treatment with suggestion as well as correction of mouth breathing.

Probably the first recorded description of this type of cough was by Gilles de la Tourette.⁴ He described a child with a peculiar syndrome (since authenticated by others) manifested by a barking cough, tics involving the face and shoulder as well as echolalia and coprolalia. He reports a bleak outlook for this disorder. When cough is associated with other body tics,⁵ it is referred to as a respiratory tic. It is more likely, however, for respiratory tics to appear as grunting, snorting, or nasal hawking. Tics which appear in early life are often chronic and respond irregularly to hypnosis and psychotherapy.

Psychogenic cough is the preferred term for cough of psychogenic origin. In this instance the mainstay of treatment is psychotherapy.

No one of the six children in this series demonstrated body tics and none had serious underlying emotional problems. For this reason, and because all children responded so quickly to a simple modality of therapy, the term habit cough seemed to be the most appropriate to describe their condition.

The outstanding clinical features of habit cough are persistent violent spasms of barking, harsh, nonproductive cough, occurring almost always during the waking hours and unaccompanied by systemic signs or symptoms of chronic disease; a paucity or complete absence of abnormal findings in the chest; lack of response to the most potent cough preparations, and a cough that remains unchanged after exertion, laughter, infection, dampness, and extremes of temperature.

That this condition is debilitating and serious can be appreciated by the fact that all of the children were sick from two to six months, lost excessive school time, were restricted in their recreational and social activities, and subjected to repeated laboratory studies.

As a consequence of their illness, they generally upset the family.

Habit cough has been confused with bronchitis, pneumonia, allergic tracheitis, tuberculosis, cystic fibrosis, congenital pulmonary anomalies, foreign bodies as well as other intrinsic and extrinsic pulmonary disorders. It must first be distinguished from them.

In each of the aforementioned diseases, cough rarely if ever disappeared during sleep and, because of bronchial involvement, symptoms often were intensified during periods of exertion, laughter, crying, or when exposed to nonspecific environmental factors such as change of weather, dampness, and cold. Conversely with habit cough, symptoms stopped when the patient was sleeping and no change was noted in the intensity or severity of the cough with laughter, crying, exertion, or weather changes.

The pathogenesis of habit cough is unclear. As to why a cough, which initially had as a cause allergy in four patients, infection in the others, should gradually evolve into a chronic habit pattern is not clear. A careful search was made in each of the six children for a clue to the development, emotional or otherwise, of their disorder. In only one patient (Case #3) was there a suggestion as to the origin of the cough. This child apparently used the cough as a crutch because he was performing below par in school. Once the school setting was changed, and he was transferred from a private to a public institution, the symptoms improved.

When a diagnosis of habit cough has been established by the exclusion of the very disorders with which it might be confused, therapy was initiated. In all six children marked improvement

occurred within a few days to several weeks. Treatment required the physician to have sound judgment, an awareness of the emotional make-up of the patient, honesty and forthrightness when dealing with the patient, a close rapport with parents, and an understanding and experience in the art of suggestion. Each of the children were told the exact nature of their condition; that it was a habit; was unnecessary, and that it must stop. This proved to be effective.

Summary and Conclusions

The phenomenon of habit cough has been reviewed and six cases presented. The case reports of three of the six children are given in detail and the general characteristics of the others are described. Once the diagnosis was established, therapy was initiated. Treatment relied on the skills of the physician in being able to convey to the patient the true nature of the disease, providing support and comfort during the period of treatment, and utilizing the art of suggestion. All six children improved and have been free of cough during a long-term period of observation.

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