Recurrent Laryngitis and Obstruction of the Nares, or Ordinary Catarrh.

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RECURRENT LARYNGITIS AND OBSTRUCTION OF THE NARES, OR ORDINARY CATARRH.

By the term "recurrent laryngitis" I have designated a common form of chronic catarrhal inflammation of the larynx, which, because of its clinical history, etiology, and treatment, merits special attention. This is not a distinct affection, and what I have to say of it is not entirely new; but many facts regarding it have been so generally overlooked by authors that I feel confident they will be of interest to this Society. The affection is characterized by frequent recurrence of irritation of the larynx, with hacking or hemming cough, and more or less complete aphonia; interspersed with longer or shorter periods of perfect health, or of such slight impairment that the function of the larynx is perfectly performed for all ordinary use of the voice.

The affection is usually associated with chronic pharyngitis, and in a large majority of cases with considerable obstruction of the nares, which I believe stands in a causative relation to both the pharyngeal and laryngeal disease. It is more frequently met with along the seaboard and on the borders of our great lakes than in inland localities. In the cities located on our lakes it affects more frequently those who live within a few blocks of the shore than those half a mile distant; however, no locality is entirely exempt, and frequently the affection is observed in the most unexpected quarters, where the temperature and humidity of the atmosphere are free from the sudden changes which occur near large bodies of water. This fact is of importance as one of the proofs of the theory which I hold regarding the etiology of the affection.

Most frequently patients are troubled during the fall and winter months, though the changeable weather of spring is quite likely to excite a subacute or chronic inflammation; which, however, may be relieved by the warm days of summer, and is therefore less persistent than similar attacks during cold weather.

I have observed the affection most frequently in patients between the ages of 18 and 55 years; and am led to believe that it is not very common before or after these ages. Among those who use the voice considerably in speaking or singing, the affection is more frequently observed than in others; but this may be partially due to their noticing imperfectious in the vocal organ more than those who only use it for ordinary conversation. Men seem more subject to the disease than women, which may be readily explained by the greater exposure in the former, and especially by the common habit of smoking, which is so obnoxious to sensitive mucous membranes.

Patients suffering from recurrent laryngitis are usually found to be also affected with coryza and pharyngitis.

Examination of the larynx will show the epiglottis and arytenoids moderately congested, and the vocal cords of a light pink color. Sometimes the congestion is confined to the edges of the cords only; sometimes to the anterior or posterior extremities; sometimes it is uniform, and in other cases only small patches and enlarged vessels can be seen. Occasionally the cords are quite red, in which case they are usually considerably thickened and partially hidden by little masses of mucus adhering to their surface. In cases in which the vocal cords are only pink in color, they are seldom thickened to any considerable extent; but upon phonation their edges seem less tense than natural, and often a chink, from one to two millimetres in width, will remain between them even in sounding a high pitched "A."

Frequently we will observe, running from the vocal

processes backwards and upwards upon the arytenoid cartilages, small triangular spots from three to six millimetres in width, and five to eight in altitude, in which the color is yellowish or yellowish white. These spots have the appearance of superficial ulcers, but are usually only patches of atrophied mucous membrane similar to that which is often seen over the cartilaginous septum in chronic rhinitis. In some cases the inter-arytenoid fold of mucous membrane has a slightly granular appearance, and is of a light color, suggestive of superficial ulceration; but true ulceration is uncommon. In patients whose vitality is low ulceration may actually take place in either of these places. Usually there is little, if any, thickening of other portions of the larynx than the vocal cords.

The posterior pharyngeal wall is usually studded with several enlarged follicles, as in simple chronic follicular pharyngitis; and in the great majority of cases it will be found that there is bending with thickening of the septum narium; or swelling and hypertrophy of the turbinated bodies on one or both sides.

