THE STAGES OF PULMONARY TUBERCULOSIS.

By THOMPSON CAMPBELL, M.D.,

Ellerslie Sanatorium, Crief, N.B.

IN order that a common basis may be established for tabulating results obtained under sanatorium treatment it is essential that the physicians in charge of these institutions should agree upon the terms used to denote the stage of the disease in patients coming under treatment; and, again, that they should give a clear explanation of the headings under which the results are tabulated.

The commonly-accepted terms for the clinical stages of the disease—early, intermediate, and advanced—cannot be improved upon, as they harmonize with the pathological conditions of condensation or commencing consolidation, marked consolidation with softening, and distinct excavation. The difficulty arises in coming to such an agreement regarding the interpretation of the physical signs as will lead to cases being similarly classified in the different sanatoriums; and the following descriptions are submitted as the result of the writer's experience in drawing up institutional reports.

The early stage of condensation presents such physical signs as defective expansion over the apex of one lung, slight increase of vocal fremitus and vocal resonance, diminution of percussion resonance in the supraclavicular and suprascapular regions, with an alteration of the respiratory murmur which may display itself as prolongation of expiration, clogged-wheel respiration, or feebleness of the breath sounds; and as regards adventitious sounds, a series of râles may be audible during quiet respiration or after coughing, having the character of crepitations, medium-sized muco-crepitant sounds, or even an occasional small click. Along with the physical signs the quantity of expectoration must be taken into account in putting a case into its proper category; and it may be stated that in the early stage the sputum does not average more than a few drachms in the twenty-four hours, unless there is concomitant bronchitis. The importance of considering the amount of expectoration is apparent in those cases in which the focus of disease is covered by normal lung tissue and the abnormal physical signs are masked, when a fairly abundant expectoration would indicate a degree of softening of the lung not otherwise apparent.

The intermediate stage of marked consolidation with softening is indicated by the following physical signs: Defective expansion over one lobe of a lung; marked increase of vocal fremitus and vocal resonance; dullness to percussion above the level of the second or third rib on one side, or over the lower half of the posterior aspect of the lung; bronchial or tubular breathing, with a series of medium-sized clicking râles accompanying the breath sounds. The expectoration in this stage averages 1 oz. to 2 oz. in the twenty-four hours.

Cases in the advanced stage of distinct excavation are easily demarcated, presenting the following classical features: Visible hollowing in the supraclavicular and subclavicular regions, or retraction of the chest wall over the site of the cavity elsewhere; a tympanic or absolutely dull note on percussion; cavernous respiration and pectoriloquy, with an abundant series of large râles possessing a metallic tinkling quality. The quantity of sputum averages several ounces in the twenty-four hours, though frequently cases of excavation are seen with a very small amount of expectoration.

The following classification adopted by the writer may be useful as a guide, taken in conjunction with the foregoing clinical pictures. One lung affected: Early, intermediate, and advanced stages. Both lungs affected: Early stage in both; early in one, intermediate in other; intermediate in both; advanced in one, early or intermediate in other; advanced in both.

At times it may not be easy to classify cases in a transition stage between the early and intermediate, or between the intermediate and the advanced, but as stated above the quantity of expectoration will serve as an index.

In explanation of the terms used to denote the state of the patient at the end of the period of treatment, it should be stated that the term "well" implies that cough and expectoration have practically disappeared, or if a slight expectoration of mucus persists, that it should be entirely free from tubercle bacilli; while at the same time the patient's vigour is perfectly restored, so that he is able to undergo considerable exertion without fatigue or any marked rise of the evening temperature being induced.

It would be too much to demand that, in every case where it is claimed that an individual has been restored to health,

there should be absolutely no abnormal physical signs remaining, as in some cases diminution of percussion resonance over an apex, slight prolongation of expiration, and possibly a series of fine crepitant râles may persist for a time.

Again, in cases in which a cavity has formed before the disease has been arrested, abnormal physical signs may remain for a period of some length, but a patient might be classed as "well" if the cavity were dry, and tubercle bacilli could not be found in the last specimens of sputum he had expectorated, provided also that his bodily vigour had been restored to enable him to follow some occupation.

