

A. Dewar

Cynanche Laryngea.

Disease may invade many parts of the human body without interfering materially with the comfort, or causing danger to the life of the patient; but there are others so delicately constructed, and so sensitively organized that the slightest abnormal action instantaneously produces great pain not unfrequently accompanied with imminent peril. Extensive inflammation is borne here with safety; slight congestion there causes instant death.

In few organs does disease entail greater misery, or advance so rapidly to a fatal termination as in the larynx. It is not because the larynx is in itself of vital importance or of delicate organization, but forming the entrance to the air passages, its obstruction interferes with the free play of respiration, & its total occlusion can be borne only for a short time without a fatal result, if relief

is not speedily afforded: again disease affecting it in a less acute form deprives its subject of the power of speech, renders him often unfit for the duties of life, & makes intercourse with his fellow men undesirable & difficult.

Sometimes disease in this organ, when a destructive process in its interior is advancing, goes on slowly to a termination, at others the intrusion of a foreign body causes instant death. Examples of the former kind are of daily occurrence; a case of the latter was a short time ago brought under my notice, a child was quietly eating a piece of bread, a small part of it entered the windpipe, & produced almost immediate death.

Considering the interest with which laryngeal affections are in general regarded it is somewhat remarkable that comparatively little has been written on the subject by Medical men. When we see a disease armed with such weapons, when we consider that the most important period of life is peculiarly liable to it, & remembering that some illustrious names have been

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included in the number of its victims, we are surprised that it has not been oftener and more minutely investigated. This is the more astonishing since we know that the affection is not one of those where the Physician must always look on suffering & approaching death without the hope of affording relief, but that on the contrary, its treatment promptly and wisely directed is often safe, effectual and permanent. —

General Anatomy

Performing an important respiratory function & constituting the chief organ of voice, this complicated structure is one of those parts equally interesting, whether Anatomically or Physiologically considered; but to treat of the larynx under these heads would be apart from the subject of this paper; a mere sketch of its anatomy will not be out of place.

The importance of the larynx is evinced by its being always complete in form at birth, & very little change taking place in it for many years. Previous to puberty it is equally developed and similar in construction in both sexes, but after this period the larynx of the male undergoes marked changes, whilst in the female it is little altered. In the male the cartilages enlarge, the cords become lengthened & the aperture is widened. In the female such an alteration is scarcely appreciable. The dimensions of this cavity do not vary in either sex, with the size or development of the individual as many other organs do

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The larynx extends from the base of the tongue to the first tracheal ring. It commences at the most anterior of the seven openings leading from the pharynx, is situated between the great vessels of the neck which diverge from each other to give it freedom. It is a cartilaginous cavity capable of being completely closed above, but always open inferiorly when in a healthy condition; in form it is analogous to that of a hollow truncated cone, the base of which is turned upwards, & the summit downwards. The upper expanded part is formed by the thyroid cartilage, & the lower by the more regular cricoid gradually adapting itself to the shape of the trachea; other two cartilages enter into the skeleton of the larynx, & these with muscles & membranes complete the framework for the protection of the vocal organs. The interior is divided into two parts by the prominence of the chordae vocales, the portion above the constriction contains the structures essential to voice, & the due regulation of breathing; the portion below the prominence is uncomplicated, having only a few marked depressions

depressions, & being merely the dilated part of the trachea. The glottis or superior orifice is that part of the larynx which is above the cords, is the opening between the arytenoid cartilages & their investing membranes; the aperture is triangular, broad anteriorly & narrow behind. It is bounded in front by the epiglottis, & posteriorly by the mixed fibres of the arytenoid muscles, on either side by the fold of mucous membrane passing between the side of the epiglottis & the apex of the arytenoid cartilages, enclosing in it the minute prominence of the corniform cartilages, & below by the cords; while above, the aperture is either free or shut according to the state of the epiglottis. The epiglottis is a fibro cartilaginous valve guarding the entrance of the larynx; when not acting its position is erect. Its free portion is oval & attached by a peduncle to the angle between the alae of the thyroid cartilage.

Chordae Vocales These are four in number, named respectively true and false; they are placed the one above the other stretching from the arytenoid body to the angle of the thyroid cartilage. The superior, or false consist merely

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of a fold of the mucous membrane passing from the external edge of the base of the arytenoid body to the angle in the cartilage. The inferior, or true cords are strongly marked & consist of elastic tissue enclosed in a fold of mucous membrane & fixed to the base of the anterior edge of the arytenoid cartilage to the thyroid angle. The aperture left by these cords is the rima glottidis. Immediately above the true vocal cords lie the ventricles & pouches which project upwards between the false cords & the side of the thyroid cartilage. One of the chief uses of these pouches is apparently to allow a free vibration to the vocal cords.

The mucous membrane of the larynx is continuous with that of the pharynx, the interior of the cavity being accurately lined by this membrane which fits with the greatest nicety into every depression. Such an accurate lining is highly requisite so that the voice may not be interfered with. This membrane is very soft, smooth & mobile, it is of a pale rose color, but less blanchied than either in the pharynx or trachea, & protected by a glary mucous secretion

secreted by the muciparous glands on its surface. This membrane is connected to the bone & cartilage by a reticulated submucous tissue, which however is not abundant, & is very compact where it unites the mucous membrane to the subjacent structures; this tissue is developed chiefly near the epiglottis & vocal cords to facilitate their easy motion.

The mucous follicles besides being scattered over the pharynx are also abundant in the mucous tissue of the larynx; they are very plentiful near the root of the epiglottis, where their openings can be distinctly observed, & they are also seen in considerable numbers in the tissue which passes to & from the various cartilages. Mucous glandulae also abound in the larynx; they are prominent on the epiglottis where the ducts open directly on the laryngeal surface; they occur both single & aggregated & pour a plentiful secretion upon the interior of the cavity. These glands are also situated upon the vocal cords and serve by their secretion to lubricate their surface.

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Measurements of larynx.

