4. In the old method there is considerable pain and discomfort until the splint is removed; in the submucous there is no postoperative pain.

5. In the old method of operating the patient is confined to bed for several days, and is uncomfortable and feverish until the splint is removed. After the submucous operation the patient is out of bed at the end of twenty-four hours, and at the end of forty-eight hours is practically well.

6. The old method is rarely attended with perforation. I have had only two in my whole experience. Theoretically, the submucous method should be attended with like results; practically, perforations do occur. After performing one hundred and ninety operations by the submucous method and nearly twice as many by the older method, I have become firmly convinced that the submucous method offers the greatest advantages to the patient afflicted with a deflected septum, in the hands of an operator thoroughly skilled in its technique. I know of no operation wherein unskilled and inexperienced hands can do more harm than by this operation. I feel as though I am becoming a strong advocate of the submucous operation, because it gives less discomfort to the patient, it taxes the skill of the operator, and, when satisfactorily done, gives excellent results.

THE FURTHER REPORT OF A CASE OF TRACHEAL SCLEROMA.

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Two years ago I presented to the American Laryngological Association the history of a case of scleroma of the larynx.¹ Ten months later there was a recurrence of the growth and the patient presented herself hoarse and with dyspnoea very marked, and gradually becoming worse. Noting the remarkable results obtained in other cases of external rhinoscleroma by the use of the Röntgen-rays, I felt that their application direct to the part through an opening in the trachea might have a curative effect. In any event tracheotomy was becoming daily more necessary, and if benefit was not to be obtained the patient would be compelled to wear the tube, as had others before her, to prolong her life.

The patient readily consented to the operation and subsequent direct treatment by the Röntgen-rays, and on March 25, 1907, she

¹ AMER. JOUR. MED. SCI., 1907, cxxxiii, 751.

was admitted to the Mt. Sinai Hospital, in the service of Dr. A. G. Gerster.

The following are the notes of the examination by myself, on March 28: In the nose half way back on the left side is a grayish-white mass which bleeds very readily when touched and is covered with thick secretion. This mass does not occlude the nose on that side. On the right side is another similar mass partially occluding the nose. In the trachea, below the cords, on a level with the cricoid cartilage, is a mass attached to the wall of the trachea and extending downward. This is an extension and continuation of a condition existing for over a year under my observation, and is a scleroma of the larynx verified by the pathologist's report. The diagnosis is increasing tracheal stenosis due to scleroma, with secondary involvement of the intranasal mucous membrane.

Physical examination on March 30 showed: A fairly well-nourished young woman; facies somewhat dyspnoeic; hoarseness; respirations stridulous, difficult, gasping, and considerably prolonged in both phases; percussion signs somewhat diminished, especially posteriorly at the bases; apices free; vocal fremitus diminished; voice and whispering sounds diminished below in front and over the bases posteriorly; numerous sonorous and whistling rales over both lungs, anteriorly and posteriorly; in the axillary regions and over the bases posteriorly numerous moist rales, increased after coughing.

On March 30 Dr. A. G. Gerster did an extensive tracheotomy. The incision extended three and one-half inches from the lower edge of the thyroid cartilage to about three-quarters of an inch above the sternal notch. The isthmus of the thyroid was tied off in two places and divided between ligatures. The cricoid cartilage and tracheal rings were incised, bringing into view the tumefaction of the posterior and lateral aspects of the trachea. The newgrowth was grayish white in appearance, resembling soft mucous polyps readily breaking down, and extending one and one-half inches below the larynx. A large tube was introduced and packing about it to keep the wound open.

On April 1 the packing and tube removed. The edges of the wound were held apart by retractors, and under chloroform anesthesia there was a five-minute exposure to high-frequency current at a distance of eight inches.

April 3: has had frequent paroxysms of coughing. Whenever she sits up, is fed, dressed or in any way disturbed, these coughing spells occur, and frequently vomiting ensues. These phenomena were not present before x-ray treatment.

April 9, 12, 15, and 17: X-ray treatment by Dr. Stern, five- to six-minute exposures.

