A LECTURE ON CHRONIC RHINITIS AND ITS SEQUELÆ.

Delivered at the Eye, Ear, and Throat Hospital, Edinburgh.

By G. HUNTER MACKENZIE, M.D.,

Laryngologist to the Hospital; Vice-President, Section of Laryngology and Rhinology, British Medical Association, 1888.

SINCE Voltolini first demonstrated the causal relationship between nasal polypi and asthma, the study of nasal diseases has become of increased importance, not only from their direct effects, but also from their secondary or reflex results upon the organs of respiration.

In discussing the symptoms and results of nasal disease, not only have we to bear in mind the various functions and sensitiveness of the general nasal mucous membrane, but also its intimate relationship to certain passages, cavities, and spaces, such as the nasal duct, the antrum, the frontal sinuses, and the Eustachian tubes, as also the peculiarity in structure of that portion of the membrane covering the inferior turbinated bone in its whole extent. This possesses the character of "erectile tissue," is consequently liable to sudden congestion and swelling, and appears frequently to be the source of reflex phenomena. The connection between the nose and the passages and spaces now referred to may, in nasal disease, lead to their being similarly affected, with characteristic symptoms in each instance.

The more common affections of the nose and its mucous membrane are of the simple inflammatory type, acute or chronic. As a result of chronic inflammation there occur, in the first place, a swelling and thickening of the nasal mucous membrane, more particularly of that covering the inferior turbinated bone, which itself also may be thickened from participation in the inflammatory process. This thickening may extend over the whole of the erectile area, or may be more or less localised, in the latter instance forming tumours of a soft or firm consistence. After this chronic inflammation has lasted for some years, it is said occasionally to undergo atrophy and thinning, and now the atrophic form of rhinitis supervenes. This atrophy may even affect the bones. There are thus two forms of chronic inflammation of the nasal mucous membrane, the hypertrophic and the atrophic, the latter of which is supposed to be consecutive to the former, though some authorities, with whom I agree, believe that the atrophic may exist from the first. It is frequently associated with ozæna, and may extend to the pharyngeal mucous membrane (pharyngitis sicca), or along the Eustachian tube to the tympanic cavity and drum (sclerosis). Acute rhinitis is usually bilateral; the chronic form may be mainly confined to one nostril, or, at any rate, may effect more marked changes in the nasal mucous membrane of one side than the other.

Chronic rhinitis has such an important influence, not only upon the nasal mucous membrane and its functions, but also upon the sense of hearing and upon the integrity of the whole respiratory system, that it is necessary to dilate upon it to some extent. I am the more anxious to do this as this causal relationship is frequently overlooked by the practitioner, with therapeutic failures as the result. I propose, therefore, to consider in some detail certain of the results which are liable to be induced by its occurrence.

1. *The Effect of Chronic Inflammation upon the Nasal Mucous Membrane and its Functions.*—The effects of this structural change of the nasal mucous membrane are seen in the blunting or abrogation of the senses of smell and taste, the partial or complete cessation of its respiratory functions, and, from augmented irritability, a decided tendency to evoke reflex phenomena.

The loss of the sense of smell (anosmia) may be owing to either central or peripheral causes. The former may be disease of or injury to the olfactory nerves or bulbs or the olfactory centre, the latter, certain conditions existent inside the nasal cavities. The degree of anosmia depends upon the amount of blocking of the nasal fosse, as also upon the condition of the mucous membrane in regard to nutrition, secretion, moisture, and dryness. Thus, according to Morell Mackenzie, long-continued paralysis of the

fifth nerve destroys smell by interfering with the proper nutrition of the mucous membrane. It may also happen that, as a result of chronic rhinitis, the internal structure of the nose is such as to unfit it to direct the air over the olfactory area. In atrophic rhinitis, with wasting of the inferior turbinated bone and its mucous membrane, the air on deep inspiration has not the advantage of impinging upon and being deflected into the olfactory area by the anterior end of the inferior turbinate bone. A similar state of affairs arises when, owing to destruction of the nasal cartilages, the openings of the nose become vertical instead of horizontal. In both these instances the air, despite the act of deep inspiration or sniffing, cannot be drawn over the olfactory area, but invariably passes along the inferior meatus towards the lungs. In degree corresponding to the amount of anosmia present is the loss of the power of appreciating flavours, which also depends upon the olfactory nerve. The sense of taste is consequently correspondingly blunted.