Antero-posterior diameter at false vocal
cords found greatest lines
13

At true vocal cords 11

Transverse diameter at false cords is
very great in consequence of their laxity $11\frac{1}{2}$

Transverse diameter at true cords $8\frac{1}{2}$

Without sketching the average is:-

False $8\frac{1}{2}$

True 6

Lower down opposite crico thyroid membrane
antero-posterior diameter & transverse are
nearly alike, being 8

The length of the opening at the rima
may be considered about eight lines
as the space between the arytenoid
cartilages is filled up by the small
muscles there,

+ + Average

Antero posterior & transverse diameters of rima.

mm

Acute Laryngitis

The majority of those -
affections which come under the care of the
Physician advance so slowly, that it is often
of small moment whether they are at once dis-
covered or accurately diagnosed. They may
require remedies which act so tardily and
imperceptibly that either delay or interruption
is of little consequence. In such cases there
is abundant opportunity to consider the dis-
ease and to select a remedy; such diseases
are happily the most numerous. But again
there are others, which require an intimate
acquaintance with their symptoms as well as
a perfect knowledge of their cure; diseases which
must be dealt with at a moments warning,
and checked with the utmost promptitude at
the outset of their attack; they allow little
time either to consider or consult, soon defy
all control & render abortive those measures
which at an earlier period might have
arrested their progress. Acute inflammation
of the larynx is of this class. The suddenness
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of its appearance, & the rapidity with which it destroys life mark it as one of the most formidable maladies: —

The local inflammations of the larynx differ widely in kind and degree; some of these are in themselves of trifling importance and seldom require medical treatment; but they are not on this account to be wholly overlooked, as they are frequently the forerunners of a serious disease. The simplest affection in this structure is attended with hoarseness, supervening often upon cynanche tonsillaris, or it may be one of the train of symptoms attendant on some eruptive fevers. Cynanche tonsillaris sometimes extends by continuity to the lining membrane of the larynx, or instead of spreading from above, it may proceed upwards & partake of the nature of the inflammation in bronchitis, or of that of the trachea in croup.

Acute laryngitis properly so called is, I believe, very often an insidious affection. It is apt to occur in those persons whose "weak part" is the throat or tonsils. Frequently it is induced by exposure to cold, or by suffering
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any sudden variation of temperature. Slight sore throat is generally the first thing complained of, the fauces are redder than usual, & the act of swallowing is attended with some difficulty, but there is a restlessness & anxiety too great, to be accounted for by the slight affection of the throat; more decided and alarming symptoms soon appear: the voice becomes altered, - from slight hoarseness to total dysphonia, the respiration becomes affected, whilst frequently no physical signs can disclose ailment in the chest, there is a short, husky, painful cough unattended by expectoration, & the inspirations are prolonged and whistling. The patient feels pain in the neck aggravated on pressure, & the promum Adam is referred to as its seat, the pulse shews the existence of inflammatory fever, the skin is hot & dry, the countenance flushed, & not infrequently the tongue is swollen. Great irritation is produced on endeavouring to swallow fluids, which enter the larynx, the epiglottis, from its inflamed condition, being unfit to guard the entrance. If this dreadful malady proceeds farther unchecked, the patient's distress becomes agonizing, his countenance is pale & ghastly, the lips livid, & his eyes are pro-

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protruded from their sockets; respiration is hurried exceedingly difficult & the pulse is weak and intermitting, while the surface of the body becomes cold. The patient desires air to be admitted from every possible quarter, he sits up in bed & puts every muscle in action which can assist respiration, he often becomes frantic with despair, if the inflammation proceeds, no means are employed to admit air into the lungs all the horrible symptoms; delirium, convulsions, strangulation & continue soon close the scene.

The conditions described above become aggravated & lessened in intensity at different stages. But all these symptoms do not exist in every case of laryngitis; only a very few may be present, but these are generally characteristic Dr Cheyne's definition of laryngitis in its acute form, is the following; - "Pain in larynx not very acute unless on pressure, some degree of fullness externally, a change of the sound of voice. Difficult & slow respiration but slow rather than quick, an altered sometimes stidulous cough, fits of suffocation & coughing & all these symptoms which arise from obstructed circulation in the lungs." I subjoin a well marked case,

case from the work of Mr Porter. "W. Kenny aged 47. on the evening before admission he had a severe rigor, which was followed by sore throat: he went to bed, but awoke about the middle of the night with great difficulty of breathing, attended by a stridulous sound, cough, and inability to swallow. On admission the peculiar sound of the respiration was easily recognizable; the voice was nearly lost; there was cough with slight expectoration, & on an attempt to swallow liquids they were forcibly rejected by the nares; pressure on the larynx was attended with some pain. He was ordered by Dr Graves to lose thirty ounces of blood from the arm, & to take two grains of tartarized antimony, in solution, every hour, which at first appeared to produce some relief; but in the evening the symptoms became so exasperated as to render an operation necessary, and Mr Macnamara was summoned to take charge of the case. He was found in the evening with his respiration loud, stridulous, & performed with the utmost difficulty; pulse very quick; the extremities cold, and the upper part of the body covered with a clammy sweat. On introducing the finger into the fauces, the epiglottis was felt erect, pulpy, & swollen to the size of a large walnut. The operation of tracheotomy was performed in the usual

name

manner; there was no haemorrhage; & at the termination of the operation the patient experienced so much relief that he fell into a deep refreshing sleep." It is unnecessary to trace the case farther; in a few days respiration was carried on thro' the natural channel, & the patient was soon restored to perfect health. This case illustrates admirably the symptoms of the disease, as well as the efficacy of well chosen remedies.

