THE EIGHT STAGE CLASSIFICATION OF PULMONARY TUBERCULOSIS.

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THERE is no doubt that classification plays a very important part in the questions of regime, treatment, and prognosis of tuberculosis of the lungs. The more exact the diagnosis the more definite and the more successful may the result of treatment be. Not only is the stage of disease important, but even still more, in my opinion, is the tendency of the process—that is, the rapidity of the development of the disease and transition into the next stage. It reminds me of a non-stop train rapidly travelling towards its destination and passing all stations. The damage may only be noticed at the end of the journey, when it may be too late or too complicated to repair, or there may be a serious accident on the way, quite suddenly and unexpectedly. But if the train stopped at each station and was inspected and examined in every detail remedial measures might be undertaken and disaster be averted.

A brief classification is comparable with such a "non-stop" train, and is especially unsatisfactory for the inexperienced practitioner, since the most important part of the disease—the rapidity of development—may entirely escape attention. This is especially serious when the patient is sent to another medical consultant, because everything turns on two fundamental points—the exact stage of the disease and how quickly it developed. The rest depends upon the experience of the doctor and the condition in which the patient is and to which he could afterwards attain. It is unnecessary to enumerate all the classifications, but some should be mentioned, especially the well-known and most imperfect Turban-Gerhard, where the third stage includes an immense quantity of variations under only one label.

Brehmer's classification resembles that of Turban in character, but combines all forms of pulmonary tuberculosis in three groups.

1. The acute form—as, for example, miliary tuberculosis.
2. The subacute and chronic forms, including the caseous, caseo-fibrous, and fibrous varieties.
3. Abortive forms, such as that at the apex of the upper lobe.

A slightly more detailed classification was suggested by Dr. A. Sokolovsky of Poland (Wyklady kliniczne chorób dróg oddechowych). He also recognizes three stages, but subdivides them into more detailed forms.

A. *Chronic Tuberculosis.*

1. The early stage: (*a*) With evident signs of lesion of the organs of respiration. (*b*) With concealed signs: (1) pseudo-chlorosis, (2) pseudo-cardiac form, (3) pseudo-malarial form, (4) pseudo-gastro-intestinal form, (5) pseudo-pleural form, (6) pseudo-bronchial form, (7) pseudo-laryngeal form, (8) pseudo-emphysematous form.
2. Tuberculosis of lungs completely developed—stage of liquefaction and destruction.
3. The fibrous form.

B. *Acute Tuberculosis.*

1. Acute caseous tuberculosis: (*a*) local, (*b*) diffuse.

C. *Acute Miliary Tuberculosis.*

1. Typhoid form (septicémie bacillaire tuberculeuse).
2. Acute tuberculosis (form asphyxique de la phthisie aigue—Graves).

Sir Robert Philip bases a detailed classification on the degree of systemic intoxication, recognizing that the toxaemia plays the great part in the course of the malady. Often the local changes are most extensive, but systemic intoxication is very slight; on the other hand, comparatively slight changes in the systemic disturbances in the lungs may be extremely serious. The prognosis in these cases depends upon what condition governs either the extension of the process or the systemic intoxication.

He adopts a symbol L to designate the local lesion of the lungs, and a symbol S for the systemic involvement; by combining capital and small letters it is possible to express the diagnosis with more or less accuracy. In addition, Sir Robert Philip uses the small numbers, 1, 2, and 3 indicating the stages of Turban. For instance, L_1s means early local process with slight systemic intoxication, and L_1S the same early process but with more severe intoxication. Symbol *l* represents the relatively hopeless case; so, for instance, l_1s, l_2s, and l_3s are the groups where the toxaemia is not in proportion to the extent and severity of the local lesion of the lungs.

His classification divides tuberculosis of the lung into twelve clinical groups. This classification is very detailed, but gives place to subjectivism because the degree of systemic toxaemia is less distinctively conceived than the extension of the lesion. Various observers may indicate the same degree of toxaemia differently; besides which, used as a basis in this way, the Turban classification is particularly inexact.

I do not think it is necessary to describe the classifications proposed by Petruschky, Cornet, Rohden, Beneke, Laomis, Williams, Germain Sée, Hoffmann, Bard, Frankel, Meissen, and others; none of these, in my opinion, give an exact definition of the stage of the process. This is why I propose the classification of Professor Gabrilovitch as the best one for attaining this purpose and the most detailed and exact.