The respiratory functions of the nose are necessarily impaired in chronic inflammation and thickening of its membrane, especially when, as frequently happens, the inferior turbinated bone is the area most affected. The open mouth and vacant look which characterise these cases of nasal obstruction and oral breathing must be well known to you all. Sleep is also restless and noisy; the mouth and throat are dry and uncomfortable; and the general nutrition, especially in children, is impaired.

Any description of chronic rhinitis and its effects upon the nasal mucous membrane would be incomplete without reference to the subjects of ozæna and of neoplasm. Ozæna, as already stated, is usually associated with chronic atrophic rhinitis with a purulent secretion, which dries and forms a crusty coating with an offensive odour. Woakes proposes to restrict the term to cases of dense of the ethmoidal frontal, or sphenoidal cells. It appears to be doubtful whether the odour encountered in this complaint is not met with in cases of ordinary chronic catarrh of the nose. This much can be said about ozæna—that it is always associated with more or less chronic atrophic rhinitis, and that, whilst its radical cure is hopeless, it can be greatly benefited by the treatment appropriate to this complaint. Ozæna is usually bilateral; when unilateral, it is supposed to be characteristic of abscess of the antrum.

The thickening resulting from chronic rhinitis, instead of extending uniformly over the nasal mucous membrane, may become localised, and so form mucous, bony, or cartilaginous tumours. It is important in this connection to distinguish those tumours, when situated over the region of the inferior turbinated bone, from the vascular swellings which occasionally arise in connection with the erectile tissue of this region. This can be done by the local application of cocaine, which causes the latter to disappear by contraction of the vessels, but has no effect upon the former. As results of long continued chronic inflammation in the superior nasal region, we occasionally find mucous growths or polypi, whose favourite seat is the middle turbinated bone, whence they protrude into the general cavity of the nose. They are always associated with a condition of chronic inflammation of the nasal mucous membrane, and sometimes with necrosis of the nasal bones.

2. *The Direct and Reflex Effects of Chronic Rhinitis upon Contiguous Structures.*—From direct extension of the inflammation of the nasal mucous membrane, adjoining cavities and their communicating canals may participate in the inflammatory process. Thus the ethmoidal and sphenoidal cells and sinuses may become affected, and become filled with purulent secretion. When the frontal sinuses are implicated, frontal pain and headache become troublesome symptoms of the complaint. In addition to direct extension by continuity of tissue, it is possible that, as suggested by Woakes, catarrhal symptoms develop in contiguous structures from the identity of the vasomotor nervous supply, an example of which is seen in the occurrence of herpes labialis in nasal catarrh. From the irritation of the filaments of the second division of the fifth nerve supplying ordinary sensation to the nasal mucous membrane, and the free distribution of this nerve to the face, it is not unusual to have facial neuralgia associated with, and probably dependent upon, chronic rhinitis. Headache (different from that due to direct extension of the inflammation to the frontal sinuses) vertigo, and even epileptic attacks have been clearly traced as owing their origin to intra-nasal inflammation. It is interesting to note that, as recently pointed out by Lauder Brunton, similar symptoms may spring from carious teeth with complete absence of toothache.

