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THE TREATMENT OF CHRONIC NASAL DISCHARGE.

A LECTURE DELIVERED ON JUNE 23, 1930, DURING THE
POST-GRADUATE COURSE AT THE PRINCE OF WALES'S
HOSPITAL.

By LOWNDES YATES,

M.C., M.D.LOND., F.R.C.S.EDIN.

THE common cold and the condition known as influenza furnish examples of simple inflammatory conditions of the nasal mucous membrane, and since the failure of recovery from some simple type of nasal infection is in all cases the beginning of the chronic nasal discharge, the best approach to the study of the means of treatment of a chronic nasal discharge is through these simple types of inflammation.

In the common cold three stages may be recognized.

The Stage of Infection.—There is a feeling of discomfort in the nose. On investigation it is found that the nose contains free micro-organisms; that the secretion of the mucous glands is increased and that the ciliary action is correspondingly augmented so that the excess of mucus is conveyed into the nasopharynx.

The Stage of Reaction.—This is accompanied by sneezing and by congestion of the mucous membrane. The mucous glands secrete more actively and the cilia cannot convey this excess away, and hence a nasal discharge begins. This discharge is generally white, but if there is a latent sinusitis or other focus of infection in the nose it may be yellow. Leucocytes are present in quantity in the white or yellow discharge.

The Stage of Recovery.—This stage begins when the leucocytes have killed the micro-organisms. In uncomplicated cases recovery is rapid and progressive, complications arise

because some area of the nose has not recovered as quickly as the remainder. This area in which recovery lags behind is generally a nasal sinus, and in it the products of inflammation collect, but they produce no symptoms unless they are under pressure owing to the blocking of the orifice of a sinus. A symptomless form of sinusitis follows, and the infected products in the sinus after a time escape into the nose and there produce a cold. The original cold was caught from some evident contact with an infected individual whose breath has been inhaled into the nasal airway. This type of cold is called extrinsic. The second cold, which follows the escape of products of infection from a sinus, is called intrinsic.

If a succession of intrinsic colds follow each other, or if by repeated contact with an infected person who may have septic teeth or serious rhinitis, a series of extrinsic colds are caught, the mucous glands enlarge in number and in size, the mucous membrane becomes congested and the congestion acting for months causes an increase in the underlying bone by reason of the increase of the blood supply to its periosteum. The whole process is one of congestion and hypertrophy of the nasal mucous membrane and of the underlying bone, the changes being spoken of collectively as those of hypertrophic rhinitis.

It has been mentioned that in the common cold the discharge contains a quantity of leucocytes. These break down and their digestive ferments give to the mucus the property of dissolving the micro-organisms which lie within it, but these ferments have but little action on the mucus itself which, like the mucous membrane, is protected from their action by an anti-leucocytic substance. If this anti-leucocytic substance is insufficiently strong, the nasal mucous membrane may be digested and a state of atrophy combined with hypertrophy will follow.

The secretion of the leucocytes is, however, strongly alkaline, and if there is

evidence that the ferments are causing destruction of the nasal mucous membrane, the destruction can be stopped by the use of acid applications, which by neutralizing the alkalinity of the leucocytic substances deprive them of some portion of their digestive power, just in the same way as the addition of acid to an alkaline solution of trypsin will diminish the activity of this intestinal ferment. It can be demonstrated that one of the first phenomena to be noticed when the digestive power of the leucocytic substance in the mucus becomes too active, is a retarding and later a paralysis of ciliary action, for which reason the discharges come to lie stagnant on the mucous membrane which has lost its power of removing them by ciliary action.

The condition of hypertrophy is temporary, for the number of mucous glands and the congestion of the mucous membrane gradually decrease, though the enlargement of the bone is permanent. From these observations the following will emerge :

(1) The point of major importance is the recognition of the early stages of hypertrophy and of discharge.

(2) The discharge is a symptom of what is going on within the nose.

(3) Hypertrophic conditions of the nasal mucous membrane are curable by palliative treatment which includes removal of their cause. This may be : (a) Infection of the nasal mucous membrane from a sinus ; (b) constant reinfection by inspiration of air-borne infection, either from constant contact with a person in the home or office who is heavily infected, or by reason of industrial conditions.