Authors speak of the disease under our consideration, as of rare occurrence, & this is fortunate, since its mortality is very great. I have been able to meet with very few cases of the affection in the journals of the Edinburgh Royal Infirmary, & among these few a great majority have proved fatal. In a table given by Dr Ryland comprising in all twenty eight cases, eighteen died, seven recovered, & even this Dr Ryland asserts, is much too favorable a view of the mortality of the affection. Death generally occurs within two or three days, but if the violence of the attack does not abate before this time, life is rarely prolonged even to this period. It often proves fatal in thirty six hours or even less; Dr Lawrence relates the case of two young men who
retired

retired to bed together in perfect health & who were found dead in the morning, of this disease. The affection is said to occur more frequently in the male than in the female sex; & this is owing probably to the greater liability of the former to be exposed to the exciting causes of the disease: Acute laryngitis is exceedingly rare before puberty; it occurs chiefly in adult age & advanced life; Dr Ryland table just referred to, shews that the disease is most frequent between thirty five & seventy years of age, & no case is given in a patient under seventeen.

An accurate diagnosis in this malady is in the highest degree important, & the earlier its features are observed, the greater is the hope of averting the subsequent danger & misery. I think that its characteristics are prominent, & in most instances distinctive, after a certain period has elapsed; the difficulty of diagnosis exists only at the very outset, before any of the urgent symptoms have appeared. But it will be proper to remember, that a few morbid conditions of the air passages & throat resemble closely laryngitis. Abscess of the pharynx may occasion symptoms exceedingly like those of laryngitis; there may be the dyspnoea, the

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fever, cough & pain referred to the larynx, and the existence of the abscess may be obscure, but then again, there is greater pain here than in laryngitis; there is greater difficulty in opening the mouth, besides longer duration of the local pain. In severe case of asthma the difficulty of respiration is often as great as in laryngitis; the breathing in both diseases is unnatural, but inspiration in the two cases is quite of a different character. Severe cases of epiglottitis tonsillaris produce symptoms very like those of acute epiglottitis laryngea, & altho their symptoms generally differ still they might exist together & conceal the amount of danger. This complication would be of small consequence in so far as regards treatment; I would not hesitate in either disease to open the trachea if respiration was impeded. Aneurism of the aorta, has often produced symptoms like those of laryngitis, by pressing on the air tube & causing the pain & stridulous breathing. But this mistake could scarcely occur with the improved means of diagnosis at the command of the physician in the present day. Croup may be confounded in many respects with the disease under consideration. In diagnosing between them the seat of pain will be

of material assistance, together with the constriction
of the throat & the peculiar tracheal inspiration.

Lastly spasmodic stricture of the glottis will produce
symptoms similar in many respects to croup
laryngea. There is a case given by Dr Lawrence in the
6 vol. of the Med. Chir. Transactions which exhibits
admirably the resemblance between the two diseases.
It might have been noted as a well marked example
of acute inflammation of the larynx, which nevertheless
presented not a single morbid appearance of
the affection. A man aged 50 was admitted into St.
Bartholomew's hospital who was supposed to have
suffered much exposure to cold. He became very
hoarse, & affected with considerable difficulty of
breathing accompanied with a peculiar noise during
respiration; he had no pain in the chest seemed
to draw in a full quantity of air, altho there seemed
some great obstacle to its entrance, obliging him
to sit up in bed & employ all the auxiliary powers
of respiration. His opened mouth, elevated shoulders,
& spasmodic struggle marked the narrowness of the
passage for the air; while the cold & pallid skin,
the small, feeble & rapid pulse indicated clearly
the debilitating effects of imperfect respiration. The

voice was much affected, but he could swallow without difficulty; there was no pain on pressure nor visible affection of the throat. The patient became worse, sat with the mouth open, gasping for breath, the eyes well staring & the skin covered with a clammy sweat. Tracheotomy was performed with temporary relief, but the patient died shortly afterwards. The post mortem appearances were: - chordae vocales, sacculi laryngis &c perfectly healthy, the membranes covering as well as the lining of the trachea free from every appearance of inflammation & the rima glottidis of natural dimensions.

It is curious to observe that disease of the liver may induce all the symptoms of laryngitis, while dissection fails to disclose anything but healthy structure.

Death in cyanotic laryngitis generally takes place from cerebral affection. Altho' the respiration is first obstructed, it does not seem the immediate cause of death; but more probably the failure of the vital strength arises from deficient muscular energy, & by a failure of ^{induced} ~~respiratory~~ power. The post mortem appearances are very uniform.

uniform; the whole of the interior of the larynx may be inflamed, or only a very insignificant portion of the mucous surface; small inflamed patches are often found; the epiglottis is generally thickened by submucous infiltration, & stands erect & unyielding; the edges of the superior orifice of the larynx are variously inflamed & infiltrated, so as even to shut up the entrance. The opening leading to the windpipe is at all times so narrow that slight thickening makes a great difference in the dimensions of the orifice. The upper parts are most frequently diseased; we seldom find ulceration in this acute stage of laryngitis altho small ulcers are occasionally seen about the lips of the glottis. Dr Cheyne mentions a case where the mucous membrane presented the appearance of a thin layer of cartilage.

The imminent danger which attends this disease, & the dreadful suffering both bodily, & mental, which the patient endures, render an effectual remedy invaluable, & means of relief although of a temporary kind are to be anxiously sought for. These remedies are as yet unhappily few, & from the comparative rarity of the disease,

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experience teaches us little, regarding their efficacy; but I am satisfied that enough has been done of late years to warrant some decided measures, which if properly directed would present us with statistics less deadly & more encouraging.

As in every acute inflammation, bloodletting has been long a standard remedy, & in few diseases has it been carried to a larger extent than in that under consideration. This remedy is doubtless of great service when employed at the proper time; to be of use it must be adopted at an early stage of the disease when the fever is high & the pulse strong & rapid; the bleeding should be carried so far as to make a decided effect upon the heart's action, but it is sometimes beneficial when used in smaller quantity, by unloading the lungs & lessening the intolerable sense of impending death; thus far independently of checking the inflammatory action it is beneficial as alleviating suffering. In most of the recorded cases of acute cynanche laryngea depletion has been carried, almost indiscriminately, to a prodigious extent; in a few of these the disease seems to have been repressed

