

THE ASTHMA PROBLEM

By

FRANCIS M. RACKEMANN, M.D.*

In October, 1951 I had the great pleasure and the great privilege of giving four lectures in Scandinavia on "The Asthma Problem". The lectures were not all the same, but their subjects overlapped to some extent, and they can be summarized as follows:

The asthma problem can be illustrated by four typical cases:

First: The small boy who is sensitive to the family cat is allergic. His case is typical, his history and his skin tests make the diagnosis obvious. His problem is easy, since the mechanism is understood, the treatment is clear, and the results are satisfactory. When the cat is removed, and the house is cleaned, the boy becomes quite well. One must add, however, that complications of the primary process are common. The boy may be sensitive to other dusts at the same time that he is sensitive to the cat, and then recurrent respiratory infections can keep the symptoms going and so create a secondary problem.

Second: The lawyer in his fifties was perfectly well all his life until the last year or two when asthma developed insidiously after a new head cold. After that, the asthma persisted, becoming more severe as time went on, until finally the situa-

* Board of Consultation, Massachusetts General Hospital, Boston Former Lecturer in Medicine, Harvard Medical School.

tion became serious. A study of his history showed no relation whatever between his asthma and changes in season or environment. It was not reasonable to consider that his symptoms depended upon exposure to any particular foreign substance in dust or food. His skin tests to dust and foods were negative throughout. A study of the man as a whole, however, especially his physical examination, revealed a number of bad teeth, and when finally these teeth were extracted the asthma cleared away, and in the eight years since that time the man has been perfectly well, with no asthma of any kind.

It is clear that the infectious processes at the roots of his teeth were the cause of his trouble, and the theory is that the reaction which we call "asthma" was caused by a hypersensitiveness to some product of bacterial action in the septic focus. This theory is satisfactory; it makes sense.

Third: The Doctor-Friend was a man aged fifty-nine who had had eczema, hay fever, and some asthma in his childhood, but by age twenty-five all of these early symptoms had cleared away, and for thirty odd years he was well. Quite suddenly, at age fifty-eight, he caught a bad cold in December, 1948, developed sinus trouble, and a few days later asthma, which increased rapidly in severity. In early January he was admitted to the hospital where he was treated with Penicillin and Streptomycin, as well as with many drugs, including Demerol. In late February he was well enough to struggle home, but after two days he was back in the hospital again, and he stayed there until seen in April. Treatment with the many drugs had been continued, and oxygen by mask and tent was necessary off and on. After several weeks his condition became so serious that the doctors considered his life in danger, and consultation was requested. He lived in another city, and I went by train to see him.

After preliminary discussion with his several doctors, I went up to his room with them. I was very sorry to hear of so much trouble, sorry to find him in such a predicament, and I said: "I can see that you are suffering and are exhausted

by your battle with the asthma through day and night, with no release. Perhaps you are worried about the chance of recovery. If this is so, I am more sorry, because your own anxiety will serve only to make the symptoms worse. This present attack is different from the kind of asthma which plagued you in childhood, but this early history makes the present prognosis better. So far, I see no reason to think that this attack will not subside pretty soon. I do think that your doctors are trying so hard to help you that they are giving more drugs than are really necessary, and I believe that the treatment can be simplified."

He smiled before I left, and, whereas I could see the gravity of the situation, I felt sure that there was hope, and I went home. Next morning, on the telephone, the doctor in charge said: "What did you do yesterday to H? His asthma is very much better; he is almost cured. A Miracle has happened."

Was this attack due to allergy; to any common food or dust substance? In the hospital for many weeks—even in an oxygen tent—he was going from bad to worse. In this case, one has to think that fear and anxiety had developed, perhaps on top of an infectious process, to make the situation desperate, and when these emotional factors were controlled, the man improved. On second thoughts, however, the idea of a pure emotional cause is not good enough. One of the important recommendations was that most of his drugs be omitted, and, in particular, that all use of Demerol be discontinued. In retrospect, it seems likely that it was these drugs which held him down, but whether on a basis of drug allergy or on some adverse pharmacological effect is hard to say. In the two-and-a-half years since that time, the man has had no further asthma. Certain difficult factors, in his home and in his work, have been recognized and corrected, and he is taking no drugs.

