

It would seem criminal to even suggest the addition of another distinct course to the already overcrowded college curriculum, but I would suggest the following method of expansion:

1. That the chairs of anatomy and physiology impart to the student the necessary primary instruction relative to the normal changes peculiar to old age.

2. That the chair of practice, or if deemed best, in order to contrast disease, the chair of pediatrics, enlarge its scope and furnish the necessary pathologic and clinical instruction so essential to fully equip the student for the responsible duty of intelligently advising and treating the aged.

SPUTUM ANALYSIS AND THE EARLY DIAGNOSIS OF PULMONARY TUBERCULOSIS.*

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Seven years ago I called the attention of the profession to the "Neglect of the Early Diagnosis and Treatment of Pulmonary Tuberculosis," in a communication read before the Arapahoe County Medical Association. At that time I used the following words:

"The great importance of the early diagnosis of pulmonary tuberculosis has been forced on my attention by finding so many tuberculous patients seeking the climate of Colorado long after their chances of recovery in that or any other climate have gone by. Considering it a matter largely preventable, by the profession realizing more clearly the causes that lead to this unnecessary and lamentable loss of life, I have analyzed the last 100 cases of pulmonary tuberculosis that have presented themselves for examination. This inquiry has nothing to do with the influence of climate nor the results of treatment, but was undertaken to find out how far the early recognition of the disease and its treatment affected the condition in which the patient first came under my observation.

"After carefully going over the notes of each case, I have made two classes. The first includes those in whom the disease was diagnosed and treated as soon as the symptoms given in the patient's history showed the disease sufficiently developed to be recognized by any ordinarily well-educated practitioner. By treatment, as applied to this class, is meant any means, hygienic, therapeutic or climatic, that was seriously used—not that the treatment was necessarily of the best, but that the cases were taken in hand and the patient advised in a reasonable manner. The broad question of treatment or no treatment of the pulmonary tuberculosis is dealt with, and not its details nor wisdom.

"The second class includes those in whom the history exhibits the fact that the disease was not diagnosed nor treated for a period varying from a few months to several years after the time that the real nature of the malady had clearly revealed itself.

"The 100 cases are not in any way selected, but are taken in the order of their examination, tracing back from the recent time when this inquiry was commenced, and were limited to this number simply on account of time and labor."

I have recently conducted a similar inquiry analyzing my notes of the first examinations of the last 100 cases of pulmonary tuberculosis presenting themselves for examination. I am glad to say that a comparison of the

statistics shows an improvement in the latest investigation. In 1892 I found that diagnosis of the disease was delayed in 52 per cent., and the total average of delay was two years. In the present year I find that the delay was 45 per cent., and the average period of delay nine and a half months. In 1892 sputum examinations had been made in only 42 per cent., some of which were not made until some time after the disease was well advanced, so it may be said that in 65 per cent. this means of diagnosis was neglected. In 1899, 55 per cent. were examined, so that my figures show that in the intervening seven years there is an improvement in diagnosis going on; but the conditions are by no means as yet ideal. For, omitting the question of the use of the more delicate methods of early diagnosis, such as can be made only by experts, there are 45 per cent. of cases which should have been diagnosed by an average practitioner and in which the diagnosis was delayed for nearly a year. In the 55 cases in which there was no delay, 36 arrived in Colorado in the first stage, 7 in the second, and 3 in the third stage. That is, there was 65.5 per cent. in the first stage in those in whom there was no delay. In those in whom there was delay 8 arrived in the first stage, 20 in the second, and 17 in the third; thus but 18 per cent. were in the first stage. An analysis of several thousand treated in high climates shows that the average percentage of cures in the first stage is 65 per cent., and in the second and third stages combined only 15 per cent. It therefore means that 37 per cent. of the phthisical patients coming to Colorado are, in consequence of the delay in diagnosis, only given a 15-per-cent. chance of recovery, as against 65.5 per cent. to which they were entitled. In fact, granting the truth of these statements, 37 out of every 100 consumptives are slaughtered. This large, unnecessary destruction of lives is criminal, yet the authors of this are not themselves deliberate criminals, although guilty of criminal neglect. How can we explain this strange negligence? By investigating the causes and by calling attention to the lamentable facts we shall tend to remove this opprobrium from the profession. Often the delay in the treatment of tuberculosis is caused by the patient's own delay in placing himself in the hands of a physician. Such cases are, however, eliminated from this inquiry.

When a patient appears to be declining in health, without obvious cause, his morning and afternoon temperature should be taken, and if this can not conveniently be done by the physician, at those times, the thermometer can be left with the patient or his friends, with the necessary instructions. Again, the weight is not taken often enough or the pulse-rate noted. In many there is little or no cough or expectoration, or it is often denied or ignored by the patient, whereas some sputum can generally be collected and should by all means be examined. Blood spitting is frequently passed over as of no importance, and ascribed to the throat or nose when it really comes from the chest. If the patient can be examined at the time of the bleeding usually a few tell-tale râles are to be heard, and bloody sputum shows bacilli then and not at other times. A diagnosis of early tuberculosis can rarely be made by auscultation through the clothing. Sweating at night, unless considerable, is often not mentioned by the invalid. Shortness of breath is frequently ignored because the patient does not show it or speak of it when being examined. Both patients and doctors are for the most part too pessimistic in regard to their views of the curability of tuberculosis, and are still living, as it were, in the days when a patient was not considered tuberculous until he had become

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also phthisical, and that is, until he was obviously wasting away. This gloomy view of the disease often causes the physician to be chary of investigating for fear of declaring this unpleasant fact, when the patient will resent the suggestion of his having tuberculosis. Moreover, the patient often dreads going to a doctor who he believes will give an honest opinion.