A rhinoscopic examination of the naso-pharynx will reveal usually a relaxed and swollen condition of its mucous membrane; and often submucous thickening, giving rise to grayish projections from the sides of the vomer near its posterior edge. This thickening is sometimes sufficient to nearly occlude the posterior part of the nasal cavity. Often the posterior ends of the inferior, and sometimes of the middle turbinated bodies are so swollen as to greatly restrict the size of the choanæ.

Etiology.—Most patients have no well-defined idea of the cause of the trouble, but experience has shown that usually either hereditary influences, changeable climate or syphilis predispose to the affection, while a great variety of conditions may excite the attack. The exciting cause is sometimes found in the over-use of the voice, as in shouting, speaking or singing,

particularly in damp, chilly air. Sometimes an ordinary cold taken by any of the usual methods, and added to from time to time, will terminate in laryngitis, which will speedily recur upon slight exposure. The use of alcoholic stimulants frequently causes the disease, and among men smoking tobacco, and apparently chewing, keeps the mucous membrane in an irritable condition, which favors inflammation, or retards recovery.

Pathology.—In nearly all of these cases it will be found that there is some permanent obstruction in the nares, such as a deflected or thickened septum, or swelling or hypertrophy of the turbinated bodies, which is responsible for the continuance of the disease. In some, mucous polypi exist, and in others rhinoliths or foreign bodies; the effect being the same whatever the character of the obstruction.

The obstruction interferes with the free passage of air through the nose, and thus with each inspiration causes rarefaction of the air in the posterior nares; this causes congestion and finally inflammation of the mucous membranes, which gradually extend towards the larynx. At the same time, from inability to breathe freely through the nose, the patient, particularly when asleep, breathes through the mouth, causing dryness, irritation, and finally inflammation of the pharynx and larynx, which may be aggravated, or maintained, by any of the causes already mentioned.

As objections to the theory that obstruction of the nares causes nearly all the cases of recurrent laryngitis, it may be claimed that when the obstruction is due to temporary swelling the inflammation should disappear at once when the swelling subsides, and that when due to permanent obstruction it would never disappear while the obstruction continued. In answering the first of these objections, I may state that the laryngitis does speedily disappear, time after time, with the subsidence of the swelling, but that finally

the membrane becomes so changed by frequent inflammation that it is difficult for nature to restore the healthy processes promptly, or to maintain them when restored even against slight irritation. The second is answered by the statement that there is a constant variation in the permeability of the nares, even when obstructed by large mucous polypi, or a greatly distorted or thickened septum. These variations, which result from disturbance of the vaso-motor nerves, are due mainly to the condition of the atmosphere; the mucous membrane being swollen and the nasal cavities consequently small in damp or chilly weather, and the reverse in the opposite condition of the atmosphere. Therefore, during the dryer portions of the year, the nares are frequently sufficiently patulous, notwithstanding the obstruction, to allow free nasal respiration.

Clinical History. — The symptoms of recurrent laryngitis are like those that mark the course of chronic laryngitis of a mild type, such as hoarseness, tickling in the throat, hacking cough, and expectoration at times of pellets of mucus; with sometimes short spasms of the larynx, due probably to the irritation of dried secretions becoming detached and lodging in the glottis.

The hoarseness is not constant, though it is generally apparent if the patient attempts to sing. Any of these symptoms may be absent. These symptoms are present in greater or less degree with each recurring attack, and they tend to gradually increase in severity until finally they become permanent, as the disease merges into persistent chronic laryngitis.

Usually, the history of such a case will extend over several years, and almost invariably the patient will state that he has been troubled with catarrh for two or more years preceding the exposure or indiscretion which excited the laryngeal inflammation. And he has generally experienced several similar attacks of from two to four weeks' duration before the fear that

the disease may extend to the lungs, prompts him to seek advice. Usually no constitutional symptoms attend the affection, though if it passes into chronic laryngitis grave symptoms may be developed, which are due to fatigue and loss of rest caused by the cough.

Diagnosis.—The history of the case and the discovery of the congestion of the larynx already mentioned, with the appearance of the pharynx and nares, renders the diagnosis certain when pulmonary and cardiac disease have been excluded.