The fourth case is especially interesting. A well-built, healthy-looking lady of forty-seven had had hay fever in

childhood. Her mother had been a severe asthmatic, and her father had worried about his wife and family. The girl had learned to dread asthma, and, when first married, she hesitated to bear children who might suffer as her mother had suffered. Later, however, her second husband recognized her recovery from hay fever and her present healthy appearance. Three healthy children were born, and they stayed healthy. After age thirty, the lady was well; her life was normal.

During the summer, at age forty-seven, she went cruising on a small yacht with her husband, and for a whole month she enjoyed the vacation, and all was well until quite suddenly one Saturday afternoon came a bad storm. The wind blew; it rained heavily. Extra anchors were brought out, and she and her husband had to work hard for a short time. When the storm passed they were wet, they were cold, and they were tired, and at about that time the lady noticed a slight cough and wheeze. The next day the sky was clear again, and they sailed to another harbor, but the wheeze continued, and on the third day the asthma increased rapidly in its severity. Doctors were called out to the yacht, and finally the lady was taken ashore and sent in an ambulance to the hospital. On arrival she was gasping for breath, and treatment with adrenalin, aminophyllin, and finally oxygen, did not help her much. On the fourth day her condition was even worse, she was placed on the danger list, and all through day and night the battle with her asthma went on. Several experts saw her in consultation. ACTH and Cortisone were both administered, but they didn't help her, and on the morning of the fifth day (Thursday) she died.

Autopsy showed the lungs markedly distended, with the small bronchi tightly plugged with the sticky secretion so typical of deaths from asthma.

This case was a terrible experience, very disturbing to everybody. What was its mechanism? Before the sudden onset the patient had been perfectly well for a month, and without any change in her living, her bedding, her clothing, or her food. The attack was precipitated by stress and strain of

various kinds acting together, and then, once started, it developed with a rapidity and a severity which was dreadful to see. The family background, leading to a fear of asthma, makes one wonder whether this last attack, started perhaps by a "chilling of the membranes", or perhaps a true infection, was not aggravated by emotional factors, until finally it was these emotions which dominated the whole picture. If so, one must ask whether such a healthy, strong woman could develop asthma from emotional causes which were bad enough to cause her death in five days. To consider such an idea is not easy, but the possibility constitutes a reasonable problem for future investigation.

These four cases are striking; the last two are quite unusual. Together they show, in the first place, that "All is not allergy that wheezes": that many other factors besides a sensitiveness to dusts or foods or drugs are important in the study and treatment of asthma. Secondly, they show that the process which we call "asthma" is quite different in different patients. This, in turn, means that a classification of asthma is quite essential. It is my opinion that, for the present at least, asthma should be regarded as a symptom and not as a disease. I am sure that any observations or experiments on "asthma" must include a consideration of the type of case involved. The new treatment was successful, perhaps, but one must ask, "What is the natural course of asthma of this kind? How would the patient behave without treatment of any kind?" The age of onset appears to be critical, and the rule which says that "when asthma begins before age thirty, the cause is allergy unless proved otherwise; but when asthma begins after age forty, the cause is not allergy unless proved otherwise" seems to be useful. In the diagnosis and treatment of asthma, the history is of primary importance. When the attacks come and go at a certain time of year, or when they occur only in a certain house, or even in a certain room in that house, the cause must be allergy to a dust substance of some sort. When, however, asthma develops quite suddenly in older people, and the symptoms persist through all seasons,

and perhaps in different environments, then the cause is something which the patient carries with him; it is not dependent upon a dust in the environment. Incidentally, the doctor must recognize the factors in bedding or in furniture which are likely to cause trouble. Kapok (silk floss), the stuffing found in cheap pillows and mattresses, is a very common offender. When new, it is harmless, but the fibers support the growth of molds and then break down into a fine dust which exudes through the finest cover. Many patients have been cured when the kapok was found and removed. Cotton stuffing, woolen rugs, and the padding under rugs, which is made of cattle hair, cause trouble in only a few cases. If the doctor will take the trouble to visit the house and inspect the place, he may make important discoveries.

