

of newborn and infants, and the creeping, sitting and standing child.

Illustration of this mechanism by diagrams, measurements and photographs of stillborn, and by photographs of infants and children.

Illustrations of continuity of this mechanism in the adolescent and adult by diagrams, measurements and photographs.

(To be continued.)

#### WHAT SHOULD BE THE ATTITUDE OF PUBLIC SANATORIA TOWARD CASES OF TUBERCULAR LARYNGITIS; WITH SUGGESTIONS AS TO THE GENERAL PLAN OF TREATMENT OF SUCH CASES IN SANATORIA.

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VIEWED from the standpoint of its literature for the last few years, the workers in the field of tuberculosis can be divided into two classes with somewhat different points of view, though dealing with the same general problem.

First, that class of workers who treat tuberculosis purely from the standpoint of an affection of the lungs, with the knowledge that it secondarily involves other organs, but who in the main disregard those organs either as etiological factors or to be specially considered from the therapeutic standpoint; and, secondly, the distinctively special workers in the diseases of the upper air tract, who treat and write of tuberculosis as they see it, namely, as affecting the larynx, the pharynx and the nose. Very little on the subject of the laryngeal aspects of tuberculosis can be found in the writings of the first class, and relatively little as to the pulmonary side of it in the writings of the second. It has seemed to me that there should be more community of effort in the ranks of the two workers, and that the laryngeal aspect of these cases was being decidedly neglected by phthisiologists in general. I believe, therefore, that it is time for the public sanatorium and the workers in behalf of it to take more into account the laryngeal side of these cases, not only as regards treatment, but as regards early diagnosis as well, and that the phthisiologist and the laryngologist should work together, or else that the phthisiologist should be, from a diagnostic standpoint at least, sufficiently trained in laryngology to make a proper laryngological examination of every case on which he passes an opinion, and be competent to properly treat the laryngeal complication should it be present.

Unless I am very much mistaken, the average sanatorium physician and the average sanatorium is inclined to discriminate against cases of laryngeal tuberculosis as regards the admittance of patients, and is very seldom properly equipped to care for them if these lesions happen to affect any of the patients under their care. Most sanatoria either make no provision for the treatment of the throat complications of tuberculosis, or, if they do, do so only in a half-hearted manner, and seldom have properly trained assistants for

this purpose. On looking over a number of reports of public and private sanatoria, I find almost no reference to the laryngeal complications, although now and then an announcement of a private sanatorium will state that it has a well-equipped throat room, and a picture of such a room may be given, equipped with more or less impressive looking apparatus, yet in the statistics no mention will be made of the presence or absence of tubercular laryngitis, nor do I think that in the routine examination for admission, the larynx is, as a rule, examined.

In 1901, the German government published and distributed at the British Congress on Tuberculosis the results of the treatment of 6,273 patients treated at 31 sanatoria. I can find no reference in this report to laryngeal tuberculosis at all, nor does any mention of the throat occur in the copy of the statistical card used by the Imperial health board, though there is a column for complications of all kinds. In the application blank of our own Massachusetts State Sanatorium there is a line for condition of the throat, but a search of the reports and the publications emanating from the sanatorium, so far as I have had access to them, would seem to show that in the past at least, this factor in tuberculosis has not had much prominence given to it, as I find no reference whatever to such a thing as laryngeal tuberculosis.

From the little which will be found in the publications of the general phthisiologist on the laryngeal side of this subject, it would seem as though laryngeal tuberculosis could almost be ignored as a prominent factor in the disease, yet when one turns to the writings of the distinct specialists in throat diseases, one finds a mass of literature devoted to it. Statistics as to the absolute frequency of laryngeal tuberculosis are frequently unreliable because the average case of consumption does not have an examination of the larynx made unless the laryngeal symptoms are so manifest that the patient's physician or his friends send him, sooner, or later, to the laryngologist. Such statistics as I have been able to find would seem to show that the relative proportion is at least as high as 15% to 20% in which there are positive laryngeal lesions, and some statistics give it very much higher. Habershon examined the records of post-mortem examinations at Brompton for ten years and found 1,255 cases of pulmonary tuberculosis, 853 in men and 402 in women. Among them 595 cases of tubercular laryngitis were recorded, about 48%, of which 116 only were in females.

For the last year and a half all of the patients entering the Massachusetts State Sanatorium have had a laryngeal examination made, and the results of such examination recorded. No reports have been published nor have they as yet been tabulated, but I am informed that the proportion of patients showing laryngeal lesions would not be anywhere near as high as above stated.

