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REPORT OF A CASE OF INCISED WOUND OF THE THROAT, RESULTING IN CLOSURE OF THE LARYNX BY THE CICATRIX.

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[Communicated for the Boston Medical and Surgical Journal.]

THE following instance came under the notice of the writer while a resident physician at the House of Industry in 1847. It is deemed important as showing, in a marked degree, the serious results that may follow a wound of the larynx and its vicinity, dependent on the natural process of reparation, and as directing surgical attention more particularly to this point. The description, as given below, is obtained from notes of the case written down at the time, embracing a period of about four months from its commencement, after which the writer's connection with the Hospital ceased. Being never intended for publication, the details of treatment were not recorded. The subsequent history is gleaned from the verbal reports of those under whose charge the patient came. Tracheotomy was successfully performed by Dr. Charles H. Stedman, the Superintending Physician of the Hospital. Dr. E. K. Sanborn, the resident physician at the time of the patient's death, in 1848, conducted the autopsy, and obtained the beautiful morbid specimen from which the annexed cut was taken. The care and supervision of the patient, from the date of her first admission to the Hospital till July following, fell to the lot of the writer, who is answerable for the treatment of her case during this period, and holds himself responsible in great measure for its unhappy result. For the reasons mentioned, the subjoined report, as such, is meagre, and more general in its nature than could be wished.

F. G., the subject of this case, was a female, 25 years of age, in robust health, of sanguine and peculiarly nervous temperament, intelligent and vivacious, but whose habits of life, for a few years previous, had not been wholly unexceptionable. On the morning of the 18th of March, 1847, in a fit of mental depression, she attempted suicide, by cutting her throat with a common carving knife having a double edge at its point. The instrument being dull and the nerves of the operator unsteady, she achieved but partial success.

About 10 o'clock, of the same day, the patient was brought into the Hospital and came under our notice. She at this time exhibited great prostration and extreme nervous agitation. From the appearance of the

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wound, the head must have been thrown back when the incision was made, and the knife directed upwards. It consisted of a transverse cut between the cricord and thyroid cartilages, severing the crico-thyroid membrane and the alæ of the cartilage, nearly in the course of the oblique line which gives origin to the thyro-hyoidean muscle. About three fourths of the diameter of the larynx was divided, without injury to the œsophagus or any of the larger bloodvessels of the part. Two or three unimportant branches of the superior thyroid artery were divided, producing but little hemorrhage. The wound was jagged and uneven, and exceedingly difficult of coaptation. The patient was now placed in a partial sitting posture, the head and shoulders being raised and supported by pillows. The bleeding was easily arrested by the application of cold water. A couple of sutures were taken through the integuments at the extremities of the incision—the edges of the cartilage adjusted as accurately as the nature of the case would permit—a light cloth thrown over the neck, and the head brought towards the chest till the wound was nearly closed, and in that position confined by a bandage so as to allow as little motion as possible. A sedative draught was now prescribed, and attendants employed to watch the patient constantly. Ordered—demulcent drinks, only, by way of diet; the bowels to be kept open by mild cathartics, and absolute quiet preserved.

The inflammatory stage, though violent, passed off without any ill effect. A few nights afterwards, from inattention of the watcher, and while the uniting process was progressing favorably, the wound was torn open, but whether by design or accident, on the part of the patient, we could not learn. Much the same train of consequences followed as at first, though severer, and accompanied by an abundant secretion of ill-conditioned pus and mucus. The frequent and violent spasmodic efforts at coughing that resulted, produced much disturbance and retarded recovery. On healing, a marked cicatrix was left.

It was about five weeks from the time of admission, when the patient was discharged from the Hospital, and removed from the convalescent rooms of the House of Industry. Her health now being apparently good, and the weather mild, she was allowed to go about the grounds at pleasure. Nothing untoward was noticeable, except, at times, a rather difficult and stridulous respiration, which, it was *conjectured*, might be the result of constriction of the canal by the irregular cicatrix; but the peculiar hysterical habit of the patient offered also a sufficient explanation and left us in doubt. It produced but little uneasiness, and that only occasionally.

