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# SOME OBSERVATIONS ON INHERITED PHYSICAL AND PSYCHICAL CHARACTERISTICS IN TUBERCULOUS PATIENTS*

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There is a time when practically every tuberculous infection of the lung of the adult type can heal. The necessity of confining this statement to the adult type of tuberculosis is selfevident to students of the subject but may not be so readily understood by others.

The adult type is the chronic type. It is the type in which the disease occurs after the body has already fought a successful fight against an infection (the early infection of childhood), as a consequence of which it has emerged from the combat with an increased specific resistance against the tubercle bacillus and an ability to combat future infections with greater success. Nearly all tuberculosis in the adult population in civilized countries belongs to this type.

There is another type of tuberculosis which we call the childhood type. It takes an acute form and runs a rapid course. It is best illustrated by the disease as found in children during the first and second years of life. It is also the type that is found among the primitive races when the disease is first introduced among them, such as was illustrated by the American Indians and the Icelanders when the white people first carried infection to them. It is also occasionally seen in adult members of our population, where it appears as acute generalized tubercu-

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losis. This is a type which is opposed by no or apparently little specific resistance on the part of the patient. It spreads rapidly and has the characteristics of an acute infection, while the usual disease of the adult type is that of a chronic infection.

While it may be truly said that there is a time in the life history of nearly every adult type of tuberculous infection, when the host has the power within himself, if properly conserved, to overcome it, it may be said with equal truth that there is rarely a time when the host has it within his power to overcome tuberculous infection of the acute or infantile type.

In attempting to treat tuberculosis successfully it is the adult type in which we are particularly interested. The greatest problem in its success is to bring the patient under treatment at a favorable time, when healing is possible, and to keep him under treatment sufficiently long for healing to take place. In other words, the problem has two phases as far as the physician is concerned; one, the skill to make an early diagnosis; the other, that of understanding and mastering the individual whose body harbors the tuberculous infection so that he will do his part in bringing about a healing.

In this connection it must be said of the adult type of the disease that the attitude of the patient has far more to do with the success of treatment than the tendency to heal or not to heal on the part of the disease. Chronic tuberculosis has a decided tendency to heal. This is evident from the fact that it has become a chronic disease, while its natural course in infants and in unprotected adults is that of an acute process. The reason so many die of tuberculosis is not because it will not heal, but because they ignorantly or knowingly prevent it from healing by the manner in which they comport themselves.

Regardless of what has just been said of the curability of early tuberculosis of the chronic type, there is a great difference in the resistance of different

individuals to tuberculosis. Resistance seems to be an individual matter. While nearly all can overcome small infections, and some can overcome massive infections, there is quite a large group of individuals who are not able to obtain a satisfactory healing if the disease becomes moderately advanced. We do not know in what this difference consists, but it is undoubtedly something fundamental in the body and its reactions.

As I study the problem of tuberculosis I am ever more convinced that the pendulum has swung too far to the side of the bacillus and its accompanying anatomicopathological changes. Tuberculosis is, after all, a biological question and bound up with the inherited qualities of its host; and, while tubercle bacilli are the actual producers of the disease and may show variation in virulence in different strains, there are undoubtedly, on the other side, variations in strains of individuals, differences in resistance inherent in them which cause one to succumb to a relatively small infection and permit another to withstand and suffer apparently little inconvenience from a widespread lesion. In other words, heredity is an important factor in determining the incidence of tuberculosis as well as its curability when the infection has once become a clinical entity.

Constitutionally inherited characteristics of body cells undoubtedly determine to a large extent the degree of infection and the rapidity of its spread. In other words, the manner in which the bacillus comports itself when it enters the host is probably determined, all other factors being equal, by something which is transmitted to the individual through the germ plasm.

The extent to which clinical tuberculosis depends upon environment and the extent to which it depends upon inherited characteristics cannot be told. Contact with bacilli is essential to infection. Living in bad environment aids the bacillus in establishing disease. But back and beyond both of these is a determinant with which we must reckon.