There are tricks in taking the history of these patients. The first trick is to write down the actual dates on which the attacks began and the dates on which they ended. Quite often the dates themselves will suggest a pollen in summer, or perhaps will point to infections in winter. Later it becomes interesting to add ages in brackets after the dates.

The second trick is to account for all the time, for if the patient was quite well for a period of weeks, or months, or even years, the fact is always important, and the free intervals must be explained. Did the sensitiveness really disappear, or did the patient improve because he or she came to live in a different environment?

Secondary infections, and the stress and strain described in the case reports, are frequent complications of the primary process. When the dates of changes in residence or in occupation are noted along side the dates of changes in asthma, the cause and effect relation may appear. It is the history which points the way.

A careful physical examination is always important, as shown by the second case above. Bad teeth can cause trouble, and occasionally one sees the relief of chronic asthma when the infection in the gallbladder, in the prostate, or in the pelvis has been found and removed. Paranasal sinusitis, with the

formation of nasal polyps, is a very common complication. Why does it have such a bad effect upon asthma? Is it because the postnasal drip irritates the bronchial wall? Or is there, perhaps, some true nervous connection between a trigger mechanism in the nasopharynx and the reaction in the bronchi? Little by little we have learned that operations on the nasal sinuses in patients with asthma do good for a short time, but that after that time the asthma recurs and then the condition is sometimes worse than before. Whether the sinus lesions are a cause of the asthma or whether they are a part of the picture, dependent upon the same cause as the asthma itself, is a good question. In the clinic, the problem of the nose and throat in relation to asthma is of considerable practical importance.

Skin tests are interesting; they are often dramatic. In most of the cases they agree with the history, to confirm it, but in other cases one finds positive skin tests with no history to go with them, as Dr. Salén (1) has pointed out so clearly. And then, finally, one finds evidence of a clinical sensitiveness even when the skin tests are negative. Positive skin tests mean allergy, at least of the skin, and they may or may not indicate an allergy of other tissues, including the mucous membranes. Positive skin tests often reflect the past history rather than the present illness. There are many patients who used to have hay in the summer and now have asthma in the winter. Their skin tests to the grass pollens and to ragweed are only reminders of their past experience.

DISCUSSION

In 1946 I (2) presented a diagram to show the theoretical mechanisms of the cause of asthma. The asthmatic state is basic. It is a trait, probably inherited, which explains why certain individuals have the capacity to develop sensitiveness. The nature of this trait constitutes the essential basic problem in the study of the allergic diseases. Why do some people have asthma while others do not? Why is the guinea pig so

easy to sensitize while the rat is so hard to sensitize? And why are these two animals so different in their reactions to histamine? Why do different horses produce diphtheria antitoxin at such different rates? These questions are part of the same problem; their solution will lead to discoveries of primary importance.

In those people who have the asthmatic state there are four different factors which can cause the release of the common denominator, which is presumably a histamine-like substance and which in turn can produce a variety of symptoms. The four factors are: allergy, infections, drugs (allergy), and "depletion", which is another word for stress or strain, whether on a somatic or a psychic basis. Is this concept correct? The allergy section is accepted, and the infectious section is accepted also, for, as in Case II, focal infections of chronic sort, as well as acute infections, like new colds, can precipitate asthma, and in some cases these infections are the only cause of trouble. On the other hand, bacterial allergy is hard to prove. Skin tests with bacteria, or with the products of bacterial growth, may occasionally produce local reactions of the acute urticarial type, but this is not common. Delayed inflammatory reactions of the tuberculin type, on the other hand, are almost the rule. It is important to observe that they are obtained not only with the preparations made from the secretion of the patient, but are produced by preparations from other patients. The reactions are not necessarily specific. The technique of this study is difficult, and the final answer is not yet at hand.