Shortly after, the patient was the subject of a violent cold, and this, being determined to the air-passages, revealed clearly what had before been only a matter of supposition, viz., the existence of a stricture in the larynx, at the point of the cicatrix of the wound. When medical aid was summoned, suffocation was imminent, in the violent effort made to throw off the abundant mucus. Tracheotomy offered the only mode of relief. This was performed by Dr. Stedman, in the following manner. The patient was placed on a low bed, with the shoulders slightly elevated, and the neck thrown back so as to make the parts tense. The

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operator, seated at her head, began by making an incision, with a double-edged bistoury, from a point just above the sternum to within half an inch of the cricoid cartilage, directly on the median line. The skin and cellular substance being now drawn aside by the hands of an assistant, another incision was carried deep between the sterno-hyoid muscles, as far down as the fascia which overlies the trachea. Considerable hemorrhage followed; but the nature of the case admitting of no delay, the fascia was removed, and an opening, three fourths of an inch in length, made at once into the trachea. The face of the patient now assumed, for an instant, a peculiar expression of anxiety and distress. Violent spasmodic cough ensued, forcing through the wound a large quantity of frothy mucus, which, for a time, baffled all further efforts. When the severity of this action subsided, a canula, of large size, was introduced, and properly secured in its place. Attendants were then directed to watch the patient during the night, and remove, by the aid of a sponge and probe, the thick tenacious mucus that was constantly being expelled from the tube.

The following day inflammatory action set in; the lips of the wound were tumid and dry; all secretion was suppressed, and the presence of the canula became troublesome and painful. These symptoms passed off without any very considerable general disturbance, and the ordinary healthy secretion soon followed, though still increased in quantity and attended by an uncomfortable cough. Once or twice a-day the instrument was withdrawn and cleansed. By placing the finger on the aperture of the tube, the patient could articulate faintly; but, on withdrawing the instrument, and attempting to breathe after closing the opening in the trachea by the finger in like manner, it was found almost impossible. By degrees, a tolerance of the presence of the canula seemed to be acquired; the patient learned to remove and replace it without assistance, and her usual vivacity and apparent health returned. She, however, remained about the House of Industry, engaged in various occupations, till December following, when she returned to her friends in the city.

On the 25th of April, 1848, the patient was again brought to the Hospital, apparently in a confirmed phthisis, accompanied with a distressing bronchial irritation. The case terminated fatally on the 8th of May ensuing. Post-mortem investigation revealed a thickened condition of the mucous membrane of the trachea and bronchial tubes, as also extensive disease of both lungs, they being in a state of partial hepatization, and showing abundantly the presence of tubercle. A little ulcer was noticed, where the lower extremity of the canula had rested against the side of the trachea. The constriction in the larynx was remarkable, producing almost complete closure of the tube.

Commentary.—The preceding case seems to show, as clearly as a single instance can do, the sources of danger in casualties of this kind, though the wound in itself be comparatively insignificant. The septum (shown distinctly in the adjoining cut) at the point of the original wound, is evidently the result of cicatrization. This, in itself a recuperative effort of nature, here becomes, from its position, productive of immi-

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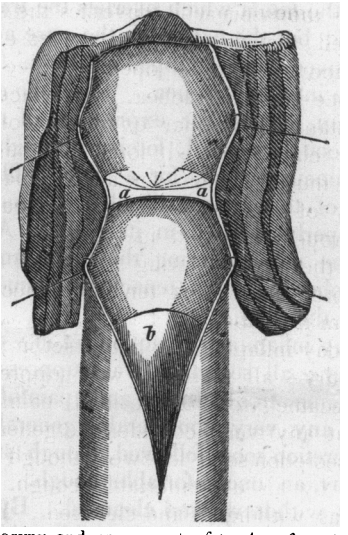
nent hazard. In the present case, as may be seen, it appears in the form of a well-defined lamella-like transverse partition, projecting into the cavity of the larynx so as nearly to effect a closure of the respiratory tube. It is an imperfectly-organized growth, slightly corrugated along its line of attachment to the walls of the larynx.