3. *The Effects of Chronic Rhinitis upon the Ear and the Sense of Hearing.*—In chronic rhinitis the sense of hearing may be affected in three ways: (a) By direct extension of the inflammation backwards through the posterior nares to the naso-pharyngeal space. According to Woakes, affections of hearing are a most important and frequent complication of post-nasal catarrh, occurring in 95 per cent. of the cases. Blocking of the Eustachian orifices may be aided by the participation of the pharyngeal tonsil in the chronic catarrh, which may enlarge to such an amount as to press directly upon the openings of the tube. (b) Defects of hearing may also be produced by the nasal stenosis in this way. Nasal breathing having been partially or completely arrested, the current of air in mouth-breathing no longer bathes the Eustachian orifices, and a condition analogous to that occurring in direct obstruction of the Eustachian tubes is brought about. In both instances the amount of air necessary to equalise the external pressure upon the drum is insufficient, and this is also liable to be withdrawn during the acts of swallowing. (c) Another factor in producing deafness is seen in the condition of the palato-tubal muscles which, from the long continued irritation of the catarrh, are liable to become more or less paralytic, and so incapable of discharging their function in connection with the opening of the tubal orifice to the admission of air.

4. *The Direct and Reflex Effects of Chronic Rhinitis upon the Vocal and Respiratory Organs.*—These are amongst the most important results of chronic inflammation of the nasal mucous membrane. Everyone is aware of the important modifications of the voice which ensue from partial or complete blocking of the nose—modifications varying from loss of timbre and harshness to complete inability to utter the nasal vowels and consonants. The voice may further become husky or hoarse on account of the supervention of chronic laryngitis from the action of the cold and impure air during oral respiration. Nasal obstruction, in short, seems to me to be one of the most important and generally overlooked causes of chronic laryngitis. I am desirous to direct your attention to the close and intimate relationship which frequently subsists between chronic nasal inflammation and certain respiratory disorders, such as simple cough and asthma. It seems that, owing to reflex dilatation of the vessels of the bronchial mucous membrane, simple bronchitis may also thus be produced.

Voltolini's discovery—that in certain instances nasal polypi had a clear causal relationship to asthma—has received such ample confirmation from the observations of other practitioners that its truth may now be considered as indubitably established. More prolific even than polypi as sources of local and reflex disturbances are the erectile-tissue tumours, to whose occasional presence I have already referred. The area over the inferior turbinated bone is said to be particularly irritable, probably owing to its containing so much erectile tissue. Some observers (John Mackenzie), however, say that the posterior part of this area and the corresponding part of the septum are the most liable to induce reflex phenomena. My experience has been that irritation of any part of the mucous membrane may, under certain circumstances, induce reflex phenomena.

Nasal asthma and cough, then, are induced by mechanical irritation of a hyperæsthetic mucous membrane. This may be induced by the action of polypi, particularly when the position of the head is such as to fill the cavernous sinuses and cause turgescence of the mucous membrane. This is most apt to occur in the lateral recumbent posture, and explains why these attacks, as well as stuffiness of the undermost nostril, occur so frequently during sleep. Preceding or accompanying these attacks of asthma and coughing are usually sneezing and a copious flow of mucus from the nose. Sneezing is a reflex act, due to irritation of the fifth nerve, and, whilst it may be induced by irritation of nerves in other parts, is usually of value as indicating the presence of irritation of the nasal mucous membrane.

The fact of the simultaneous occurrence of nasal polypi or hyperæsthesia of the nasal mucous membrane, such as frequently results from chronic rhinitis, with cough, asthma, or bronchitis, points to the necessity of making a careful examination of the nasal cavities in all cases of respiratory disorders. It is not always possible to say whether this causal relationship obtains in a given case characterised by the presence of both pulmonary and nasal disorders. It is in favour of its existence, however, if the nasal symptoms now alluded to precede the respiratory attacks, or if mechanical irritation of the nasal mucous membrane by means of a probe indicates hyperæsthesia, and more so if it is the means of evoking a reflex act, such as cough. A neurotic basis is probably an important element in most of these cases.

