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A CASE OF LARYNGECTOMY.

By Dr. J. SOLIS-COHEN. (*Reported stenographically by* Dr. MORRISON.)

AT a meeting of the Philadelphia County Medical Society held May 25th, 1892, Dr. J. Solis-Cohen exhibited a patient from whom the larynx and upper ring of the trachea had been removed for malignant growth projecting externally; and made the following remarks:—

Nineteen years ago this patient, a teamster, then twenty-five years of age, found that he was having some hoarseness of voice, which soon became associated with dyspnœa. This dyspnœa increased in the course of three years to such an extent that he was hardly able to breathe. He then came under the care of Dr. Lefferts, of New York, who found a large papilloma in the larynx, which growth he removed piece-meal by intra-laryngeal procedures. Dr. Lefferts reported the case in the "New York Medical Record" in 1876, and I pass around a copy, showing a picture of the growth at that time. For ten years the man remained in continuous comfort. Then recurrence of his former troubles ensued, and he had more or less difficulty for several years, and underwent various treatments. About a year or so ago he began to be much worse, and in January he applied for relief at the dispensary of the Jefferson Medical College. At that time he was suffering with great dyspnœa, a good deal of pain, cough, difficulty of expectoration and difficulty in swallowing. The picture of his larynx was almost exactly a reproduction of the picture that I have passed around, and which was taken in 1876, that is, sixteen years ago, but with this exception; the growth which occupied a large portion of the left side of the larynx, almost occluding it, was white

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instead of red, and had not the characteristic papillomatous appearance. The growth had penetrated the larynx exteriorly, and projected externally in a mass larger than an almond.

The history of the case led me to believe it to be a re-development of papilloma *in situ*, and not a recurrence. The dyspnœa was very great, and I made an appointment to perform tracheotomy, promptly; but being suddenly attacked with influenza, Prof. Forbes performed the operation for me at his own clinic, and inserted a tube. This precautionary tracheotomy was performed because I did not consider it safe to attempt a removal of the growth with forceps until we had provided a safety-valve below by means of the artificial orifice. Three or four weeks later I attempted to remove the growth by intra-laryngeal procedures. It was easy to catch hold of it with large forceps, and I removed a very curious structure which looked as much like a piece of codfish skin as anything else. After examining it I came to the conclusion that the forceps had grasped the tumour, but, unable to remove it, had peeled off the thickened epithelium. This was given to a microscopist to examine, and was reported to be a sarcoma. Finding that we could not remove the growth with forceps, we took the patient before the class, where, with the assistance of Dr. Forbes, I excised the external growth and then split the larynx, and removed every portion of the internal growth, scraping the parts thoroughly afterwards. The case did well for four weeks, when recurrence took place, and in less than two weeks the growth became almost as large as at the time of the original operation, grew more and more rapidly, and again protruded through the necrosed thyroid cartilages.

After explaining to the patient the dangers connected with a radical procedure for extirpation, and after consultation with the surgical members of the Faculty, I decided to excise the larynx. This operation was performed on Friday, April 1st, with the assistance of Prof. Keen and of Dr. O. Horwitz, chief of the surgical clinic.

The day before the operation I had the opportunity, through the courtesy of Prof. Forbes, to perform the operation on an uninjected subject. Dr. Forbes at that time made a suggestion which was carried out in the operation, and the excellent result of which you will see presently. This suggestion was, that after the larynx was removed, the anterior portion of the trachea should be split longitudinally for two or three rings, and that the lips so formed be stitched to the skin anteriorly, so as to present forward and keep the trachea in a favourable position.