The old myth that pulmonary tuberculosis was almost invariably hereditary has caused many a well-developed man with a good family history to allow his disease to become incurable because he did not know his danger. Again, patients so commonly prefer to frequently spend a little time and money with their physician and be tinkered up, rather than to submit to a thorough overhauling and perhaps a radical treatment at a greater though less frequent expenditure of time and money. Again, the physician who urges a thorough inquiry is often suspected of making too much of a case for selfish ends, and magnifying his own importance by unnecessarily alarming his patient.

A verdict of tuberculosis is supposed to always mean exile from home to a more favorable climate. While this is most usually the surest and quickest road toward recovery, there are often individual reasons why it is not the best course to pursue. Sometimes even a slight change of air, and for a short period, is sufficient, if the patient is radically treated as regards the hygiene of his home and person. At all events, in the very early stages, where the progress of the disease is slow, this can be tried.

I find that the poverty of the patient has some influence on the delay of diagnosis; in those in whom there was no delay, 16 per cent. were poor; in those in whom there was delay, 26 per cent. were poor. Again, showing the influence of the knowledge of medicine on the patient or his friends; in those in whom there was no delay, 22 per cent. were physicians or relations of physicians; while in those in whom there was delay, there only 9 per cent. were physicians, or of physicians' families.

If ever a suit for malpractice is justified against an educated and honest physician, it certainly is in many of the instances of neglect of the early diagnosis of pulmonary tuberculosis.

Let us remember that under appropriate treatment the large majority of cases of incipient pulmonary tuberculosis get well and remain well if they are instructed in and practice personal hygiene.

CONVULSIONS IN INFANTS AND YOUNG CHILDREN.

THEIR POINT OF ORIGIN, NATURE, CAUSE AND MANAGEMENT.*

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No apology is demanded for discussing here what is only a symptom and not a disease per se; for of the many sudden, violent, and dangerous affections of very early life, I know of none which demand more prompt, careful, and skilful effort of the physician, than convulsions. Their suddenness, gravity, and frequency give to them a peculiar importance; and it is here, in a peculiar manner, that human life often hangs suspended on a prompt impulse of the physician's trained and cool intelligence. For what can be more terrifying to the parents and friends, or more dangerous often to the little

patient, than an infant in the agonies of a well-developed eclampsia.

Most authors attempt to treat this intricate subject under four headings, or divisions, as: 1. Points of Origin. 2. Nature. 3. Causes. 4. Treatment or Management. But these divisions can not be discussed entirely separately, for in discussing the point of origin, we are necessarily contemplating, to a great extent, the cause, at least the "proximate cause," and also to a considerable extent, the essential nature of convulsions. Nevertheless, as we must systematize what we have to say on the subject, perhaps we can not do better than to follow these divisions as far as possible.

For purpose of study and treatment, convulsions have been variously classified, as to their points of origin, and exciting causes. The late Prof. J. Lewis Smith discussed them under the headings of "Idiopathic," "Symptomatic," and "Sympathetic," the first class being those purely functional—as from sudden, violent emotions, etc.; the second class, those from brain lesions; the third, those occurring as complications of diseases other than the brain—as pertussis, exanthems, etc. Professor Holt groups them under three headings, as those occurring from direct irritation of the cortex of the brain; those from reflex irritation; those from "toxic" influences. Other divisions, as you know, are into "Central" and "Peripheral," or "Centric" and "Excentric," etc. Professor Rotch has tabulated as to causes in an admirable manner under the two significant headings of "Central" and "Peripheral"—or reflex—and I think all of the *exciting* causes can well be grouped in his classifications.

Morris J. Lewis¹, for the purpose of differential diagnosis, etc., groups convulsions into eight classes, as follows:

1. Convulsions may be evidence of reflex irritation from some temporary and comparatively trivial disorder, such as constipation, overloaded stomach, irritation of teething, earache, worms, genital irritation, etc.

2. They may constitute an initial symptom of one of the exanthemata; or some other acute disease, either thoracic, spinal or cerebral, or they may be due to thermic fever.

3. They may indicate that the child is suffering from some general condition of ill health, such as indigestion, rickets, cyanosis, etc.

4. They may indicate gross intracranial disease of more or less chronic nature.

5. They may be a symptom arising during the course of one of the acute diseases, such as whooping-cough, or may be an evidence of toxemia in the exanthemata or kidney disease.

6. They may be the result of various traumatisms, such as injuries to the head, or a violent hemorrhage; other than cerebral; causing cerebral anemia, or from severe burns or shocks.

7. They may be one of a *series* arising without assignable cause; and constitute epilepsy.

8. They may indicate nothing more than a "A Mode of Dying," especially in those diseases which are accompanied by severe watery diarrhea and vomiting, as cholera infantum, etc.

This comprehensive summary would seem to embrace most of the exciting causes fairly well grouped; and as Lewis remarks, "Two or more of these classes may be found associated in the same case."

Some such grouping, together with the systematic tabulation of the various exciting causes, as Dr. Rotch has given us in his lectures, under the headings of "Central"

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