The section called "Depletion" is of even greater importance in the practical management of patients. Psychosomatic factors are described in an increasing number of reports. Wolf and his associates (3) of New York have made studies of the mucous membrane—its changes in the presence of fear and anxiety. Our mental hospitals take care of many thousands of patients with Schizophrenia, and asthma in these institutions is almost unknown. The mental disturbance has displaced emotions of other kinds. There are theories about the way

in which the mind can influence the body, about the relations between the hypothalamus and the pituitary, but so far these are only theories. The new discoveries of ACTH and Cortisone have given us a tool for the further study of these problems. Treatment with these extraordinary drugs produces no change in the antibodies, whether free in the blood or fixed to the tissues. Skin tests remain quite the same after treatment with ACTH or Cortisone as they were before treatment. In spite of this, the effect of treatment is good; sometimes it is wonderful in asthma, just as it is wonderful in arthritis and in many other chronic diseases. That this improvement is concerned in some way with the function of the adrenal cortex is an interesting theory. Evidently, it is the systemic reaction to the primary disease process which is affected by ACTH and Cortisone. With the treatment, the patient still retains the original mechanism of his disease, but with the treatment the symptoms do not develop, or at least are well controlled. This fascinating problem of stress and strain in chronic disease has been studied exhaustively by Selye (4) whose concept of the "Alarm Reaction" seems pertinent to the asthma problem. Case III, my friend who was so anxious about his asthma, suffered from a form of alarm reaction, and there is little doubt but that the healthy lady in Case IV also suffered from an alarm syndrome, which, in her case, progressed to a fatal ending. Much more study is needed before the relationships between emotional disturbances and asthma are understood, but at least a beginning has been made. The very fact that the problem is recognized as a real problem represents a gain.

Meantime, the presence of emotional factors complicates many situations which otherwise appear quite simple. The new treatment was given, and the patient improved. The temptation to explain the results as due to the treatment is strong, but one must be cautious. The doctor who treats asthma must be a real Doctor in every sense (spelled with a capital "D"). As Dr. Francis Peabody (5) once wrote, "the secret of the care of the patient is in caring for the patient".

How often do our treatments do good, not because of the particular medication applied, but because of the removal of fear and anxiety which the doctor has brought about. The interesting thing is that in most cases the doctor himself does not realize all that he is doing; he does not see the other phenomena which are taking place at the same time.

The asthma problem is broad; it touches all the departments of internal medicine and of pediatrics. It is concerned with chemistry, physiology, and immunology. It is concerned with dermatology, as well as with otolaryngology, and now it is growing closer to the departments of neurology and psychiatry. With a close relation between the allergy clinic and all the other departments of medicine, one can hope, indeed one can expect, that great advances in the knowledge of a difficult subject will be made.

BIBLIOGRAPHY

1. *Salén, E. B.*: The Diagnostic and Clinical Importance of the Skin Test. *Acta Allergologica*, 1948; *I*, 127.
2. *Rackemann, F. M.*: Allergy. A Review of the Literature of 1944 and 1945, with Comments on Future Problems. *Arch. Int. Med.* 1946; *77*, pp. 708-718. 1946; *78*, pp. 108-122.
3. *Wolf, S., Holmes, T. H., Treuting, T., Goodell, H. and Wolff, H. G.*: An Experimental Approach to Psychosomatic Phenomena in Rhinitis and Asthma. *J. Allergy* 1950; *21*, 1.
4. *Selye, H.*: The General Adaptation Syndrome and the Diseases of Adaptation. *J. Allergy* 1946; *17*, 231, 289, 358.
5. *Peabody, F.*: Lecture on The Care of the Patient. *J.A.M.A.* 1927; *89*, pp. 877-882.

This document is a scanned copy of a printed document. No warranty is given about the accuracy of the copy. Users should refer to the original published version of the material.