LARYNGECTOMY. SPECIMEN. METHOD OF ARTIFICIAL VOICE PRODUCTION.*

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The larynx which I hand you for examination was removed from a patient, male, 60 years of age, December 29, 1908. The operation was performed after the method of Gluck, viz., the trachea was sewed to the skin. I had the valuable assistance of Dr. Kiliani at the operation as well as during the after treatment, which proved to be an assurance as to the proper execution of the operation, when the fatal issue came.

It has been frequently stated that such operations ought to be reported, if successful or unsuccessful, as only in this way can reliable statistics be obtained. Aside from this desideratum, the case presents some additional interesting features, which I shall briefly mention.

(1) The previous diagnosis before I saw the patient, as to the nature of the ailment, which, if based on some clinical observations, was certainly overshadowed by the true lesion.

(2) The small size of the growth after extirpation and opening of the larynx, when we are accustomed to see generally in the specimen a larger tumor than by the inspection with the laryngoscope.

(3) The manifold steps to relieve the patient, who had an unusual fortitude of character, and showed unbounded confidence.

I shall condense the history as much as possible, and give only the salient points.

Early in the summer of 1908 one of our most competent colleagues had seen the patient and detected a small growth in his larynx, the nature of which he could not positively determine. Instead of returning to him after a month, as he was told to do, he went to a southern health resort, as far as I could learn, on the advice of a physician, who had previously treated his throat ailment. The southern physician thought to find symptoms of tuberculosis, in which belief he felt justified by slight exacerbations of temperature and a moderate reaction after tuberculin injections. But the laryngeal condition after several months became so aggravated that he recommended him to call on me for relief.

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I saw him for the first time on October 13th, 1908, and found the left half of his larynx filled with an irregular and apparently soft growth extending down to the glottis, and a circumscribed, pea-sized growth above the right ventricular band. The tumor did not impress me as being of a tubercular nature, and I also never found at that time, nor later, any symptoms of tuberculosis. As I could not commit myself to a positive diagnosis, I told the patient that excision of some specimens was necessary for microscopic diagnosis, but impressed upon him at once that he would have to consent to a major operation, if malignancy was found.

He returned next day, several pieces were excised, those of each side put in different bottles, and the patient went home the next day. The microscopist's report was that cancer existed on the left side, whilst at the right side only pachydermia was found.

This statement of a unilateral involvement made me believe that I was justified in removing the growth by laryngotomy, which was done one week after his first visit, and in which the left side was radically exenterated and the major part of the right ventricular band also removed. He recovered from the operation without untoward sequelae, and left home after a few weeks, no tumefaction being visible, but some mucopurulent secretion persisted. The tracheal and laryngeal wound had completely healed.

As far as I know, he had no active treatment while at home, but after ten days he wrote me that he was restless at night and not breathing as well as when he had left. When he returned I was greatly shocked to find the same encroachment on the larynx as at his first visit, but the growth was now mainly confined to the right half, and formed an irregular mass with peg-like protuberances. Immediate relief was necessary, and I removed at once eleven or twelve pieces endolaryngeally, chiefly from the right side, one from the anterior commissure and one from the posterior wall. The reaction after this operation was considerable, which did not give the patient the free breathing space which otherwise the removal of the growths had permitted. This condition gradually subsided under local treatment, and twelve days later the patient said that he had not been feeling nor breathing as well for six months past.

The microscopic examination showed unmistakable cancer, but the patient felt well, ate well and gained in weight. It was therefore deemed best to defer laryngectomy, to which his consent had been obtained, as long as he was improving, or till the growth would recur, which was observed three weeks later.

The operation was made in the usual manner, the trachea opened and sewed to the skin, the larynx liberated from the oesophagus and the surrounding parts and excised. There was no difficulty in uniting the pharyngeal mucosa.

For several days the patient progressed very favorably and swallowed small quantities of milk on the fourth day. On the fifth day—the skin having united—a pocket was found under the skin above the tracheal opening leading upwards on the right side of the throat, but till evening of the seventh day, aside from the above focus of infection, his chances for recovery were in his favor. During the night he had a violent coughing spell, after which he became somnolent and could not be roused any more, and he died next day at 11:30 a. m.

No autopsy having been made, the immediate cause of his death is most probably a pneumonic process, possibly embolism.

It was my intention later on to teach the patient exercises, devised for and apt to produce the so-called pseudo-voice, which quite a number of patients have acquired after laryngectomy, either spontaneously or after proper instructions.

The ability to speak in cases of occlusion of the larynx in consequence of morbid processes or of suicidal attempts has been known for several decades. The first case of voice production after laryngectomy was reported by the late H. Schmid¹, of Stettin, 1888, and the patient was demonstrated by J. Wolf,² 1893, before the Berlin Laryngological Society, on which occasion B. Fraenkel gave an explanation of the process. The second case is the well-known patient Hickey, operated upon by S. Solis Cohen,³ April 1st, 1892, and shown in October, 1893, to the Philadelphia Medical Society. The patient's voice was distinct and loud enough to be heard across a large hall; he allowed himself to be shown in many cities and societies, and one of our confreres took him (1895) to England for demonstration at the British Laryngological Association. The two patients of Schmid and Cohen learned to speak spontaneously without any medical advice or training.

The two cases reported by Gottstein,^{4 5} of Breslau, received instructions, based in the first one on an observation made by the patient himself, the second one by methodical instructions, derived from the former experience. His first patient learned to pronounce vowels spontaneously, when he bent his head down, till his chin rested on his chest. Advised by Gottstein to continue his efforts after he had left for his home, and to endeavor to produce a

sound when raising his head, he could, when seen four months later, pronounce all the vowels in a natural position, and one year after the operation was able to produce different tones and sing a simple song. By utilizing the observations made in this patient, Gottstein succeeded in teaching the second one an audible voice within six and a half weeks after the operation.

In an elaborate paper on Voice and Speech without Larynx, read before the Vienna International Laryngological Congress of 1908, Dr. H. Gutzmann,⁶ of Berlin, speaks at length about the history, the different modifications, the necessary anatomical requisites and the method to be pursued for artificial voice production. The opportunity of giving instructions to patients operated upon by Th. Gluck gave him a large experience in this line.

The first requirement for tone production is the creation of an artificial receptacle of air, an air-chamber, as the pulmonary air can no longer perform this function. The majority of patients succeed in producing this air-chamber by pumping air into the hypopharynx by repeated swallowing, which Gottstein's patient was able to do thirty times in succession. In this manner, in patients learning to speak, an air-chamber is created in the hypopharynx, which chamber is located below a space which can be narrowed by will power, and which is capable of vibrations and tone production by the voluntarily emitted current of air from below.

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The Medullary Nerve Fibres in Cases of Nasal Reflex Neuroses.

V. WIDAKOWICH. *Monatsschrift f. Ohrenheilkunde*, Aug., 1905.

In a disputation over this subject, the author claims that he has investigated the question of the number of nerve fibres in the nasal mucous membrane of patients suffering from nasal reflexes, and finds that they are no more numerous than in the normal nasal mucous membrane.

YANKAUER.