Prognosis.—The tendency of these cases is to grow worse for two, three, or four years, the larynx becoming more and more sensitive, so that it is affected more easily by slight causes, and the inflammation remains longer and longer with each attack, until finally what I have termed recurrent laryngitis terminates in persistent chronic inflammation which is difficult to eradicate. But in some cases the patient learns so well the exciting causes of cold that, by the greatest care, he avoids many attacks, and finally recovery may take place, atlhough the singing voice is likely to be ruined. This so-called recovery is particularly likely to take place when the inflammation of the larynx is due to hypertrophy of the nasal mucous membrane; a condition which tends after a few years to terminate in atrophy, when the nasal cavities again become free; and unless the structure of the laryngeal mucous membrane has been too much altered by repeated inflammation, the laryngitis will subside. Unfortunately, however, even in these cases, atrophy of the nasal tissue may go on to such an extent as to destroy the proper warming function of the nasal chambers, and thus the pharyngeal, and following it the laryngeal inflammation is likely to again recur, and to remain permanent.

There is a belief among many that this affection tends to terminate in consumption, but although I am well aware that it occasionally precedes this dis-

ease, I do not think it stands in a causative relation to it. From my observation and reading I conclude that a large proportion of cases of recurrent laryngitis will, if imperfectly treated, result in chronic laryngitis; a limited number will perfectly recover; some will recover for a time, to eventually terminate in a more obstinate affection; and a small number will materially shorten life.

Treatment.—The treatment, to be effective, must be varied according to the cause of the disease. In cases in which the affection occurs in a person predisposed to inflammation of the mucous surfaces, and in which there is no obstruction in the upper air passages to account for it, we adopt the ordinary treatment recommended for chronic laryngitis, *i. e.*, local applications of astringents and stimulants, together with proper attention to any constitutional symptoms. We must make every effort to ascertain the true cause of the frequent colds from which these patients suffer, and they must be advised accordingly.

During the height of the attack, I prefer applications of the sulphate or chloride of zinc, in strength varying from gr. 2 to 30 in f℥i, according to the effect, the weaker solutions during the height of the affection, and the strong ones later on. These are made with the atomizer, if possible, but in a large number of cases, the patient cannot hold the throat in position long enough to permit of a thorough application; and then either a brush or a pledget of cotton must be employed. I prefer the latter for most cases. After the inflammation has subsided, I direct the patient to continue the use of mild stimulating spray two or three times a day for many months, in order to toughen the membrane so that it may not be so easily affected by exposure. For this purpose I usually recommend a solution of sulphate of zinc in water, 2 or 3 grains to the ounce. This should be used for three or four weeks, and then substituted by some similar remedy, as ferric alum or chloride of zinc, for

about the same time; after which the original spray may be again employed. Frequently I combine with these solutions small quantities of carbolic acid, for its sedative effect, and often I add to them the distilled extract of hamamelis, eucalyptol or Listerine. At the same time, owing to the pharyngeal trouble, troches of krameria, or Hancock's compound troches of krameria, or benzoic acid may be beneficially employed four or five times a day. By this process, eventually, nearly all these cases will be cured, if the patient is faithful in the use of his home remedies.

The vapor inhalations which were much in vogue a few years ago are not generally beneficial, except during the first few days of the attack; on the contrary, they are often hurtful by reason of the increased tendency to inflammation induced by the frequent applications of warmth and moisture.

As a matter of course the patient must not use the voice when hoarse, and he must be careful in recommencing its use after a period of rest.

The condition of the digestive and secretory organs must be carefully attended to in all these cases, and the rheumatic, gouty, syphilitic, or dartrous diathesis, if present, must receive proper consideration.

In a considerable number of cases, the inflammation is caused and maintained by the use of tobacco. I have found the condition most frequently among smokers, though I believe that chewing is almost as injurious in some individuals. In such cases, tobacco must be discontinued before we can hope for a complete cure.