(4) Hypertrophic conditions of the bony framework which supports the mucous membrane are not improved by palliative measures and if sufficiently severe require treatment by operation which is generally of a minor nature and carried out at the clinic or consulting rooms. Occasionally it is more severe and then requires admission to a hospital or nursing home.

HYPERTROPHIC RHINITIS.

General Lines of Treatment in Chronic Cases.

If there is nasal discharge and the nasal airway is obstructed, the case is probably one in which either hypertrophic rhinitis is established, or in which the precursors of this condition are present.

The degree of hypertrophy can never be assessed nor can the discharge be efficaciously removed until that part of the swelling of the mucous membrane which is due to congestion has been removed by spraying the nose with a 2 per cent. solution of cocaine hydrochloride in saline. Adrenalin should on no account be added as it causes irritation. When the mucous membrane has been shrunk by cocaine, the discharges will escape from its surface.

In acute cases or in cases in which there is believed to be an acute exacerbation of a chronic process, in those in which congestion is extreme or in which fever accompanies the nasal inflammation, watery solutions should not be employed as nasal douches, but oil should be substituted, for it has been found that in these circumstances the growth of the micro-organisms is held in check by the anti-bacterial substances in the mucus. Moreover, if this type of mucus be diluted with watery solutions it becomes an efficient culture medium for the micro-organisms and the infection spreads throughout the nose or to the middle-ear with great rapidity. The following prescription can be recommended :—

R ^x	Menthol ...	...	...	1 gr.
	Thymol ...	...	...	2 „
	Eucalyptol ...	...	...	30 ℥
	Liq. paraffin ad ...	...	...	1 oz.

A medicine dropperful to be injected into each nostril twice a day.

In subacute cases if there is no fever and no great degree of congestion of the mucous membrane, it has been found that the mucus has but slight bactericidal powers and that the more efficient cleansing afforded by a watery douche is better. We may employ :—

R ^x	Menthol ...	...	...	1 gr.
	Thymol ...	...	...	4 „
	Eucalyptol ...	...	...	30 ℥
	Spiritus vini rect.	...	...	1 oz.
	Glycerine ...	...	...	2 „
	Sodii chlor.	...	...	2 „
	Tinct. magenta ...	...	...	1 „
	Aqua ad ...	...	...	16 „

One tablespoonful in a tumblerful of warm water to be sniffed up the nose twice a day.

If the discharge is highly alkaline, 40 to 90 gr. of citric acid, or 2 oz. of acid boric may be added to the above prescription with advantage.

The progress of the case under this treatment is watched and if it progresses steadily towards cure no further measures will be necessary except in cases in which an infection in a sinus is suspected.

DIAGNOSIS OF SINUSITIS.

An infection of the antrum may be diagnosed if pus is seen beneath the middle turbinate, particularly when examined with a mirror in the nasopharynx. If pus is seen above the middle turbinate an infection of the sphenoid or posterior ethmoid is suspected.

In either case the discharge will be conveyed by the nasal cilia along the usual paths towards the opening of the œsophagus, and here, on opening the mouth and looking at the well illuminated fauces, a track of mucous membrane behind the posterior pillar of the fauces which is red and raised as the result of the inflammatory products which are passing over it, will direct attention to the presence of some localized infection in the nasal airway or in a nasal sinus. The antrum and the frontal sinus should be transilluminated and their dullness to the light will be in favour of the presence of inflammation of their lining mucous membrane.

PRELIMINARY TREATMENT OF SINUSITIS.

The antrum, if believed to be a source of sepsis, is washed out by introduction of a cannula from beneath the inferior turbinate

into its lumen. In acute cases it is washed out with oil and in chronic cases with normal saline.

The thickness of the bone is noted with especial care for, if thin, the opening can be enlarged under cocaine anæsthesia with a cutting cannula. If pus is found, the lavage is repeated in three days and if the character of the pus improves, or its quantity diminishes, such repeated lavage is likely to bring about a cure. If the character and quantity of the pus are unaffected by the lavage and the bone is thin, the opening in the antro-nasal wall should be enlarged under cocaine with the cutting cannula until of such a size that the patient can introduce a cannula through it himself and wash out the antrum twice a day. This will generally effect a cure.

If, however, the bone is thick, the opening of the antrum will have to be carried out under general anæsthesia, and this, with its expense and loss of time from work, should not be lightly undertaken. Indications for this will be discussed later.