There was a good deal of difficulty in the operation, owing to the cicatricial tissues and other changes of structure and relations of parts which had resulted from the previous operations. I was, therefore, unable to tie the laryngeal arteries before the extirpation, as I had proposed to do, but Drs. Keen and Horwitz looked after the bleeding while I went ahead with the excision. The incision was made everywhere through healthy structure. The diseased skin and enclosed morbid mass was circumscribed by elliptic incisions in sound skin joining a vertical incision from the hyoid bone above and region of the tracheal canula below, and then a transverse incision was made at the level of

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the hyoid bone so as to make a T incision and two lateral flaps. The incision was carried down to the periosteum, and the soft parts were then separated with Allis's dry dissector, which answered admirably. During this time anæsthesia was carried on by chloroform through the tube by means of a funnel and an india-rubber tube. When the larynx had been separated from the soft tissues, and I could get my fingers around it, I removed the ordinary canula and inserted a tampon canula to prevent, as much as possible, any entrance of blood into the air passages. For this purpose I used the Von Trendelenburg canula, but not the Trendelenburg system. Trendelenburg uses a rubber bag inflated with air. Air or water bags are very often opened by puncture during the operation. An hour or two before the operation I had moistened a piece of ordinary surgical sponge, and secured it around the canula, and over this place had tied a bulbous india-rubber tube. I have here the canula undisturbed, and although fifty-six days have elapsed since it was prepared, you see that the tampon is still perfect, and sufficiently pliable for immediate use. The patient's head was lowered as soon as this canula was introduced, and anæsthesia was subsequently kept up through the tampon canula, which leaked a little despite all efforts to prevent it. The epiglottis being healthy, I made an incision through the hyo-epiglottic membrane and cut the epiglottis square off. The larynx was then tilted forward.

Knowing that there has been difficulty in nourishing patients after operation, I had determined to save the entire œsophagus if possible, instead of severing it at the level of the cricoid cartilage ; and by careful manipulation I was able to strip the œsophagus from the mucous membrane, and the tips of the arytenoid cartilages down to the base of the first ring of the trachea, without perforating the œsophagus. The larynx, with the first ring of the trachea attached to it, was then severed from the trachea, and the trachea was stitched to the skin in two flaps, formed by the sides of the original tracheotomy incision, which had embraced the second and third rings. The tampon canula was then stitched to the integument to ensure its resistance to expulsion in coughing. The soft parts were then brought loosely together with sutures, without any dressing in the pharynx, and a soft rubber stomach tube was inserted into the stomach through an opening left in the upper portion of the dressing. This was so placed under the impression that there might be necessity to use it for introducing nourishment ; but it was found unnecessary, and it did some harm. An hour had been occupied in the whole procedure—anæsthetization, operation and dressing. The patient was then put to bed. He was carefully watched. I stayed with him for sixteen hours, and during this time I instructed a number of young men connected with the throat and surgical clinic of the hospital, how to take charge of the case. Two members of these staffs were with him constantly for eighty hours. Twice during that time the man would have died had skilled hands not been present to remove mucus from the tracheal tube. The advantage of having the canula stitched to the skin was well demonstrated upon these occasions. It is to the close attention of these young men for the first eighty hours, and to the admirable services

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of our chief surgical resident, Dr. Hager, that this man chiefly owes his life, for the attention after such an operation is far more important, in a clinical point of view, than the operation itself, all-important as it is. There was a good deal of oözing alongside of the œsophageal tube. On the third night this tube became detached, and we did not reintroduce it. Nutritive enemata were used for four or five days, and then we gradually began to feed the patient by the mouth. At each attempt at swallowing, a piece of gauze was held tight above the tracheal wound, and the parts pressed close together while the patient swallowed. There was a little trickling for a few days, but this ceased. It was interesting to watch the œsophagus during swallowing, before the external wound contracted. It was easy to see that the œsophagus opened when the man took water. There has been some doubt whether there is a mechanical distension of the mouth of the œsophagus in glutition, or whether there is some dilatory action of the œsophagus itself. In this case the œsophagus certainly did open, to receive the water at least The man has made an uninterrupted recovery. There has been no attempt made to use a voice tube, and for two reasons. In the first place I know of no one in this city competent to make one, and in the second place I do not wish to put anything into the wound that would irritate it until there should remain no doubt in regard to the question of non-recurrence.