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by its means alone, but in for the greater proportion, the disease has advanced often little relieved, and a few seem to have been bled to death. Local bleeding, by leeches, or by scarification over the larynx is, I think very prejudicial; it increases the local irritation, seriously interferes with the other remedies which may probably be required. The period for bloodletting is soon over, and no good effect, but the contrary can arise from it, during the second stage of the disease. When the surface becomes cool, the face pale, the lips blue, the pulse small & feeble; when the powers of life are becoming exhausted, the extraction of blood would just hasten the fatal end. Our next remedy when bloodletting proves unavailing is derived from the surgeon; the management of acute laryngitis comes within his province. Mr Lawrence, in writing upon the subject, says "Experience has shown that medical treatment is almost entirely inefficacious; at least the most active means have produced no relief in the instances which have fallen under my own observation"

We have seen that asphyxia is the primary cause of danger here; it is not from
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any incapability of the lungs to receive the air, or to circulate the blood, but from the air being denied admittance from obstruction in the passages. If respiration could be carried on through any other channel, the disease under consideration would be comparatively trivial in its consequence. The rational mode of treatment, viz, by admitting air into the respiratory tube below the seat of obstruction has been known & to some extent adopted from the earliest periods of medical practice. Unhappily the success has not equalled the rationality of the proposal; but I am convinced that it is not the remedy itself, but its improper application, that has brought it into disrepute. Bronchotomy & Tracheotomy have too long been considered as a "dernier ressort" in laryngitis. They have generally been adopted just as the patient was becoming asphyxiated, or after the system was unable to recover from the previous exhaustion; when the lungs had begun to exhibit symptoms of disorder, or when the body had been weakened by excessive loss of blood.

If the operation in question was formidable either during its performance or in its
after

after consequences, the timorous adoption of the remedy would be in every respect warrantable; but the operation is admitted to be free from danger if performed with ordinary caution. It is little more than a simple wound, attended with little loss of blood. One of Mr Lawrence's conclusions on the subject is "That the operation is free from danger, has many times been successfully performed, & thus not in any instance produced unpleasant consequences". The latter part of this statement is rather unqualified, but there can be no doubt, that it will be found in most instances correct.

To decide upon the proper time for resorting to this operation, is of very great importance. The question has been much disputed, but most men now agree that it should be early performed. To be effectual it must be done at the outset of the disorder; some propose it so soon as the symptoms of the disease are distinctly recognised; others as soon as the breathing becomes at all labored, or any feeling of suffocation is experienced; all agree that it ought not to be delayed till the patient is sinking. M. Louis' opinion of the matter is "La Bronchotomie nous paraît devoir

être le premier secours; la saignée, la purgation, et les autres moyens conseillés pour diminuer la tuméfaction des parties enflammées, pour tâcher d'enlever les obstacles qui s'opposent au libre passage de l'air dans les poumons, ne peuvent pas avoir un effet assez prompt, et seront toujours pour un temps infiniment précieux."

Delay here is full of peril; knowing the energy of the malady, a few hours may have allowed it to overstep control. Bronchotomy is both the radical, palliative treatment; we cannot expect always to prevent a fatal issue, but we can always depend that at least this operation will relieve the agonizing sufferings of the patient & make death less terrible.

There are some circumstances which are said to contraindicate the operation of Bronchotomy, such as extensive disease of the lungs; this would of course be a most unfavorable complication, but nothing but the judgement of the physician can determine the case. -

Dwyer

Chronic Laryngitis.

There are so many varieties of chronic laryngitis, that I cannot pretend to give a dissertation upon all its forms, the mode of distinguishing them, or the numerous causes which induce the affection. To enter into such detail, however interesting that might be, would far exceed the limits of this paper; I will therefore only give a few cases of the disease, from the Hospital journals, which will illustrate better its symptoms, nature and treatment.

Chronic laryngitis is applied to a subacute inflammatory action, affecting chiefly the mucous tissue of the larynx & the epiglottis. It has been divided into two great heads, according as the mucous, or submucous tissue, or the cartilages of the larynx are the seat of the disease. A knowledge of the situation of the affection; whether in the mucous, or other structures is a matter of great consideration, seeing that, in the one the malady is of a far more uncurable nature than in the other. The distinguishing characteristic of the disease is alteration of voice, which may undergo
sudden

endless variations, both in degree & permanency.

Case I.

Sarah Nicol act. 51. Admitted Jan^r 1852. Lemphers. The patient has lately been in poor circumstances, but is of temperate habits. Six weeks ago after exposure to cold weather, she was seized with pain in upper part of the chest & tenderness over the larynx, & some difficulty in swallowing. 6 years ago she had a similar attack. On admission there is pain in front of the chest, & over the larynx on pressure; the breathing is labored, & the voice gone; inspiration is very difficult & of the peculiar laryngeal character; no cough, & the voice is entirely absent. Pulse 100 soft. Other parts of the respiratory system free from disease. Auricular & 11 were applied to the larynx which produced relief both to the pain & the dyspnoea. Blister to upper part of chest.

Jan^y 6 So much relieved by the blister, the breathing is easier, & less noisy, the voice has in a very slight degree returned. Hæmorrh. Spoonman. at Colcord at 3 times a day. Jan^r 8. Pain returned over larynx & trachea, but no difficulty of breathing. A small ulcer is seen, on examination, on right side of the pharynx. Expectoration is not possible, but feels ragged rough. Continue the Colcord at 3 times. The noisy respiration is not audible except on deep inspiration.

Jan^r 10th. Voice somewhat improved. Gums are becoming affected.

Jan^r 12. Voice much improved, much clearer; no pain nor dyspnoea. Has the decided mercurial factor.

This patient recovered from this time & was soon dismissed cured.

The cause of the attack in this case was evidently undue exposure, & the patient seems to have been predisposed to the disease in consequence of a former attack. The complete aphonia here observed is remarkable; from its occurring so quickly & disappearing afterwards, it is likely that the cartilages were unaffected, & that there was submucous infiltration for the most part present. The application of leeches was attended with much relief. In very chronic stages of this affection, benefit from leeches might scarcely be expected, but experience shows us that this local bleeding is always attended with much relief. On the first indication, that mercury pervaded the system, there was improvement in the voice, which from this time gradually improved. But I am inclined to think that the continuance of this remedy, after the production of its physiological effect, in a delicate female was imprudent. There was a very important agent in this case omitted, viz the local application

application of nitrate of silver; I think this treatment was indicated here, & doubtless would have hastened recovery.