## HEREDITY

It has been shown that persons suffering from clinical tuberculosis have a much greater amount of tuberculous disease in their blood relations than the nontuberculous. Raymond Pearl (1) collected data on this point from fifty-seven family histories, thirty-eight tuberculous and nineteen nontuberculous, the entire number of persons investigated being over five thousand. The history of the tuberculous showed seven per cent. of blood relatives tuberculous, while that of the nontuberculous showed only one and two tenths per cent. In other words, there were six times as many cases of tuberculous disease among the members of the families of the tuberculous as there were among those of the nontuberculous. This percentage of difference cannot be accidental, nor can it be accounted for alone by the fact of greater opportunity of infection. In the fifty-seven histories analyzed by Pearl, he says: "In any case the close contact rate is higher for the tuberculous offspring than it is for the nontuberculous offspring. In other words, these figures indicate that familial contact with active open cases is beyond question a factor in determining the incidence rate of clinically active tuberculosis. It appears equally obvious, however, that it certainly does not account for the whole of the increase in the incidence of the disease which we find to occur as the amount of tuberculosis in the immediate direct ancestry increases."

Not only must we look for the cause of susceptibility to the bacillus in the realm of physical characteristics, but we must recognize that it may also have as its ally certain hereditary psychical peculiarities. I have long noticed that many tuberculous patients manifest certain psychological traits. While we see many heroic struggles made by those suffering from tuberculosis which command the admiration of all who come in contact with them, yet one must recognize that this struggle is not only with the disease but also with the patient's own emotional traits. There is a tendency on the part of many tuberculous

patients to be imbued with a spirit of fear; to shrink from the responsibility of life and life's problems and to become selfcentred. They fear their ability to regain health and to maintain it when once attained. They fear exertion. They fear business. They fear the strain of life in general. They shrink from tasks that a normal healthy individual would accept without hesitation. They assume an attitude of dependency which greatly reduces their efficiency. They often become unmindful of the rights of others. All this seems to show a reversion to childhood traits. I have thought of these characteristics as being due to the effect of the disease, but whether they are effects of the disease or whether they are traits which are submerged until brought out by the stress of the disease is not wholly clear. There are undoubtedly many people who under ordinary conditions of health, happiness and economic success are leading normal lives and meeting life's problems in a satisfactory manner whose margin of physical and psychical safety is very narrow. When a disease like tuberculosis comes upon them, producing its harmful effects upon the physical body and, at the same time, adding its cares and worries, with its blasting of hopes and ambitions, its upsetting influence on domestic, business and social relations, their margin of safety is exceeded; their physical and psychical equilibrium is upset, and the particular psychic qualities which were present, though held in abeyance, now manifest themselves.

Some students of psychology believe that this psychic type is the one that is particularly prone to tuberculosis, and that the psychological manifestations here described as manifesting themselves as a result of the disease are primary and have something definite to do with the development of clinical tuberculosis. This is the type of regressive personality; the type that turns to shelter; the type that meets stress but poorly, be it an excessive physical or mental strain, or be it an infection. Mühl (2 and 3) has recently contributed two important papers bearing

on the psychical traits of tuberculous patients. She believes that the personality is primary, that it antedates and is a factor in the causation of the disease. The emotional traits present cause a prodigal misuse of energy which weakens the individual and makes him susceptible to the disease.

In the treatment of tuberculosis success is greatly augmented by an understanding of the patient and his emotions against which he is obliged to struggle. The psychical side of the tuberculous patient requires and demands as much care and consideration as the physical side; for harmful stimuli which are capable of upsetting the normal physiological equilibrium of the patient may arise as well from one source as the other.

Future study of tuberculosis and the tuberculosis problems can well be directed toward the question of type. Patients must be studied from the viewpoint of the nervous, psychological and endocrinological types. Their general cellular resistance must be observed. These factors must not only be taken into consideration in the individual, but in his forebears as well.

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