In a paper by W. Jobson Horne, of London, presented at the annual meeting of the British Medical Association at Leicester, in 1905, he refers to a clinical and pathological research which was

commenced in 1893, the results of which were communicated to the British Medical Association in 1898. "These results showed that 97% of the cases of phthisis experienced symptoms referable to the larynx at one time or another in the course of the disease, and the investigation further went on to show that the routine examination of the larynx, in persons suffering from symptoms suggestive of early pulmonary disease, would often enable a diagnosis of phthisis to be made at a time when the stethoscope yields no evidence, and that is at a time when the physician can be of the greatest service to his patient."

"Side by side with this clinical investigation there was a pathological one on subjects dead from pulmonary tuberculosis, but in which the larynx presented post-mortem no evidence of disease to the naked eye. The results of that laboratory research showed lesions in the deeper structures of the larynx which fully accounted for laryngeal symptoms during life."

"Further investigations, since conducted on similar lines, have confirmed the conclusions that were then arrived at, namely: that an early diagnosis was essential for the arrest of the disease in the larynx and the lung, and that of the various aids employed in arriving at an early diagnosis, the laryngoscope was deserving of more routine use. The laryngoscope, the clinical thermometer, the weighing machine, and the carbol fuchsin must be the physician's first aids at a time when he can be most useful. The stethoscope is helpful in forming an approximate opinion of the extent of destruction occasioned by the disease, but is of very little help in arriving at an early diagnosis."

Whether the larynx may be primarily involved or not is a question which has had very much consideration among laryngologists, with substantially the following results, namely: that primary laryngeal tuberculosis does occur; that the infection enters either directly through an abraded surface, as secondary to certain other laryngeal surgical procedures, or that the bacillus takes direct lodgment in some of the spaces around the larynx. The number of authentic cases of primary laryngeal tuberculosis is few, so few that so far as the mass of cases of tuberculosis are concerned, these may be neglected entirely. As a rule, the disease in the larynx progresses at the same time with that in the lungs, and when the disease in the larynx shows marked changes, that in the lung has advanced in a similar manner, the infection in the larynx being secondary to that of the lung, and the infection of the larynx may have taken place at a very early stage in the disease. The parts infected are those portions of the laryngeal mucous membrane which are most abundantly supplied with glands, namely: the arytenoid region, the inter-arytenoid space, the ventricular bands, the tip and cushion of the epiglottis and the folds connecting the epiglottis and the larynx. The cord itself, or rather its essential part, seems to be infected, as a rule, secondarily, as this part of the cord is covered with squamous celled epithelium and so devoid of glandular structures. The

hoarseness is usually due as much to interference with the phonating mechanism by involvement of the ventricular bands, the arytenoids and the inter-arytenoid space as to direct involvement of the cord. The point most apt to be affected in the very early stage is the inter-arytenoid space, that is, the posterior area where the outwardly expectorated sputum would be most apt to lodge, and a point especially subject to stress and strain, and, at the same time, abundantly supplied with glands, the tubercle bacillus probably gaining access through the ducts of the glands and developing in the submucosa. The process is preceded probably in every case by a catarrhal inflammation which makes the delicate vascular membrane more sensitive than usual to the invading tubercle bacillus, especially if the recovery from the acute or subacute laryngeal inflammation be incomplete. Statistics show that the larynx is most often affected in those whose occupation entails excessive use of the voice and in those who live or work in a dusty atmosphere, and as shown by the Brompton statistics, is found twice as often in men as in women. It is especially common in Vienna where there is a great deal of fine irritating dust. In the Vienna laryngological clinics laryngeal tuberculosis can be studied in all its phases.

The diagnosis in the very early stage may present some difficulty. The larynx along the vocal cords will be usually anemic, with hyperemia of the arytenoids, and a degree of hoarseness sometimes which seems out of proportion to the apparent local lesion, and due to a general muscular weakness of the larynx. Following this there is a slight elevation in the inter-arytenoid space, followed by a small, cauliflower-like excrescence or by a general thickening, and producing considerable local irritation from scraping and hoarseness due to inability to bring the two cords absolutely parallel. Later the disease will develop along two lines, either a general infiltration without ulceration, where the arytenoids will become round, dome-like bodies or club shaped; the false cords swollen, hyperemic and meeting in the middle line before the true cords meet, or an infiltration with new growth followed by a true ulceration of individual areas with localized breaking down of tissue, the other parts being relatively unaffected. As the disease progresses, one or the other or both of the arytenoids and perhaps the epiglottis becomes involved, together with the aryepiglottic folds. At this stage the clinical picture will have some resemblances to that of carcinoma of the larynx. This, of course, is of a later stage and covers a class of cases which the sanatorium would not be expected to take at all, and, therefore, hardly to be considered at the present time, where I am concerned in taking up only the early lesions and those which, it seems to me, the sanatorium should take cognizance of and properly treat. These are the milder types of ulceration affecting the arytenoids, the new growths and excrescences of the inter-arytenoid space, the vocal processes, where the arytenoid is attached to the cord and the false cord. These

may all be affected in the early stages of the disease.