You will notice in examining this patient that there is now no connection between the trachea and the nose. I wish here to call attention to an important physiological point. Of late years a number of German surgeons, Aschenbach and others, and notably MacDonald, of London, and Bosworth, of New York, have been making experiments in reference to the physiology of nasal respiration by the use of tubes, etc. They assert that the air of respiration becomes fully saturated with moisture in the nose, and that consequently, being saturated when it enters the lung, it can receive no moisture from the lung. Therefore, say they, physiologists are wrong in stating that moisture is exhaled from the lung. In this case there is no connection whatever between nose and lung ; and if you take a mirror and hold it over the tracheal opening, you will see that it becomes covered with moisture. In this case the lungs do exhale moisture. Of course, here the conditions are different from normal conditions. I only wish to call attention to this point, as it seems to show that the older physiologists were right. There is still a small fistula above, which I think will close without difficulty, but it has no connection whatever with the trachea.

From the history of this case I took it for granted at first that it was a papilloma recurring upon the seat of a former growth ; but when a portion of it was examined by a microscopist, it was pronounced sarcoma. After extirpation of the larynx, the growth is pronounced to be a cylindrical epithelioma or a destructive adenoma, or adeno-carcinoma, involving the arytenoid cartilages as well as the thyroid. You see it here in the specimen, nearly filling the cavity of the larynx, projecting from the left side mainly, but extending slightly to the right side, and penetrating necrotic portions of both wings of the thyroid cartilage, so as to present externally and

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involve the cutaneous surface likewise. Whatever it may be, there is no doubt of its malignancy.

The question whether benign growths are ever transformed into malign ones is important. It is the generally received opinion that benign growths are sometimes, by further irritation, converted into malign tumours. Semon's investigation into this point is greatly to the contrary, as far as regards laryngeal growths. Certainly, there was in this case no conversion of a papilloma into a malignant growth. The malignant growth became developed many years later upon the site from which a benign growth had been removed.

There is one clinical point that has been a revelation to me, and that is the freedom from pain, freedom from cough, and freedom from dysphagia. Should there be no recurrence in this case, we have every reason to be satisfied with the result. Should recurrence ensue, the patient will have been relieved from suffering for some time. A number of years ago, when I investigated this subject, I was opposed to the operation in the main, as I still am. This is an exceptional case, and it is only in exceptional cases that laryngectomy should be practised. At that time, Dr. Czerny wrote to me that if I could only see some of his patients, and witness how free from pain they were, I would believe that the operation was a justifiable one. This case verifies his assertion.

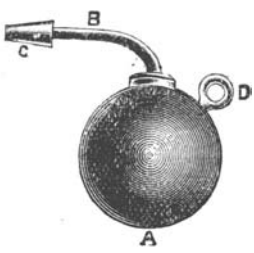
The patient is now wearing a single rectangular-like tube, with as large a calibre and as little paraphernalia about it as possible.

AURAL CATHETER STEAM STERILIZER.

By JOHN BARK, F.R.C.S.E.,

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THE accompanying woodcut shows, full size, a little instrument which I have used for some time for the purpose of cleansing Eustachian catheters before introduction. A is a metal globe to which is attached, by means of a screw, a bent metal tube B, which has a conical nozzle C, covered with rubber tubing; to the globe A is fixed a small ring D. The globe A is half filled with water, and the tube B screwed tightly; the large end of the catheter is placed on the nozzle C, and the globe held over a spirit lamp or other flame by means of a pair of forceps, or even a common wooden match pushed through the ring D.



A powerful steam jet is thus forced through the catheter, thoroughly cleansing it, and then it is immersed in some antiseptic fluid.

The sterilizer is made by Messrs. COXETER & SON, of 4 & 6, Grafton Street, Gower Street, London. Too great caution cannot be exercised with regard to the purifying of aural catheters; several cases have been

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