Case II.

Helen Brown act 25. Fitchminger Admitted Feb 7 1852. States that her complaint began 11 months ago; she is not aware of having been more than usually exposed. One morning after much exercise of the voice during her occupation, she became suddenly extremely hoarse; shortly afterwards there commenced a short dry cough, with a peculiar dryness in the larynx, but without much expectoration; at this period of the disease, the hoarseness was not always equal. Last July she was admitted into the clinical ward. At this time there was partial aphonia, & the respiration in the larynx was of a dry noisy character; there is some pain in larynx but no difficulty in swallowing. She left the Hospital very much relieved by the local application of the nitrate of silver. Five months ago on resuming her laborious duties, the voice began to fail again, very soon the cough increased, & the hoarseness returned with all its former intensity, so much so indeed that she could not speak even ⁱⁿ a whisper; the cough & dyspnoea were so bad that she lay in bed

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with difficulty, & found no relief except sitting up & resting the head upon the hands. At present the voice is very hoarse, flat & husky, but she can make herself heard pretty well in a low whisper. There is a short cough accompanied by considerable expectoration of frothy mucus; there is slight pain in larynx, & a distressing sense of tightness there. There is great depression of spirits. Sleeps well. Appetite good. Otherwise healthy.

The cause of the disease in this case was, in every probability, long & violent use of the voice. The attack was very sudden. We very often see temporary aphonia induced by long continued reading aloud &c, but this case of aphonia was experienced on the morning after the exertion. Every one has remarked the frequent harshness of voice, so prevalent among fish women, coal heavers &c. The discordance of tone, & the absence of the high notes are more observable than any great indistinctness of voice. In such cases, the structures probably become relaxed, from undue exertion, & the cords cannot be tightly stretched, & brought sufficiently near one another to produce the high tones.

In the first instance, the
case

case before us, now most probably only functional, but after the existence of the disease for some time, ulceration commenced.

Previous to the time of her present admittance, this patient had undergone little treatment. The greatest relief was experienced from the local application of the nitrate of silver. After each application she felt relieved both from the cough & hoarseness. The report of 6 July says regarding this case "Dr Green of New York passed the sponge, saturated with the solution of the nitrate of silver, twice through the rima glottidis." The patient states that when Dr Green passed the instrument, the sensations produced were more peculiar than those experienced on any other occasion. The local application of nitrate of silver in this disease is of eminent service; but that the substance reaches the diseased part when deeply seated on the larynx is a matter of great doubt. There can be no doubt that this caustic is often serviceable when placed merely in the vicinity of the diseased action. I have often ~~seen~~ noticed this in ulceration of the throat, where only one part of the fauces was touched with the nitrate of silver, yet the whole neighbouring part seemed

seemed to be equally benefited by the application. If this is true, the cure of the affection when below the rimma will be accounted for, without coming to the conclusion that the sponge passes. Since her present admission, this patient has not been treated by any direct application. Leeches & blisters have been applied, but with the most transient relief. The system has also been brought under the action of mercury, while in this condition the voice greatly improved, but as the effects of the drug passed off, the hoarseness returned.

Case III.

Ellen Forrick admitted June 1851. This patient in April last, while recovering from an attack of influenza, was put under mercurial treatment, & while under its influence, she incautiously exposed herself to cold. She was seized with general feverishness, pain & swelling of the salivary glands, the gums & throat became painful & swollen; this was accompanied by profuse salivation. The voice became exceedingly hoarse, & she spoke with difficulty & in a low whisper. Great aphonia occurred within eighteen hours of the time when she had perfect use of the voice. This patient's throat & fauces were

much

much ulcerated on admission to the Hospital; the voice was reduced to a mere whisper, & any attempts to speak in a loud tone were accompanied with great pain in the larynx.

The only treatment here was local applications. Intake of silver 3j to 3j of water. The cause here was evidently exposure to cold during the existence of the febrile state, usually supervening as the physiological effects of mercury appear. The danger of suffering cold during this state is well known; exposure often causing the effects of mercury to exhibit themselves in their most violent form. When the mercurial exethism is pervading the system there ^{is} excessive weakness & a depressed state of the powers of the system which is little able to resist any injurious influence & undue exertion is sometimes even fatal. The treatment did not go far in this case, as the patient was dismissed unwell. Warmth combined with fresh air, together with local applications would I apprehend have been the proper course.

Case IV.

Margaret Leven aet 25, Washerwoman, ad.

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admitted January 14, 1852. States that six weeks before, she contracted syphilis from her husband, & that she had a large chancre, for which she was treated by mercury. She seems to have been fully salivated, and, indeed on admission the gums were still painful, of a dull lead hue, very spongy. A week before admission after exposure to cold & wet, she had violent rigors, with all the usual symptoms of a febrile attack, accompanied by great pain in the region of the larynx, & considerable difficulty in swallowing; shortly afterwards her voice became husky & hoarse, & she had slight cough at first unattended by expectoration. These symptoms increased in intensity & continued up to the date of admission, when the voice was reduced to a whisper; deglutition, even of liquid ingesta, very painful, & when the larynx is pressed against the spinal column very acute pain is produced; profuse expectoration of muco purulent matter had also come on. On examination of the interior of the mouth, the back of the pharynx is found covered by small sloughing ulcers, & the mucous membrane generally is deeply congested, of a deep lead hue. There is still some febrile

excitement. The respiratory murmurs are quite healthy, with the exception of being a little rough under the left clavicle. Careful examination of the chest elicits nothing else unusual.

She was ordered an aperient; 16 leeches, to be applied over the larynx; this gave very marked relief to the pain & uneasiness; the sponge dipped in a solution of nitrate of silver (3℥ to the ounce of water) was then applied, at first to the upper part of the pharynx & the fauces, & afterwards to the larynx. Under this treatment the cloughs separated speedily, deglutition became easy, & the pain of the larynx was completely removed, but only slight amelioration of the voice took place. This patient continued in the Hospital till the 27th of February, when she was discharged perfectly restored to health, with the exception of the voice which still continued husky & whispering, though considerably better than on admission.