Jonathan Wright states that no diagnostic description of these lesions can be given whereby a person could, with certainty, distinguish them. They have to be learned by actual practice on the patient. Hence, if the cases of laryngeal tuberculosis are, as the laryngologist believes, much more frequent than the phthisiologist has hitherto taken notice of, the diagnosis and treatment of the laryngeal lesions should have a much larger place in the therapeutics of tuberculosis than it has previously had.

In the later stages the treatment of the laryngeal manifestations is decidedly discouraging. In the earlier stages with limited lesions, these can be surgically removed or treated directly by medicinal agents with gratifying success. Furthermore, many of the methods of treatment for the laryngeal trouble will materially modify the pulmonary condition as well, and many medicines, by means of a proper laryngeal technique, can be introduced directly to the lung without much discomfort to the patient. This is especially true of the early cases where sanatorium treatment should be especially valuable; rest of the larynx — open-air living — ample food, antiseptic inhalations and mild astringents direct to the larynx, together with such drugs as seem to have direct effect upon pulmonary metabolism, such as the hypophosphites of lime and soda. Anemia should also receive its appropriate treatment, and if emaciation, fats. The cough should be allayed so that it ceases to be a constant irritant. In my own experience I have found nothing so valuable for the cough as small, repeated as needed, doses of sulphate of codeia.

The simple ulcerations can be destroyed by medicinal caustics or by the galvano-cautery, and of the remedies most useful, lactic acid and parachlorophenol easily take first rank. Lactic acid seems to have the power of not injuring any of the rest of the mucous membrane with which it comes in contact, and to have distinct action on the tuberculous tissue, while the phenol supplements the action of the lactic acid. I published several years ago a number of cases of laryngeal tuberculosis markedly benefited by this method of treatment, and later experience has only confirmed the views then held. Where there is a manifest excrescence, and the patient can be gotten at all tolerant, I believe the Krause double curette is the most effective of all methods for directly removing the tubercular tissue, and to one skilled in laryngeal technique, does not present insurmountable obstacles. Following the surgical procedure the lactic acid and phenol should be used for the time being in order to further destroy any tuberculous tissue which the curette has failed to remove.

For those cases which show only moderate degree of laryngeal involvement, either hyperemia of the arytenoids or anemia of the cords, and who have more or less hoarseness and considerable irritating cough, solutions of antiseptics such as menthol in 1% guaiacol, creosote and the whole

list of those which might be mentioned, can be very easily gotten into direct contact with the larynx either through the laryngeal syringe, or what is by far the best thing gotten up, the De Vilbiss compressed-air laryngeal syringe. This requires only the smallest current of compressed air; the patient can easily be trained to inhale at the proper moment; the cough follows immediately afterwards, but only a small portion is expelled, and the remedy is brought into direct contact not only with the larynx, but with the diseased lung as well. Even opiates can be given this way, as well as orthoform if necessary for the later stages where laryngeal anesthesia is necessary, and under treatment laryngeal lesions may appear to be cured even where there is no absolute cure. This is well worth while since the laryngeal lesions when present often trouble the patient very much more than the pulmonary ones, giving rise to much more discomfort and pain and more urgently needing palliative treatment, and if the laryngeal condition can be kept in abeyance so far as its direct irritation is concerned, the comfort of the patient is very much improved. Taken early these measures produce results which are fully commensurate with the time and skill required, and it seems to me should be just as much a part of the sanatorium treatment as any of the other measures instituted in behalf of the cases.

The question of cure here, as elsewhere, in tubercular conditions, has a varying meaning. Strictly speaking, it can only be applied to either pulmonary or laryngeal lesions where the disease has either become absolutely quiescent, or the diseased area has become replaced by cicatricial tissue. The question or not as to restoration of voice where there is marked hoarseness will depend entirely on the muscular involvement, the condition of the vocal cords, and the fixation of the arytenoid cartilages. If the arytenoid is free to move and the other lesions are not extensive, pretty complete restoration of the voice may be hoped for.

The tubercle bacillus is not always found in the removed tissue, or may not always be demonstrated in the laryngeal secretion when there can be no reasonable doubt as to the diagnosis. This, in no way, militates against the probability of laryngeal tuberculosis when the other symptoms are present. The ideal treatment of laryngeal disease, according to Jonathan Wright, is one in which the local measures can be judiciously and helpfully carried out during the continuance of climatic treatment.