Mechanical Obstructions.—In most cases, obstruction in the naso-pharynx or nares will be found to exist, and then no remedies are likely to be of much service until the obstruction has been removed. Among the causes of obstruction are: foreign bodies; naso-pharyngeal growths; nasal polypi; deflection

of the septum with thickening, and swelling with hypertrophy of the turbinated bodies.

When hypertrophy of the palatine tonsil is sufficient to interfere with nasal respiration, the gland must be removed. This may be done with chemical escharotics, the galvano-cautery, or with the curette or cutting forceps. Of these methods, the only one I can recommend is the last mentioned. The action of chemical escharotics cannot be well controlled in this locality, and they cause great pain. Removal by the galvano-cautery is painful and tedious. Removal by the curette is more difficult and is likely to be less thorough than by the forceps. The cutting forceps of Löwenberg, or some modification of it, I have found most satisfactory. Usually from three to five applications of the forceps will be necessary, and each will cause considerable pain; therefore it is best to anæsthetize the part with hydrochlorate of cocaine, or in children to produce general anæsthesia. In the latter case, the child is placed on its abdomen, with head drawn over the edge of the table, and the mouth kept open by a suitable gag. The operator sits on a low stool in front and directs his forceps with the forefinger of the left hand, taking special care not to sieze the projecting end of the Eustachian tube.

Polypoid growths springing from the vault of the pharynx, or from the choanæ, may be best removed with the galvano-cautery or steel-wire écraseur; the latter being far preferable in the majority of cases. If the tumor is not large, it may generally be most easily secured by passing the snare through the nares, the rhinoscopic mirror being employed to see when the wire is in proper position.

If the tumor be large, a catheter is passed through the nares and the end of it brought out at the mouth. The ends of a wire about three feet long are then passed into the mouth through the catheter, and brought out at the nostril. The catheter is then

withdrawn, the ends of the wire slipped through the tube of the écraseur, and the loop drawn back into the mouth and carried up behind the tumor; after which the wire is fastened to the instrument and the tumor is gradually cut off. In carrying the loop up behind a large tumor, the operation may be greatly facilitated by using my snare applicator.[1]

Mucous Polypi.—Nasal polypi may be removed by various methods, the principal ones being by the forceps, the galvano-cautery or steel wire écraseur. I much prefer the last. Whichever plan of operating is adopted, it should be done under a strong light thrown into the nares from a concave reflector.

The écraseur causes much less pain than the forceps, and with it we do not remove the turbinated bodies, as frequently happens when forceps are employed. After the polypi have been removed, the spots from which they have grown will sometimes need to be cauterized, preferably with the galvano-cautery or chromic acid.

Deflected or Thickened Septum.—When the trouble depends upon a deflected septum, with more or less thickening, the bend must be straightened and the redundant tissue removed. In nearly all cases of bending of the septum there is a considerable outgrowth from its bony or cartilagenous portion which is generally found on the convex side; and in most cases the inferior turbinated body on the other side is hypertrophied. The projecting portion of the septum is found with about equal frequency on the right or left side, and in about ninety per cent. of the cases, is mostly located on the bony septum; though the cartilaginous septum is probably the first part involved. In about ten per cent. of the cases the cartilaginous portion causes the chief obstruction.

[1]This is an instrument so constructed that as the wire loop is drawn back into the naso-pharynx, it may be easily opened and carried up behind the tumor, where it is held until the wires have been adjusted to the snare and drawn tight. Then the applicator is readily released from the wire and withdrawn.

The remarkable relief experienced by patients after removal of obstructing portions of the septum is one of the most satisfactory results ever witnessed by the surgeon. Even when small obstructions have been removed the patients remark, "I never knew what it was to breathe before." In more pronounced cases they express themselves as "proud of their nose," and state that no one can appreciate what a "luxury it is to breathe through the natural channel." In the treatment of these cases I can say nothing whatever in favor of the old method of puncturing the septum, which does not relieve the obstruction, but furnishes a new source of annoyance from the scabbing which occurs.