View of the larynx and upper part of trachea from behind. The posterior walls have been divided by a vertical section and drawn to each side. *a*, *a*. Septum formed by the cicatrix or new growth. *b*. Canula in situ.

In all instances of stridulous breathing and impending suffocation, following recovery from similar occurences, this condition, to a greater or less extent, may be supposed to exist. The difficulty of reaching the point of obstruction from above being apparent, tracheotomy becomes necessary to save the life of the patient. Serious consequences, however, will inevitably follow, if the aperture thus made be allowed to remain for any considerable length of time. The presence of the canula acting as a foreign body in the trachea—the inhalation of minute particles of dust, and the direct admission of cold air, all tend, directly and indirectly, to irritate the lungs and the sensitive tissues in connection. Moreover, the action of these organs is disturbed under this artificial provision made for their wants, and, feeling the need of their accustomed *regulator* (that delicate muscular apparatus of the glottis, which guards so faithfully the portals of the larynx), their movements become uncertain and unequal. Under these conditions, inflammation, either bronchial or pulmonary, is constantly impending, as, also, the rapid access of phthisis when the tubercular disposition exists.

In the treatment of analogous cases, the following hints and precautions seem naturally suggested :—

1st. The exercise of great care and patience, on the part of the surgeon, in adjusting, as nicely as possible, the edges of the mucous membrane and cartilage in the original wound ; and, on the part of the patient, absolute rest.

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2d. If on recovery the impediments to breathing occur, and tracheotomy becomes necessary, the propriety of attempting to remove the obstacle at once, so as to allow the speedy closure of the tracheal wound. *Query*—Would the direct application to the part, of some caustic or escharotic substance, aided by mechanical distension, effect this ?

3d. To contrive some means, while the trachea necessarily remains open, to prevent the ingress of dust and other irritating matters, and furnish an atmosphere to the lungs, approximating, in warmth and moisture, to that they receive through the natural passages. This last might be effected, in great measure, by regulating the air of the patient's room.

It was early proposed, in the case under consideration, to attempt the removal of the supposed new growth in the larynx, in the manner above suggested. What dissuaded us from carrying out the plan, was our inability to find a precedent for the undertaking, added to the extreme reluctance, on the part of the patient, to submit to the necessary manipulation, and the uncertainty of success in a subject so sensitively nervous. With the pathological revelations before us, we do not hesitate to say, that, had the attempt been boldly made, the result of the patient's case might have been different.

Boston, February 10, 1852.

MOTIVE POWER OF THE BLOOD—THE EXPERIMENTS ON AN ALLIGATOR AT NEW ORLEANS.

[In consequence of the suggestion contained in Mrs. Willard's letter to Dr. Cartwright (published in this Journal of January 7th), that as some persons regarded the great alligator experiment as a hoax, it might be well for him to fortify his own testimony by that of other persons present, especially those mentioned in his letter as aiding in its performance, that eminent gentleman wrote to Drs. Dowler and Nutt, and Prof. Forshey ; and having received their replies, he forwarded them to Mrs. Willard, requesting her to send them to the office of the Journal. Some necessary delay has occurred ; but they arrive opportunely to satisfy Dr. Chandler and others that however the rationale is explained, the remarkable experiment related in this Journal as truth, is so in reality.—Ed.]

To Bennet Dowler, M.D. *New Orleans, Dec.* 29, 1851.

Dear Sir,—1. Did or did you not perform an experiment upon an alligator, in presence of Prof. Forshey, myself and others, by tying the trachea, and returning it to its den ?

2. If so, was or was it not found, some half hour afterwards, apparently dead ; and did or did you not have it brought from its den, into an upper story of a house on Tchoupitoulas st., laid on a table, and its viscera exposed to view by a dissection ?

3. If so, did or did not the animal move or show any signs of pain during the dissection ?

4. Were or were not the lungs, after this dissection, inflated by Prof. Forshey ; and if so, did or did not the animal come to life ?

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