As the state of Massachusetts is endeavoring, at great expense, to cure the early and incipient cases of pulmonary tuberculosis, it seems to me that the question as to the care and proper treatment of the laryngeal complications should be more seriously taken up than it has ever been, not only for the care from the patient's standpoint, but also for the scientific results which it may be possible to obtain along this line. This is especially so since these cases are especially suitable for sanatorium treatment where silence and a

proper regime can be carried out. So far as the admittance of cases is concerned, I do not think that the state has any right to refuse apparently favorable cases because they chance to have laryngeal lesions, but should provide proper facilities for their treatment.

The state of Massachusetts has the largest and probably the best equipped tuberculosis clinic in the world. Statistics and carefully tabulated information on all phases of the tuberculosis problem should come from such an institution for the information and guidance of the mass of the profession. Its annual medical reports should be real contributions to the literature of tuberculosis, and not, as now, a mere statement of the number admitted, number discharged, arrested, improved and not improved. Monographs covering the questions of diet, hemoptysis, the various medicines which are advantageous; in fact, the various phenomena of the disease should be regularly published as parts of such reports. If that were done, in a few years a series of the reports would be a valuable library on tuberculosis, useful to every physician, while at the present time the medical reports are practically worthless so far as being of any use to the profession in general is concerned.

At least one of the resident physicians of the state sanatorium should be a trained laryngologist with a sufficiently good laryngeal technique to do whatever may be necessary in the way of treatment or minor surgical operations, and the initial examination by the examiner for admission should not be considered complete until a careful examination of the larynx has been made, and no person should be considered a proper candidate as an examiner for this institution who is not himself either qualified to make such an examination or who is not willing either at his own expense or at the patient's to have such an examination made by a competent laryngologist. Until this is done, mistakes will be constantly occurring, and a valuable aid both in prognosis and treatment will be lost.

At the meeting of the British Medical Association, to which I have already referred in the quotation from Dr. Jobson Horne, Mr. Harold Barwell, of London, read a paper on "The Choice of the Method of Treatment in Cases of Tuberculous Laryngitis, With a Plea for the Routine Inspection of the Throats of Consumptive Patients," the conclusion of which is so entirely in accord with my own feelings in regard to the subject, that I wish to quote it entire as my own conclusion.

"Although tuberculous laryngitis is found principally in an advanced stage of pulmonary phthisis, yet it occurs much more often at an early stage of consumption than is believed by the profession in general. Then, again, the disease not uncommonly leaves the cords at first unaffected, and may reach a somewhat massive degree of infiltration of the arytenoids before causing dysphagia, so that it may, and often does, give rise to no symptoms whatever until it is considerably advanced. For these three reasons: because it is common in all stages of

phthisis, because it may cause no symptoms to attract attention, and because the early stages are much more amenable to treatment, and also because it produces one of the most painful and distressing forms of death—I most strongly urge that all cases of consumption should have their larynges inspected at regular intervals and as a matter of routine."

## ACCIDENT LITIGATION—THE POPULAR "GRAFT."

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WHILE the American public has recently been interested in following the revelations of "graft," political and corporate, there has crept insidiously over the country, unnoticed save by its victims, a form of graft not only threatening the financial welfare of some of our larger business interests, but especially pernicious in that by reason of its temptation to conscious or unconscious perversion or exaggeration of fact, it is damaging to the moral integrity of the masses who are its most frequent perpetrators.

I refer to the wide-spread and constantly increasing demands for exorbitant sums as compensation for real or fancied injuries resulting from alleged negligence of corporations or individuals. There can be no doubt that the mechanical age in which we live, the haste of modern civilization, the enormous traffic of our common carriers, all tend to largely increase the liability to accident. Neither can there be question that those concerned in enterprises involving risk to others should be made to pay for any neglect of duty in safeguarding the health and life of those under their care. Nevertheless, one must to-day stand aghast at the wholesale litigation which seems almost epidemic.

The rapid and steady spread of the accident litigation mania is well illustrated by the somewhat startling statistics obtained by E. Parmelee Prentice, from an examination of the records of the Chicago courts. In 1875, there were altogether about 200 personal injury suits pending in Cook County. During the first six months of 1890 the number of these suits brought in Cook County was 346, the total damages claimed being \$2,814,860. During the corresponding six months in 1896, the number of such suits brought in Cook County was 893, and the total amount of damage claimed was \$13,510,000. It would be reasonable to assume from these figures that there are now pending in Cook County 3,600 of these cases, and that the damages claimed are between \$50,000,000 and \$60,000,000. Of course this enormous increase is out of all proportion to the increase in the number of accidents.

As illustrating the extent of the epidemic in our own territory, let me quote from a letter recently received from Mr. Russell A. Sears, General Attorney for the Boston Elevated Railroad, in courteous response to my inquiries. He writes: "The average cost to this company