When there is only moderate flexure without thickening, the method adopted by Prof. Moses Gunn may be followed. He recommends oblique crucial incisions so as to allow the cut edges to glide over each other as the septum is forced to its former position, where it is retained by a plug until adhesions take place. This operation is not applicable where there is thickening, or where the vomer is much involved. Such cases (and they constitute the greater number) require removal of the redundant tissue. In removing this, I formerly dissected off the mucous membrane from below, leaving its attachment above, and then removed as much of the mass as was necessary to restore the normal size of the cavity; but the dissection was a tedious process, and I learned by experience that it was unnecessary, except when the tissue to be removed was near the nostril. In other cases healing takes place almost as rapidly and quite as surely and perfectly, if no effort is made to save the mucous membrane. Now I saw off the spur, mucous membrane, bone, and cartilage together, on the normal plane of the septum, so that when the piece is removed the naris will be of normal size. When this has been done, if there is much bending of the septum it is straightened with forceps, and held

in position by a plug or tube of gutta-percha, which may be worn constantly for a couple of weeks, and at intervals for two or three weeks longer, until the parts are fixed in a proper position. Sometimes, where the flexure is great, this cut will open into the opposite naris, but usually the mucous membrane of the opposite side is not cut through. However, when it is, the opening generally heals; though if it should not, it would be a matter of little consequence, provided the cut was far back on the septum. If the opening be near the nostrils it might, as already suggested, become a source of much annoyance. Therefore in this position, care should be taken to save sufficient mucous membrane to cover it.

After this operation the nares should be kept clean and thoroughly disinfected. This may be accomplished by washing with Dobell's solution or soda, and subsequently applying a powder of iodoform, but a pleasanter method and quite as effective is to have the nares sprayed two to four times a day with a solution of Listerine, ʒj or ʒij to ℥j, which is thoroughly antiseptic and has a pleasant odor. The instruments used for the operation are an ordinary phalangeal saw, a small nasal saw, nasal cutting forceps, a nasal spatula, nasal scissors, and forceps for replacing the septum. The gutta-percha plug may be easily made from the sheets of this material which are used by dentists for making plates for false teeth. The parts should be thoroughly anæsthetized by cocaine before the operation, excepting in young children, in whom general anæsthesia will be required. Considerable bleeding is likely to continue for several hours after the operation, but it may be readily prevented by plugging the naris with a strip of gauze saturated with a strong solution of tannic acid.

Hypertrophic Catarrh, or in common parlance, catarrh, is by far the most frequent cause of the form of laryngitis now under consideration. It is a fre-

quent cause of deafness, and is a source of much discomfort to many people, even when it causes no impairment of the voice or sense of hearing. Until recently its treatment has been very unsatisfactory, but happily this is now changed, and we may undertake its cure with almost as much confidence as we could that of a case of intermittent fever.

As the symptoms of this disease are due to swelling or hypertrophy of the mucous membrane, and sub-mucous tissues, some plan must be adopted which will prevent the one and remove the other; and I may as well premise what I am to say on this subject by the statement that nothing short of surgical interference will certainly accomplish this end, though many local remedies are of temporary value.

The methods which have been recommended for preventing swelling and removing hypertrophied tissue are, cauterization by various chemicals, or the galvano-cautery, and removal by scissors, cutting forceps, or écraseur. Of the various chemicals, chromic and glacial acetic acids have been found most useful, but both give considerable pain, though less than other escharotics; and neither has been found entirely satisfactory. The usual experience with chemical escharotics is, that the patient is partially relieved, and concludes that what remains of the disease is less disagreeable than the remedy; therefore he discontinues treatment too soon, and after a few months the disease returns. Remembering former suffering he does not return to his physician, and the latter, until he hears of the case accidentally, fondly hopes that it has been cured.