If the frontal sinus is suspected as a source of sepsis, it also can be washed out, in some 80 per cent. of cases, by the introduction of a stiffened soft catheter from the nasal airway into the frontal sinus. If this should prove impossible, the anterior end of the middle turbinate can be removed, and if this fails to cause drainage of the frontal sinus, the most anterior of the ethmoidal cells should be opened, for the frontal sinus often opens into this in cases in which the above attempts at drainage of this sinus have proved useless. Every effort should be made to drain the frontal sinus by these palliative measures, for external operation is to be avoided for a variety of reasons when this is possible.

The sphenoidal and posterior ethmoidal sinuses in some cases can be washed out by introduction of a special blunt catheter through their normal ostia, but if this is impossible the anterior wall of the latter can be pierced with a sharp cannula.

TREATMENT OF SINUSITIS WHICH IS INTRACTABLE TO PALLIATIVE TREATMENT.

By those palliative measures it is generally possible to deal with early cases of inflammation of the sinuses, but in the later cases the bone will be hypertrophied, the naso-antral wall will be too thick to remove with a cutting cannula under cocaine anæsthesia, and the ostia of the frontal, sphenoidal and posterior ethmoidal sinuses may be narrowed by the enlargement of the bone around them.

THE "MASTER" SINUS.

Before an operation is performed, search should be made for what is called the "master" sinus. By this term is implied the sinus which by its inflammation is affecting those around it. The douching of the nose and lavage of the various sinuses will generally reveal one which resists this treatment. The decision to perform an operation on an inflamed maxillary sinus is reached partly on account of its intractability to palliative treatment, and partly on the thickness of the bone, which is too great to permit an opening to be made into the sinus with a cutting cannula under cocaine anæsthesia. The operation consists of cutting a hole in the naso-antral wall, through which the patient can wash out the sinus. Inflamed ethmoidal sinuses can generally be opened under cocaine anæsthesia, and inflammation in the sphenoidal or posterior ethmoidal sinuses nearly always yields to palliative treatment.

The frontal sinus can generally be washed out, and if necessary a catheter can be left for an hour or so in its duct. The frontal sinus may be developed from an ethmoidal cell and open far back in the nose. Then it can not be catheterized and an external opening may be necessary. This is made through its floor, and the resulting scar should be invisible if the modern technique is carried out successfully. In certain other cases bony abnormalities of the middle turbinate will demand an operation for the removal of such portions of it as cause pain

by pressure on the neighbouring mucous membrane.

TREATMENT OF NASAL POLYPI.

In some cases polypi may form, and the presence of these will alter the line of treatment which has just been laid down, for the polypi must be removed. It will not infrequently be found that if polypi are growing abundantly from the ethmoidal sinuses, they are present in the maxillary antrum or the frontal sinus. An external operation on either or both of these sinuses will then be essential to effect a cure.

PRE-OPERATIVE ASSESSMENT OF RESISTANCE TO INFECTION.

Before any operation is performed it is essential that a thorough examination of the patient should be made. Infections may be intractable on account of diabetes or of general ill-health. When these have been negatived, the local condition of immunity should receive attention. If there is fever or malaise the nasal discharge should be examined microscopically for the presence of free micro-organisms in the discharge, and, except in urgent cases, no operation should be carried out until the micro-organisms are only seen within the leucocytes, for in certain cases states of spreading osteitis of the bony framework of the nose result from operative interference when the local resistance to infection is materially impaired.

ATROPHIC RHINITIS.

So far we have discussed the states of inflammation of the nasal mucous membrane which are associated with hypertrophy. The atrophic states of inflammation are somewhat analogous to the condition of the nasal mucous membrane which is found during the condition known as influenza. Three stages may be recognized in influenza. In the infective stage there is malaise. In the reactive stage the cilia and secretion of the mucous glands are paralysed; the mucous membrane is dry and a small quantity of

serum lies on it, in which the micro-organisms grow and multiply. Their toxins pass into the serum and from thence into the blood-stream causing fever, and as the fever falls immunity becomes established.

In the stage of recovery, the mucous membrane desquamates and the discharge consists of some mucus and epithelial cells with a variable quantity of leucocytes. The nasal airway throughout is not obstructed, nor is the mucous membrane congested until the stage of recovery is reached.