When syphilis invades the system, & mercury has been abused as an antidote, there is produced a fruitful source of disease; it is the cause of none more obstinate or distressing than chronic laryngitis. Syphilis alone in the

secondary form is very apt to affect the throat
larynx, but the liability is far greater when the
mercurio-syphilitic poison has been formed. The
mercurio-syphilitic ulcer, (as it was in the case
just related) is very characteristic; it is quite
different, either from that formed in the milder
attacks of chronic laryngitis, or in the follicular
disease. The ulcer is deeply excavated of a dirty
greyish appearance, the edges are thick & irregularly
eaten out, & the skin surrounding it for some distance
is of a dark copper line; it has a great tendency
also to spread to the neighbouring parts as well
as to deepen. When chronic laryngitis can be
traced to this source, it may almost be considered
incurable; the pain & hoarseness may disappear under
proper treatment, but the voice very rarely returns.
The local application of nitrate of silver is strongly
indicated; a very few applications act almost like
a charm, altering not only the character & condition
of the ulcer, but also the surrounding tissues very
soon, ^{assume} a healthy appearance. Diet, regimen &
the iodide of potassium are not to be neglected.

Case V.

Robert Neilson admitted July 1850. On admission
this

this patient complained of pain in the back part of the throat, along with difficulty in swallowing. He had a tickling cough which he stated proceeded from the back part of the throat; the expectoration was of a frothy mucous character. The voice had a peculiar hoarseness, & any attempt to speak aloud gave pain. These symptoms commenced about four months ago, after exposure to cold, but under repeated blisters they had almost disappeared until about a week ago, they returned with unusual severity. On inspection of the throat nothing abnormal could be seen, but when the finger was introduced a peculiar roughness was felt in the glottis, & also upon the epiglottis. The other systems were reported healthy.

July 28. Iodine leeches were applied over the larynx & the parts were fomented & poulticed & the steam of boiling water was inhaled. This gave some ease. July 31. Dilute of silver was applied by the sponge to the upper part of the larynx; this eased the pain & facilitated deglutition. Aug. 1. Slight dullness on percussion at apices of both lungs, & some crepitating râles are heard. Aug. 7. Diarrhoea to-day for the first time, it is very severe & resists the ordinary treatment. Other symptoms the same

same. Took cod liver oil. Aug. 18. Died very suddenly after spitting a quantity of florid blood; the haemoptosis was attended by no cough or dyspnoea.

On the post mortem exam: ination of this case the lungs were found infiltrated with milinary tubercles; there were extensive adhesions & the bronchi were filled with blood. The larynx & trachea were filled with a large conglum. Epiglottis was thickened & both it & the other parts of the interior of the larynx were studded with tubercles. There were also both oedema & abrasion.

I give this case to show, that chronic laryngitis, may effectually veil other important lesions. Here is a case of extensive tubercular deposit thro the whole of the respiratory passages & yet the laryngeal affection is the only thing complained of. The difficulty & uncertainty, of physical examination of the chest, when either the larynx or trachea are affected, are well known, & so great is this, that some authors regard the stethoscope as totally useless as a means of diagnosis when the windpipe is affected. This case supports the opinion of those who hold that ulceration of the larynx is solely met with in the scrophulous

Chatteris

diathesis & is always complicated with tubercular deposit. This theory may often be correct, but it by no means holds good universally.

Local treatment would have been useful here, as a means of alleviation, & the improvement of the system the only rational mode of cure.

Case VII.

David Dowie admitted Nov. 1851. Aet. 41. This patient had a strong bony frame, tho emaciated & sickly. His present complaint began in Sept. 1844, when he was much exposed to the vicissitudes of the weather, & working also in a very damp neighbourhood. He retired to bed one evening, (in a damp room which was newly plastered) in perfect health, in the morning he was seized with violent vomiting which lasted almost incessantly for 24 hours; when the vomiting ceased, he felt pain in the throat, some difficulty in swallowing, slight cough & his voice which before the vomiting was perfectly natural had become so hoarse that he could scarcely speak in a low whisper, on attempting to swallow fluids they caused great irritation by entering the wind pipe. These symptoms have existed ever since, & are

according

according to circumstances. At this period, his strength was not impaired & he continued uninterruptedly at his occupation. Ten months ago all his symptoms underwent a marked change. He had severe rigors, after which the cough increased, the expectoration became profuse & presented for the first time the purulent character; distressing fits of dyspnoea often occurred, which were relieved by the expectoration. At present; the cough is very severe, & the expectoration profuse & very purulent. The voice is very hoarse, slight pain in larynx; after great dyspnoea; & sweating during the night. On physical examination of the chest, there is evidence of tubercles at the apex of right lung, but these symptoms are obscure. Occasional vomiting. Depression exceedingly dejected & anxious. Nov 26. Cough very distressing. Diarrhoea has appeared for the first time. Pain in bowels. No appetite. Spirit exceedingly depressed. Nov 27th. Diarrhoea continues, but relief was obtained by the Opium. During the few days longer that he remained in the Hospital, the signs of pulmonary disease became more apparent, & his distress in every way increased. He died on the morning after tomorrow, but most unfortunately there was no examination of the body.

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This is a case of preceding interest; it presents us with chronic laryngitis in two of its forms, the simplest, & the most inveterate. For seven years the symptoms were scarcely worthy of remark, except the great aphonia & the slight cough. The suddenness of the attack is by no means rare. This simple form of laryngitis seems quite compatible with health & strength; the loss of voice causing the only inconvenience. The pulmonary lesion was evidently of short duration, & we may with great certainty date its commencement from the period of the rigors 10 months before admission. This is a very marked case of phthisis laryngea. The phthisis was not far advanced, at least the physical signs of the disease were obscure; although the cough & expectoration were very severe & abundant, they did not seem to proceed from the lungs; the cough was short, & of a peculiar ringing character & seemed to proceed entirely from the larynx, & the expectoration was sometimes hawked up, & on inspection of the throat thus could be seen in the back of the pharynx, upper part of the larynx. The laryngeal affection in every probability preceded the pulmonary, & gradually extended along the passages. If the pulmonary affection

affection had advanced so far as to produce such urgent symptoms, it is very unlikely that the physical signs would have been at all masked.