When the swollen tissues are prominent, and mainly confined to the posterior end of the turbinated body, no method is so successful for their removal as that by the steel wire écraseur, various forms of which are now in the market. When the anterior portions of these bodies are involved the écraseur, even when supplemented by a perforating needle, is a very un-

satisfactory instrument. In cases of the latter variety occasionally nasal scissors may be advantageously employed; or, if the bone itself is hypertrophied, nasal cutting forceps with the scissors will be needed. In most cases no instrument answers the purpose so well as the galvano cautery, by which horizontal lines may be burned through the soft tissues down to the bone in two or three places, with the result of effectually preventing subsequent swelling, and restoring the naris to its normal calibre; whereby free nasal respiration is reëstablished. Thus the disease is practically cured, though for a time mild astringents or stimulating applications may be needed to restore the normal tone of the mucous membrane. After the burning, the nasal cavities should be kept clean by alkaline washes or sprays, to which about ten per cent. of Listerine has been added. A powder composed of equal parts of boric acid and iodoform will be found an excellent application when its odor is not objectionable.

The instrument which I employ for the cauterization is a large two-celled galvanic battery, with carbon and zinc elements, and bichromate of potash solution, a universal handle and a platinum bladed electrode. The parts are first anæsthetized with cocaine, so that the burn is made without pain. The cocaine has no injurious effects, but care must be taken not to burn too much at once, lest severe inflammation be set up. Usually a single line from behind forwards on one side is as much as it is judicious to burn at a single sitting. Ordinarily the naris will be stopped for two or three days after the cauterization, and subsequently occasional touching of the part with a solution of nitrate of silver is desirable, to promote rapid cicatrization. This mode of treatment, when properly carried out, will surely cure the hypertrophic catarrh, and then the resulting laryngitis will either disappear spontaneously or may be removed by treatment.

The results of treatment of the catarrh on the

general condition are sometimes remarkable. Patients, who have for years been so frail that the slightest exposure or over-work would make them sick, will sometimes begin to improve at once as the result of more perfect oxygenation of the blood, and they became hardy and robust; so that it is a frequent occurence after a few weeks for them to remark that they "have not been so well for years." While at first this result seems singular,on second thought it is found to be upon the same principle that a weak person who has for years been confined in poorly ventilated apartments will speedly become vigorous and strong when removed to the pure atmosphere of the country.

In cases in which curative treatment can not be carried out, much temporary benefit may be obtained from the repeated application to the nares of cocaine. One of the remarkable properties of this drug, which was pointed out seperately and almost simultaneously by Dr. Bosworth, of New York, and myself, is that when applied in small quantities to the swollen turbinated bodies, it causes a contraction of the tissue within two or three minutes, which will continue for several hours. This will open the nares and allow easy respiration. I have employed this drug constantly during the past winter for the relief of acute colds, and in the exacerbations of hypertrophic catarrh with the most favorable results. I employ it in the proportion of 4 per cent. of cocaine to 96 per cent. of powdered starch or sugar of milk, directing that it be blown into the nares at bed-time, and repeated after four or five hours if needed. It causes the swelling to disappear at once, checks secretions, and allows the patient to breath easily through the nose; thus preventing laryngeal complications.

In conclusion I wish to call attention to the following propositions:

1. Recurrent laryngitis is usually dependent upon obstruction of the nasal cavities.

2. This obstruction in the majority of cases is

caused either by deflection and thickening of the septum or by what is known as hypertrophic catarrh.

3. To effect a permanent cure the obstruction must be removed.

4. The operative procedures necessary for the removal of these obstructions may be made painless by the use of hydrochlorate of cocaine.

5. This method of treatment properly carried out may be relied on to cure the catarrh and the laryngitis which it has caused.

6. Great improvement in the general health often results from the removal of the nasal obstruction.

7. In acute colds or exacerbations of hypertrophic catarrh, immediate relief may be obtained by the insufflation often as needed of small quanties of cocaine.

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P.S.—Several cases of poisoning from cocaine have occured recently, but in all the drug was used inordinately. Used judiciously, by the competent physician, it has never proven injurious.