# What Is Asthma?

STANLEY EPSTEIN

[Ed.: The following article was written for the Stanley Epstein 1961 Essay Contest of the American College of Chest Physicians.]

There are many concepts which are bewildering to a medical student. However, there has been one subject particularly perplexing to me. This confusion revolves around the term "asthma". I have had great difficulty in attaining an exact understanding as to what is meant by this term and thus, in making a correct diagnosis of this important pulmonary condition.

Much of the confusion in medical terminology stems from an interchangeable usage of terms that orginally described either the clinical features, the pathological findings, or the etiology of a disease. When knowledge of a disease progresses from clinical features to a deeper understanding of its pathogenesis and etiology, too many terms may be added or an old term fail to be sufficient. Thus, one word may conjure several different pictures in the minds of different individuals. This confusion can be sorted out both by an understanding of the disease as it is known today and by a knowledge of the original meaning of the term. I shall attempt to describe in this essay what I feel to be the proper meaning of the word "asthma", as used today, from a clinical, pathological, and etiological interpretation.

## CLINICAL

Asthma is a clinical term. It originates from a Greek word which means "panting". It had origin in the clinical observation of a state where there was severe gasping for breath, and has since acquired new clinical features, both symptoms and signs, to differeniate it from other forms of dyspnoea. Asthma is a collection of symptoms and signs which represent the end result of several etiological factors, and is, therefore, a, disease syndrome.

A fairly accurate definition of the term asthma, from a clinical point of view, is: a disease syndrome characterized by objective and subjective difficulty in breathing, with the presence of wheezing (most marked during expiration), with cough, with bilateral rhonchi, and occurring in acute attacks which are either superimposed on an otherwise apparently healthy state, or as an exacerbation of a chronic pulmonary disease state.

A clinical definition, however, is insufficient; we must understand pathogenesis and etiology of the symptom complex for insight into this condition.

## PATHOGENESIS AND PATHOLOGY

The basic lesion is a narrowing of the bronchial tubes. However, actual pathological changes vary from case to case, and depend upon both etiological factors and the duration of the disease.

There may be contraction of the bronchial musculature (which extends as far down as the respiratory bronchioles); there is swelling of the bronchial muscosa. In addition, there may be increased thick mucinous secretion from the glands that are present in the bronchi but not in the bronchioles. In certain cases, there is partial obstruction of a bronchus by a mechanical object, either foreign or neoplastic. These changes occur together or separately and accordingly determine the clinical picture. The first three changes commonly co-exist.

## ETIOLOGY

The following table summarizes the factors in the etiology of asthma. This classification is strongly influenced by the writings of Oscar Swineford, Jr., N.D., and is presented, with minor changes, from his original article.[1] For a more detailed understanding of these factors reference should be made to the above mentioned article.

*Classification of Factors Involved in Etiology of Asthma.*

(1) Allergic
  (a) Atopic
  (b) Physical
(2) Infectious
(3) Psychological
(4) Chronic Lung Disease
(5) Cardiac Disease
(6) Bronchial Obstruction (Partial)
(7) Reflex
(8) Idiopathic

Allergy is known to play a definite role in the etiology of asthma. There are well documentated cases of clinically perfect asthma which have been initialed by many substances from soy bean dust[2] to sewage filter flies[3]. The allergy may be of an atopic character initiated by foods, drugs, inhalants or a physical allergy initiated by heat or cold.

Infection is important in some cases. It is important to differentiate the infectious element as being primary or secondary. Emotional factors are involved to some extent

in almost all cases of asthma. It is easy to overestimate its place as the primary cause of the disease.

Chronic lung disease and cardiac disease are both related to the cause of asthma. When these disease states co-exist it is important to differentiate what part of the symptom complex is due to the pathology of the primary disease and what part is due to the complication of asthma.

Partial bronchial obstruction by a foreign body or neoplastic growth is relatively simple to understand and treatment is specific. Reflex asthma has been described as a result of nasal polyps, thyroid nodules, as well as neoplastic and foreign bodies which trigger a neurological reflex.

Finally, to complete the list there are cases in which no obvious causes of the asthma are apparent.

Several factors, as shown above, can and do coexist, and it is felt that in all cases of asthma there is always more than one factor involved.

## IMPORTANCE

The importance of asthma can not be denied, because of its high morbidity and its mortality. As the condition is not reportable, accurate statistics are not available. In addition, evaluation of statistics is hampered by rather loose usage of the term "asthma", as pointed out.

One source[4] has estimated that the incidence of various types of asthma may be as high as three to five percent of the population of the United States. It is quite well agreed that the rate of occurence of bronchial asthma of allergic origin in a general population corresponds to about 0.5 percent[5]. One recent study of all admissions to the Mayo Clinic shows a rate of 1.4 percent as having a diagnosis of bronchial asthma[6].

Definite changes occur in the lungs, foremost of which is emphysema. In addition, asthma is associated with other pulmonary diseases such as sarcoidosis[7], tuberculosis, bronchiectasis, chronic bronchitis, and pneumonia. Cardiac pathology may also be present, which varies with the degree and duration of asthma, from minor to severe changes, such as found in cor pulmonale[8].

Sudden death attributed to asthma has been reported in the literature[9]. In the study at the Mayo Clinic, mentioned above[6], the causes of death in 304 asthmatics was reported as 11.3 percent in status asthmaticus, 10.4 per cent from complications of asthma, and 78.3 per cent from other causes.

I have made no attempt to clarify the numerous short descriptive terms for asthma. I refer, of course, to such terms as "bronchial asthma", "cardiac asthma", and both "intrinsic and extrinsic bronchial asthma". This has been capably done by Swineford[1].

A diagnosis of asthma should be qualified by a few references to known etiological factors.

## SUMMARY

(1) Asthma is a disease syndrome.

(2) Multiple factors are involved in the etiology of asthma.

(3) "Asthma" alone is an insufficient diagnosis. Some attempt at modification by including etiogical factors is necessary. Although this may not be compact it will prevent confusion.

(4) Use of short descriptive names should be avoided, unless throughly defined.

References:

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"One meets with men who have been fine students, and have stood high in their classes, who have great knowledge of medicine but very little wisdom in application. They have mastered the science, and have failed in the understanding of the human being.—WILLIAM J. MAYO.