The paroxysmal dyspnoea in this case, is very constant in chronic laryngitis; but the sense of suffocation was never very much complained of.

This patient before admission had undergone very little treatment; for some weeks a strong solution of the nitrate of silver was applied to the upper part of the larynx, but this was attended with little benefit. At first this application gave some relief to the uneasiness & cough, it rendered also the expectoration less abundant for some hours. But after a few applications of this remedy the good effects were not observable. Repeated counterirritation, or the establishment of an issue from the side of the larynx, as recommended by Dr Cheyne, might have been serviceable.

Follicular disease of the air passages.

It is of comparatively recent date, that some of the various diseases of the air passages were separated from each other, & recognized as distinct affections. A short time only, has follicular disease attracted attention, or had its peculiarities notified. Some consider this a malady which has but lately appeared, but when we reflect upon the seat and causes of it, such a supposition is extremely doubtful. Considering that, some affections peculiar to the lungs, & those seated in the larynx, ceased to be confounded with one another at no remote period, it is by no means remarkable, that a morbid action, differing in no striking manner from other & more grave affections of this part, & leading to a common form of destructive ulceration, should have escaped the notice of physicians, until more serious maladies had become distinct & familiar. In the year 1830 the follicular sore throat prevailed throughout Europe to a remarkable extent, following closely upon the epidemic of influenza so prevalent at that time. It has been stated that this operated powerfully
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in the production of the follicular sore throat; it was merely a great prevalence of one of its most frequent causes, viz, prostration & debility, which effects influenza is well known to produce upon the system.

This complaint exhibits itself under various forms; it may be confined to the fauces only, or to the back part of the pharynx; it may extend deeply into the air passages, or even invade ^{on} the interior of the oesophagus itself. It varies in degree too, as well as in extent, appearing sometimes alone, or in conjunction with any of those affections to which the larynx is liable.

The disease consists in hyper-
trophy, induration, tubercular deposition or ulcer-
ation of those mucous glands spoken of, whilst touching upon the anatomy of the larynx. It is in these follicles that the disease essentially exists, & the intervening mucous membrane, may, or may not, take on the diseased action. The follicles of the pharyngeal membrane appear in the first instance enlarged & inflamed, while the mucous membrane around may be quite natural, or even paler than usual. Induration is a rarer occurrence than hyper-

hypertrophy, & occurs chiefly when a mass of follicles are aggregated together. Infiltration of a puriform tubercular matter often takes place when the irritation is continued for some time, & at last ulceration, which does not happen for a long period, appears, & spreads rapidly to the adjoining tissues.

This complaint often steals on slowly at its commencement, & is often far advanced before the patient suspects the existence of any disease. In its mildest form it begins in the glandulae of the fauces & pharynx, & afterwards extends variously in different circumstances. The first symptoms are unpleasant sensations in the back part of the throat, frequent desire to swallow produced by the feeling of some foreign body being lodged, as it were in the throat, and frequent hawking to relieve it; the tone of the voice becomes altered, it loses power, & hoarseness to a greater or less degree supervenes. Speaking aloud, chiefly for any length of time causes great aggravation of these symptoms; the change of voice always becomes more marked towards night. The mucous secretion becomes more abundant, & is

Spasme

opaque viscid. When the throat is examined at this stage of the disease, it appears raw & inflamed; the epithelium is destroyed, & the mucous follicles are hypertrophied & quite visible thro' the mucous membrane. The follicles are often filled with yellowish tubercular substance, & striae of adhesive mucus are seen hanging from the palate & covering the pharynx. The disease may continue thus, for many years undergoing no great alteration, but the patient generally suffers an exacerbation of his symptoms on exposure to cold, or immoderate use of the voice. If the disease progresses, the symptoms become very severe; the hoarseness is excessive after speaking or reading, this is accompanied by some pain in the larynx, & any attempts to use the vocal organs are attended with extreme languor, not only of these organs themselves, but also of the whole system. Mental depression is thought by Dr Green to be pathognomonic of the disease; in speaking of the difference between the symptoms of tubercle of the lungs & follicular disease he says "That peculiar mental condition incident to pulmonary disease; - by which the spirits are buoyed up, & hope often continues bright to the last, is well known. The

reverse

reverse of this obtains in follicular disease. In this latter affection, mental depression is to some extent so universally present, particularly where the affection has been protracted that there has been led, almost to consider it characteristic." The voice is sometimes nearly lost, or has a very discordant tone; but this, I apprehend, happens only in those cases where the disease is attended with ulceration of the cartilages. Cough is a very rare accompaniment in this complaint, & this is one of the modes by which it can be distinguished from more serious laryngeal affections. The passages are freed from the abundant secretion by cranking; but in some very advanced stages cough is sometimes present.

At one time this disease was supposed to affect public speakers exclusively. "Altho," says Dr Green, "this disease seemed to have been confined entirely to clergymen and public speakers it soon began to affect those unaccustomed to much exertion of the vocal organs." Nearly four hundred cases fell under Dr Green's notice & only seventy eight, or one in five, were public speakers. But when the affection does occur in those accustomed

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to much speaking, singing &c, it is always for obvious reasons, in a more aggravated form. It appears to have an undoubted hereditary tendency, is very liable to develop itself when those so predisposed are obliged to breathe vitiated air, or an ill ventilated atmosphere. There is a case reported where four in the same family; - the mother; & three sons who were clergymen, had the complaint at the same time; & there is another instance where four members of one family were affected at once. One of the most powerful predisposing causes here, is general debility. I have already noticed the prevalence of follicular sore throat after the epidemic of influenza in the year eighteen thirty; a similar epidemic of follicular disease followed the influenza of eighteen hundred & thirty seven, & of eighteen hundred & forty three. Weakness of the system becomes an especial exciting cause, when connected with severe mental labor, or great anxiety. Immoderate use of tobacco seems to be a fertile cause in producing this affection, and an almost insuperable obstacle to cure when the disease has been once established.