In the atrophic state of nasal inflammation we find a varying degree of toxic absorption, a varying degree of congestion of the nasal mucous membrane and desquamation of its epithelium. The process is one of lack of reaction. It differs from the hypertrophic process in the following important particulars. In hypertrophy, regeneration exceeds destruction; in atrophy, destruction exceeds repair. In hypertrophy, the resistance of the tissues to the trauma of an operation is high: in atrophy, the resistance to trauma is so low that operation is always contra-indicated except in urgent cases in which the pus sequestered in a sinus cannot be drained by palliative measures.

TREATMENT OF EARLY STATES OF NASAL ATROPHY.

In the early stages the atrophic process can be made to cease and the mucous membrane to regenerate if the sinuses are washed out with oil and the nasal mucous membrane cleansed with an oily spray or douche such as the following:—

R	Menthol	...	...	...	1 gr.
	Thymol	...	...	...	2 "
	Oleum pini	...	...	...	30 m
	Liq. paraffin ad	...	...	...	1 oz.
Ft.	Nebula.				
R	Menthol	...	...	...	1 gr.
	Calamine	...	...	...	40 "
	Liq. paraffin ad	...	...	...	1 oz.

A medicine dropperful in each nostril twice a day.

In the later stages the first thing to decide is if we are to aim at restoration of the

function of the mucous membrane or at its fibrosis. If the desquamation is slight and the discharge little and not offensive, regeneration should be aimed at. The mucous membrane is cleansed with peroxide, one volume in saline, and if the discharge is alkaline an acid pack is introduced into the nose. This may consist of the following:—

R. Glycerine acid. boric ... 2 oz.

Wool to be soaked in the above solution and packed into the nose twice a day.

In certain cases, glucose may be added to the above.

As soon as the discharge becomes neutral, the nose is douched with liquid paraffin and is kept moist with this, the secretions being tested for alkalinity at intervals and a watch kept upon the sinuses lest they refill, in which case they should again be washed out.

TREATMENT OF ESTABLISHED ATROPHIC RHINITIS.

If the discharge is offensive, if the mucous membrane is shrunken, ulcerated, or the degree of desquamation is so excessive that recovery cannot be expected to take place, we aim at inducing a fibrous atrophy. The nose is cleansed with packs, oily douches being used in addition to the lavage of the sinuses. When clean, a pack of dilute argyrol is placed within the nose and this is followed by peroxide douches to remove the crusts which form. After each douching with peroxide, oil is instilled into the nasal airway and a repetition of these treatments induces such fibrosis that when the fibrous tissue has contracted, the mucous membrane is functionless but dry. In the established states of atrophy it is generally unwise to perform any major operation on the nasal structures for they react extremely poorly to the trauma of the operation.

THE TYPES OF ATROPHY ASSOCIATED WITH SYPHILIS.

There is no need to reiterate the necessity for the performance of a Wassermann reac-

tion in all cases of atrophic rhinitis in which the bony lesions are in excess of those which affect the nasal mucous membrane.

SUMMARY.

The facts which I have placed before you can be summarized in the statements that in hypertrophic rhinitis the infection is by micro-organisms of the type which are destroyed by leucocytes; that the resistance is high; that the processes of regeneration are excessive and those of destruction minimal; that treatment aims at finding the cause, whether it is intrinsic in a sinus, or extrinsic from some infected member of the family or from industrial conditions. When the cause is found the hypertrophy disappears in time. Operations are rarely necessary and patients stand them well. The symptoms are exclusively nasal throughout the complaint.

The atrophic states, on the other hand, are characterized by symptoms which are for the most part, those of failing general health. Symptoms referable to the nose are rare. Destruction of the nasal mucous membrane exceeds repair and operations on the nose are contra-indicated except in states of urgency.

MALIGNANT DISEASE OF THE PROSTATE AND BLADDER.

By H. L. ATTWATER,

M.A., M.CHIR.CANTAB., F.R.C.S.ENG.,

Honorary Assistant Surgeon, All Saint's Hospital.

CONFINING our description to the carcinomatous variety of growths, it would appear that prostatic cancers are primary growths and are not degenerative processes. Analysis shows that, whilst cancer and benign hypertrophy of the prostate occur at about the same period of life, in nearly half the cases of carcinoma there is no evidence that benign hypertrophy exists.

Microscopically these tumours are most