CLASSIFICATION OF PROFESSOR GABRILOVITCH.

Gabrilovitch divided all forms into two groups: (1) the primary, and (2) the secondary. Each of these groups he subdivided into four forms or stages:

The Primary Group.

1. Sicca.
2. Catarrhalis.
3. Fibrosa.
4. Ulcerosa.

The Secondary Group.

A. Broncho-pneumonia metastatica chronica:
   1. Fibrosa.
   2. Ulcerosa.
B. Pneumonia tuberculosa chronica:
   1. Fibrosa.
   2. Ulcerosa.

For the basis of this classification was taken the pathologico-anatomical condition of the lungs and the clinical signs. Toxaemia plays a very important part in the "index prognosticus," but is not included in the classification. With regard to the general characteristics of this classification it is very expedient to divide tuberculosis into two groups—the primary and secondary—the latter being merely the consequences of the former.

The tuberculous process in the lungs extends chiefly in two ways. One of these is often the result of aspiration of particles of lung (especially after haemoptysis) into the lower lobes; Gabrilovitch calls it "broncho-pneumonia metastatica chronica." The other way is infection spreading by continuity and gradually involving adjacent parts of the lungs—the so-called "pneumonia tuberculosa chronica." In the first case the middle lobe of the right lung is always found in good condition without any signs of inflammation, but the upper and lower lobes are affected. In the second case the area affected is only the continuation of the process from the neighbouring part of the lung.

Turban's classification gives no distinction between these two forms, attributing them to the third stage only; but there is a very great difference between them, and, as a rule, the first is much the more dangerous, and is very grave as regards prognosis.

I will now describe the details and characteristics of all forms of this classification.

PRIMARY FORMS.

1. *Sicca.*—This, the initial form of the process, is distinguished from pathologico-anatomical standpoints by the formation of a very small fibrous nodule, partly undergoing caseous degeneration. Slight dullness at one or both apices may be present. Auscultation may reveal a weak inspiration or prolonged expiratory sound over the affected region. As a rule there are no complications. The healing process may consist in the formation of fibrous tissue, and, clinically, there may sometimes be found signs of the healed area, which is nearly the same, but not so distinct, as at the time of development. The capacity for work is undiminished.

2. *Catarrhalis.*—This, pathologico-anatomically, means the transition of a fibrous nodule into caseous masses and the formation of exudative caseous foci. As a rule the upper lobe is affected, and some degree of dullness is present with bronchial breathing and crepitation. There are complications in approximately 15 per cent. of the cases. Healing is due to the formation of fibrous tissue, which is interspersed also between the affected and sound parts of the lung. Clinically in 30 per cent. crepitation disappears, and dullness is not so distinct as before. The patient's capacity for work is about 90 per cent.

3. *Fibrosa.*—The pathologico-anatomical condition is the further spread of caseous masses, their liquefaction, and the formation of tuberculous ulcers. Marked dullness may be detected over the affected area with bronchial breathing and prolonged expiration. Fine moist rales and medium rales as a rule may be heard. There are complications in about 25 per cent. Healing is due to the removal of caseous masses from the bottom of the ulcer; then follows the contraction of the cavities by fibrous tissue. Clinically bronchial breathing and dullness over the affected area are always present; moist rales are absent in about 10 per cent. The capacity for work is relatively about 70 per cent.

4. *Ulcerosa.*—This, pathologico-anatomically, is the spreading of the process with caseous degeneration, and the coalescence of small cavities to form large ones. Over the area of small cavities there is no marked change in the dullness, but a large cavity with thick walls or surrounded by caseating lung tissue, especially when empty, will give, as a rule, a dull note of high pitch with some resonance. On auscultation a low-pitched amphoric breathing is heard, with bubbling rales, crepitations, and also resonant rales. Complications occur in about 40 per cent. of the cases. The process of healing is due to the emptying of the cavities and the contraction of their walls by fibrous tissue. Clinically, with the exception of 5 per cent., rales and very distinct amphoric breathing are usually present. The capacity for work is about 35 per cent.

SECONDARY FORMS.

If caseous masses are not ejected from the affected area of the upper lobe they may be transferred by aspiration through bronchi and form new foci either in the lower lobe or in the neighbouring part of the lung. In this way they give rise to an exudative caseous process and to pneumonic foci.