Under the heading "almost well" are included cases in which there remain slight cough, and a small quantity of expectoration in which a few tubercle bacilli are found, though the other symptoms of the disease have disappeared, and while percussion resonance has become clear over the affected area, a few râles of muco-crepitant character remain. In these cases, also, the patient's bodily vigour has been perfectly restored, and his weight is above standard, so that all the individuals in this class should be able to undertake employment with every prospect of remaining well.

The third heading, "much improved," comprises the cases in which there has been a considerable improvement in vigour, and increase of body weight varying from 1 to 1½ st., with a marked improvement in the physical signs, while cough, and the amount of expectoration, are moderate, but tubercle bacilli remain in fairly large numbers.

The term "slightly improved" includes cases in which the improvement in vigour is not so marked as in the previous class, the increase in body weight does not extend beyond a few pounds, and the improvement in the physical signs is not very marked.

The last heading requires no elucidation, and should include a very small proportion of the cases in a properly-conducted sanatorium.

In stating the results obtained in sanatoriums it would be well to present them first in detail, giving the percentage of results in each class, and the aggregate results in a further table. Taking a group of 60 cases treated in an institution for the working classes, the results are appended in the form suggested.

One Lung Affected.

Results.

Stage of Disease.	No. of Cases.	Well.	Almost Well.	Much Improved.	Slightly Improved.	Not Improved.
Early	8	87.5 %	12.5 %	—	—	—
Intermediate	10	40 %	50 %	10 %	—	—
Advanced	6	—	16.6 %	66.6 %	16.6 %	—

Both Lungs Affected.

Early in both	4	25 %	50 %	25 %	—	—
Early in one, intermediate in other	20	—	35 %	65 %	—	—
Intermediate in both	5	—	20 %	60 %	20 %	—
Advanced in one, early or intermediate in other ..	7	—	—	28.5 %	57.1 %	14.2 %
Advanced in both	0	—	—	—	—	—

The aggregate results take the following form :

Number of Cases.	Well.	Almost Well.	Much Improved.	Slightly Improved.	Not Improved.
60	12	17	25	5	1
	20 %	28.3 %	41.6 %	8.3 %	1.6 %

With regard to the after-history of the cases, these ultimate results might be tabulated as under :

Continue Well and at Work.	Improvement Maintained.	Relapsing.	Lost Trace of.	Died.

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PROCEEDINGS OF SECTIONS.

SECTION OF SURGERY.

Sir CHARLES BALL, M.D., F.R.C.S., President.

ON SIXTY-SEVEN CASES OF CONGENITAL
CLEFT PALATE TREATED BY OPERATION :

WITH SPECIAL REFERENCE TO THE AFTER RESULTS.

By JAMES BERRY, B.S., F.R.C.S.,
Senior Surgeon to the Royal Free Hospital.

THE object of this communication is to give a faithful and detailed account of all the cases of cleft palate that I have treated by operation both in hospital and private practice. I propose to dwell upon those points in the operative treatment which seem to me to be of importance; and in the accompanying tables I have endeavoured to indicate the ultimate results which have ensued as regards the condition both of the palate and of the speech of the patients. I hope that I may thereby induce other surgeons who operate on different principles and by different methods also to give us similar details of their cases. By these means we may hope eventually to be in the possession of much-needed information as to the comparative merits of the different operations now in vogue. The advantages of some of the methods which have lately been somewhat loudly advocated seem to me to rest at present more upon theory than upon actual evidence. I refer more especially to the so-called flap operation of the late Mr. Davies Colley and others, to the operations performed in early infancy, and to the operations involving wiring and forcible displacements of the superior maxillary bones. The advantages of these operations do not seem to me to have been at present proved by any one.

All my cases have been treated upon a uniform plan. I have never operated during the first twenty-two months of life, believing as I do, that some time during the third year of life is, in the vast majority of cases, the time at which the operation is undertaken with most advantage to the patient. In some few cases of delicate children and especially ill-nourished children in whom the soft tissues covering the palate bones are thin, it may be advisable to postpone the operation to a somewhat later date. But the cases in which it should be performed after 4 years of age are, in my opinion, extremely rare.