It would be endless to
enumerate

enumerate the remedies which have been recommended in this disease; a few only deserve notice. Among the general remedies iodine has enjoyed great reputation; seeing that iodine acts vigorously in reducing glandular enlargements, it will no doubt have an equal effect upon the mucous glandular; some consider it to exert a specific action in follicular disease, by changing both the character, & quantity of the sputa giving to the lining membrane of the larynx a healthy appearance; large doses of the iodide of potassium is the best preparation. Mercury. when chronic thickening of the parts take place, this mineral is immeminently useful, when taken in the dose of $\frac{1}{12}$ to $\frac{1}{6}$ of a grain of the bichloride in combination with opium or hyoscyamus. Prussic acid & ammonia at one time were in fashion in the treatment of this complaint. Change of climate is always of the greatest service. It often removes the patient from an atmosphere very liable to engender the disease; change of scene revives the desponding condition of the patient's mind & thereby creates a revolution in the constitution, invigorates the system, & imparts new tone to the body. But however desirable in such cases, it is seldom that we can prevail upon our patients to adopt this mode of cure. Topical
remedies

remedies are found of the most eminent service. Many substances have been applied locally to the region & neighbourhood of the larynx with great benefit; sulphate of zinc & copper, bromine, & alum are often applied by means of insufflation, & as temporary agents, they enjoyed great reputation. The most serviceable remedy here, as in other affections of the larynx is nitrate of silver. It has been employed for a very long time, as a local application to the throat & pharynx, but it was only in the beginning of the present century that Sir C. Bell proposed to apply it directly to the interior of the larynx. M^r. Tronseau & Belloc were the first who treated some forms of laryngitis successfully by means of this local application, & D^r. H. Green has been very fortunate in curing the follicular disease in this manner, & he has published the results of an extensive experience on the subject. I have before me nearly a volume of cases illustrative of the efficacy of this remedy. The salt is applied in the form of solution of the strength generally of one drachm, to an ounce of distilled water; the solution is conveyed to the larynx by means of a small piece of sponge attached to a rod of whalebone. It is of great importance

to

to educate the fauces, to ensure the application of the sponge, without great irritation. The instruments required are, an apparatus for depressing the tongue & the probang. I accompanied Dr. H. Green, through the clinical ward of the Infirmary here last summer, whilst examining some of the patients affected with laryngitis, & passing the sponge into the larynx. I carefully watched his mode of procedure; having procured a good light, the patient's mouth was properly opened, & the tongue depressed & drawn forward so as to give plenty of space, & render the passages as free as possible; the sponge was pushed along the instrument which depressed the tongue held steadily at the fauces; the patient was now ordered to take a deep inspiration, & then to expire gently; the sponge was ^{now} plunged with a good deal of force thro' the larynx. Dr. Green was very careful to keep the sponge exactly in the middle line, & avoided touching the pillars of the fauces. In most of the cases, in which Dr. Green introduced the probang, great spasm of the pharynx was produced after the instrument was withdrawn, but the slightest expiration or cough relieved all the distressing symptoms instantly. The method above

described

described by M. Guersant & others, of passing the sponge into the larynx. The spasm produced in most cases is sometimes alarming, & might if occurring in some constitutions be attended with serious consequences. M. Bouchut when writing on this subject says "La suffocation immédiate peut en être la conséquence, si l'on a laissé trop long temps l'éponge sur la glotte, et si une trop grande quantité de liquide a pénétré dans la larynx. Cet accident est fort grave, car il peut déterminer la mort, ou au moins la nécessité de pratiquer aussitôt la trachéotomie"

There is much scepticism amongst medical men, regarding the possibility of passing the sponge thro' the chordae vocales; some scarcely admit that the sponge reaches as far as the vocal cords themselves. There is no doubt, that admitting the possibility of the operation, it would require considerable practice & dexterity to succeed adeptly, & in some cases of irritability, the difficulty would be insurmountable. Considering the sensitive condition of the parts, together with the spasmodic reflex spasmodic contractions which are induced by the introduction of a foreign body, it is evident that no education of the parts will ever reduce them

their sensitiveness so far, as to make them, admit the sponge without violent endeavours to arrest it; if therefore the operation in question is practicable, it must be accomplished by mechanical force sufficient to overcome this resistance. Regarding the size of the opening; there is no difficulty; the glottis & rima are abundantly capacious to permit the sponge to pass. I have frequently tried to introduce the sponge thro the ends of a dissected larynx, & always found great difficulty in doing so, by mere pushing, but as soon as I made the transverse diameter of the rima greater, by separating the cords, the sponge entered with great facility. The sponge is easily passed from below upwards in the dissected condition, but on attempting the passage from above great difficulty is experienced in consequence of the cords themselves being pressed downwards, & becoming themselves almost insuperable obstacles.

Some persons assert that they can pass the sponge not only thro the cords, but down into the trachea, or even into the bronchus. There must be some great fallacy here, which is to be explained by the very probable circumstance, that the instrument enters the oesophagus, & feelings are produced

produced both to the operator, & the patient exactly similar to those induced when the larynx is irritated. In passing the sponge in the dead subject, I have often been deceived in this manner; the directions are almost the same in the different tubes, & the resistance offered by the collapsed fibres of the gullet, is apt to convey the idea that you have passed the constriction of the cords. Many are of opinion that the sponge is grasped by the pharyngeal muscles, when the fluid contained in it is squeezed out & trickles into the windpipe; at a meeting of the London Medical Society a few weeks ago, most of the members were of the opinion, that this was the chief explanation of the matter. I think that the instrument in question can be introduced with facility into the upper part of the larynx, but it is rarely passed beyond the true cords.

W. J. Dewar

Edinburgh
March 1852