A. *Broncho-pneumonia Metastatica Chronica.*

1. *Fibrosa.*—Pathologico-anatomically this form is due to the aspiration of caseous masses into one of the bronchi of the lower lobe. There are the same changes in the lungs as in the primary form of fibrous tuberculosis, but between the two affected areas there is a quite normal one. Complications occur in 50 per cent. of the cases, and recovery is impossible. The capacity for work is 15 per cent.

2. *Ulcerosa.*—The condition resembles that just described, with the exception of the character of the process, which is the same as in tuberculosis ulcerosa. The incidence of complications and the capacity for work are the same as in the foregoing.

B. *Pneumonia Tuberculosa Chronica.*

This form is due to coalescence of many broncho-pneumonic foci, and develops into continuous exudative caseous tuberculosis.

1. *Fibrosa.*—Infiltration or consolidation of nearly the whole lung, with the clinical signs previously described. Recovery is impossible. Complications occur in more than 50 per cent., and there is practically no capacity for work.

2. *Ulcerosa.*—Cavities may be found in all parts of the lung. The clinical signs are as previously described. Recovery is impossible. Complications are found in more than 50 per cent., and the capacity for work is practically *nil.*

In comparison with Turban's classification this one is exceptionally complete. Instead of Turban's third stage it gives a full account of all the progressive changes in the lungs. Turban's third stage does not indicate the condition of the lungs, but from Gabrilovitch's classification the condition of the pulmonary process may be discerned without further investigation.

This classification shows not only the character of the process, but also the prospects as regards treatment and prognosis—an exceptionally important point. Broncho-pneumonia is always more dangerous than simple pneumonia; the regime in this case must be very severe, and the prognosis extremely grave. Turban's classification gives us no indication as to the nature of the process nor how it spreads. All these considerations are based not on my personal experience only, but also on statistics. If the same area is affected both by broncho-pneumonia and pneumonia, and even if the affected area in the case of pneumonia is the larger, the prognosis is always better for pneumonia than for broncho-pneumonia.

As regards statistics, Turban's "third" stage is silent, and all statistics founded on this classification give not the slightest idea about the nature of tuberculous processes and are of very little value.

The advantage of this classification has been proved statistically. In my work (with Miss Elderton) "Correlation between prognosis based on the condition of the tuberculous patient at entry to a sanatorium, and the issue" (*Annals of Eugenics*, Vol. II, Parts I and II, April 1927; Cambridge University Press), on page 65 we find: "There is no doubt that the three stages of the Turban-Gerhardt Classification are not sufficient for prognosis, and that the subdivision of Group III by Professor Gabrilovitch's method is an improvement." And further (page 75), as a conclusion: "(2) In estimating issue from stage, the Stage III of the Turban-Gerhardt Classification should be subdivided following the divisions used by Professor Gabrilovitch."

COLLOIDAL ANTIMONY IN THE TREATMENT OF TUBERCULOSIS.

BY

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IN previous articles[1] attention has been drawn to the treatment of tuberculosis by means of intramuscular injections of collosol antimonium (Crookes). A large number of cases have now been treated by this method, and the results obtained are given below. Cases are separated into sputum+ and sputum−, and the sputum+ cases are separated into groups according to the classification adopted in the Ministry of Health Memorandum 37/T.

During the latter half of 1926 196 cases were placed on this treatment; 90 were sputum−, and have nearly all done very well, 3 only having died up to date, but no detailed statement will be made concerning these, as with sputum− cases the diagnosis is open to doubt, and the value of the treatment cannot therefore be demonstrated.

The sputum+ cases numbered 106—11 in Group 1, 23 in Group 2, and 72 in Group 3. No case is included which did not have at least two months' treatment in 1926, and the results are as follows.

	Quiescent.	Improved.	Not so Well.	Died.	Left Area	
+1	7	4	0	0	0	July 1st, 1927—6 months or more after commencement of treatment.
+2	6	17	0	0	0	
+3	2	56	9	5	0	
+1	7	3	0	1	0	Jan. 1st, 1928—12 months or more after commencement of treatment.
+2	13	9	0	0	1	
+3	5	34	10	19	4	
+1	7	3	0	1	0	At present—18 months or more a ter commencement of treatment.
+2	15	5	2	0	1	
+3	7	15	13	32	5	

Four deaths were from other causes, but as the tuberculosis was a contributing factor these are included in the above figures. It will be noted that 67 cases of the original 106 are still under observation or treatment.