April 20: The growth has greatly decreased in size, and the trachea looks much wider. Has had no more vomiting and her

tracheal reflexes are less active. It is now possible to dress the wound and clean the tube without exciting coughing spells as formerly. X-rayed on the 22d and 24th.

May 10: Patient has had three or four x-ray exposures a week; an examination of her larynx by myself showed an absence of any tumefaction, and I recommended permanent withdrawal of the tracheotomy tube and further treatment externally. Voice now normal and no dyspnoea.

On May 11 the tube was removed; she remained until May 17 when she was discharged from the hospital cured. During her stay in the hospital her temperature never arose above 100.5°. After the first few times no chloroform was given prior to x-ray treatment. Urinalysis frequently made showed neither albumin nor sugar.

Examination April 12, 1908: Until the present time the patient has been in normal condition without dyspnoea, hoarseness, or cough. She has been attending to her work with regularity and only appears now at my request for examination. Her general condition is good, respiration normal, and she says that except for occasional nasal obstruction she is entirely well. On the right side of the nose about the centre of the inferior turbinate is a small pink mass which probably interferes slightly with her breathing. On the left side, on the septum at the floor, is a roundish mass about the thickness of a small hazel nut. This was removed with a cold wire snare and was about one inch in length. There was but a slight bleeding.

Examination of the larynx and trachea showed perfectly normal conditions.

More than a year has now elapsed since her operation and subsequent treatment, and no sign of recurrence is visible within the larynx or trachea, and we may justly consider her as cured of her most threatening condition.

The benefits of the x-ray application to external scleromas have been known, and now we can show its utility in local conditions that we are able to reach in a direct manner. Should a recurrence be present we might reasonably expect good results by external application of the x-rays over the cicatrix, this not presenting the same resistance as the normal tissues would; that failing it would be easy to reopen the old wound and make local application again.

I wish to express my thanks to Dr. A. G. Gerster and to Dr. Samuel Stern for their cordial coöperation and active interest in the surgical and x-ray treatment of the patient.

THE PRESENCE OF TUBERCLE BACILLI IN THE CIRCULATING BLOOD IN TUBERCULOSIS.¹

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THE principal reason for taking up a bacteriological study of the blood in tuberculosis was to determine whether a previous assertion, made in connection with my article on the presence of tubercle bacilli in the feces, was correct. This assertion was that, considering the entrance of the tubercle bacillus into the human economy, "the number of bacilli is not large, and they find their way to the blood and lymph stream; and during their transit some are discharged through the feces and others through the urine." Again, after examining the contents of 22 thoracic ducts from subjects dead of tuberculosis, tubercle bacilli were encountered in 72.7 per cent. This occurrence also led me to believe that all forms of tuberculosis are characterized by a bacteremia.

Some observers have been successful in obtaining cultures of the tubercle bacillus from the blood in cases of acute miliary tuberculosis, but the instances are not numerous. The studies undertaken by me were at first to prove that tubercle bacilli are present in the blood in all cases of tuberculosis, and to determine if possible the presence of organisms in the so-called mixed infections in the late stages of the disease.

Numerous clinicians have asserted that the termination of cases of pulmonary tuberculosis is accompanied by infections of the pneumococcus, *Streptococcus pyogenes*, staphylococci, and *Bacillus pneumoniae*. My own observations from examinations of the blood previous to the present study were usually negative as regards these mixed infections, as I never obtained any other organism besides the staphylococcus in quite a number of cases, even in those of tuberculous pneumonia. The occurrence of the staphylococcus was not considered as a possible infecting organism, but was usually looked upon as a contaminating organism from the skin.

In making up my list of cases for this research I first selected those who were bedfast and who presented advanced tuberculosis or cavity formation; then cases of acute miliary tuberculosis; and lastly, instances of incipient tuberculosis.

The technique for the demonstration of tubercle bacilli in the blood was as follows: About 5 c.c. of blood was withdrawn from a vein of the arm, and this was immediately placed in an equal quantity of a

¹ Read at a meeting of the Pathological Society of Philadelphia, December 10, 1908.