It will be seen from the table that in no less than 43 cases the patients had already passed the age of 4, so that the operation had to be performed at a period later than I should have desired. These were mostly patients on whom operation had been unsuccessfully performed by other surgeons, or had been declined by the surgeon or by the parents, or had been advised by surgeons or dentists to wait for obturator treatment in adult age or had been utterly neglected by careless parents. Most of these were sent to me after they had begun to attend school and when the grave inconveniences of faulty articulation had become more fully evident. I may say that in no case under the age of 20 have I ever declined to attempt an operation, however wide and unpromising the cleft; and that some of my cases were sufficiently unpromising, reference to the accompanying photographs will show. Nor have I ever advised treatment by mechanical apparatus rather than by operation in any patient under the age of 20.

With regard to the operation itself, I desire to claim no originality, except perhaps with regard to some minor details. New operations are not necessarily better than old ones, and are sometimes worse.

The operation performed in all my cases has been on the lines of that originally introduced by Langenbeck and Fergusson, and perfected in this country by my old master, Sir Thomas Smith, to whom, for all that he has taught me on this subject, I owe a debt of gratitude that I can never adequately repay.

Briefly, the operation consists in dissecting up a broad band of soft tissues from the hard palate on either side of the cleft, in detaching the soft palate completely from the posterior margins of the horizontal plates of the palate bones, and then, after these soft tissues have thus been brought down, in sliding them towards the middle line. Their inner edges are then united by sutures, either before or after lateral incisions have been made through the anterior part of the soft palate and posterior part of the muco-periosteum of the hard palate. By these means even the widest clefts in the hard palate can be closed, although more than one operation may be necessary.

Two points are essential for success. One is that the soft palate shall be completely detached from the posterior edges of the palate bones. If this is not done (even in most cases of cleft limited to the soft palate) the soft tissues in bad cases cannot be brought down enough to enable the edges to meet in the middle line. This separation must be effected by scissors much curved on the flat, introduced as shown in this diagram (Fig. 4). Experience has taught me that the more freely this division is effected the better will be the result obtained. Incomplete division is apt to prevent proper approximation of the flaps, and to cause failure of union. After the division has been effected by scissors in the usual manner, the corresponding side of the soft palate should be gently grasped with forceps and drawn towards and across the middle line. If it does not come readily the scissors must be reintroduced, and free division must be effected of a band of mucous membrane that will be found running from the upper surface of the soft palate to the outer side of the nasopharynx.

It is well to remember that in cleft palate there is no actual absence of tissues in the soft palate; the whole of the palate is there, only it is divided and drawn asunder like a pair of curtains. By grasping the soft palate on either side with a long pair of forceps and drawing it towards the middle line, the restraining folds of mucous membrane are put upon the stretch and may readily be divided without the least fear of wounding any extra-pharyngeal structure, among which, I fancy, the internal carotid artery looms unnecessarily large in the mind of the inexperienced operator.

The other point which demands consideration is the position and extent of the lateral incisions that must be made to relieve tension and to temporarily paralyse part of the soft palate (see Figs. 6, 7, 8). In ordinary cases in which the cleft is not very wide these incisions should be made after the palate has been sewn up. In cases of very wide cleft they must be made before the edges can be approximated. In my earlier operations I used to make these incisions too near the middle line from fear of wounding the posterior palatine artery, and too far forwards from fear of encroaching too much upon the soft palate, and thus endangering the vitality of the flap.

Of late years I have come to pay little or no attention to the palatine artery. I cut close to the teeth, and often right across the artery near its exit from the palatine foramen. One rule with regard to haemorrhage I consider important, and that is, that if a smart haemorrhage occurs, the knife should not at once be withdrawn, but should be made to cut a little further, so as to ensure that the vessel, whether artery or vein, is completely divided. A sponge is then quickly clapped on to the bleeding part, and pressure thus exerted quickly stops the haemorrhage. I may add that I have never had any serious trouble with haemorrhage, either primary or secondary, in any of my operations. The lateral incision should extend as far backwards as the middle of the soft palate at its junction with the lateral wall of the pharynx.

It should not extend nearly as far forwards as is represented in many textbooks. It is seldom necessary to carry it further forwards than the first or second premolar tooth in young children, or the first or second molar in older children who have cut these teeth.

In a recent textbook of surgery there is a beautiful diagram of a lateral incision extending from close to the incisor