Chronic rhinitis appears under other forms than those we have just been considering. It is a prominent condition in the malady known as hay fever, a latent or recurrent complaint in which there exists a hyperæsthesia of the nasal mucous membrane to the influence of the pollen of certain grasses. In newly-born children a condition of rhinitis analogous to the ophthalmia neonatorum is sometimes present, and is apparently due to a specific inflammation of the nasal mucous membrane by the vaginal secretion during parturition. It may become chronic. This rhinitis neonatorum is productive of serious inconvenience and trouble to the child, not only by preventing sleep, but by obstructing nasal respiration, and so rendering impossible the act of sucking.

Rhinitis, in a more or less chronic form, may complicate other diseases. Attention has, for example, been recently directed to the co-existence of whooping-cough and nasal catarrh, and it is stated that this disease has been cut short by treatment directed to the nose—insufflations of dried coffee and boric acid in equal parts, or of pulverised benzoïn.

Amongst the results or sequelæ of chronic rhinitis may be mentioned certain connected with glands. The lymphatics of the nose open, some into a gland in front of the vertebral column, others into a gland situated in the parotid region, whilst a third set discharge into certain of the deep cervical glands lying in front of and beneath the sterno-mastoid muscle. Chronic inflammation of the nasal mucous membrane may consequently cause enlargement and even suppuration of these glands, and thus we may come to have a retro-pharyngeal abscess dependent upon intra-nasal inflammation.

I ought not to finish my remarks on chronic rhinitis without directing your attention to the subject of post-nasal or naso-pharyngeal catarrh. Accompanying this condition may be enlargement of the pharyngeal tonsil and naso-pharyngeal vegetations. This variety of catarrh is characterised by a troublesome morning cough and sanguineous expectoration, frequently accompanied by vomiting. As already remarked, it is a frequent cause of deafness, and by direct extension to the larynx and pharynx, undoubtedly induces secondary inflammation of these regions and of the tonsils, and so aggravates the symptoms of nasal obstruction. Stoerk has, under the title of "Blenorrhœa of the Respiratory Mucous Membrane," described a form of inflammation which, commencing in the nasal mucous membrane, spreads slowly to the pharynx, larynx, and sometimes as far as the bronchi, causing in its course serious stenosis of these passages. These post-nasal and naso-pharyngeal inflammations and growths are extremely liable to evoke reflex phenomena after the manner of chronic rhinitis, a fact which points to the necessity of posterior as well as of anterior nasal examination and exploration in all cases of spasmodic respiratory disorders.

Chronic rhinitis may extend anteriorly to the face, as well as posteriorly towards the pharynx. I have witnessed the production of facial erysipelas in this way, an occurrence which has also been noted by other observers. It is also important to bear in mind that the outside of the nose may become red and swollen from reflex dilatation of the blood-vessels by long-continued irritation of its mucous membrane, and may be cured by treatment of the rhinitis.

In considering the treatment appropriate to this complaint, regard must be had to whether the rhinitis exists in a simple form, or whether it is complicated by one or other of the sequelæ already mentioned. In all cases, however, it is necessary in the first instance to adopt measures to ensure cleanliness of the nasal mucous membrane, and the removal of all muco-purulent or purulent secretion. Solutions of the alkaline carbonates or bicarbonates are the best for this purpose, applied by sniffing up from the palm of the hand, by spraying, douching, or syringing. These ought always to be used tepid, so as not to excite the flow of mucus. The spray is probably the best means, as the mild method in which it impinges against the pharynx is less liable to cause inflammation of the Eustachian orifices than either the douche or the syringe.

After the nares have been thoroughly cleaned and freed from secretion, measures ought to be adopted with the view of restoring the mucous membrane to its normal condition. The nature of these measures depends to a large extent upon the degree of affection of the mucous membrane, and the presence or absence of sequelæ and complications. Powders, sprays, pigments, gossypia, and instrumentation may be so employed, singly or in combination.

Hypertrophies, growths, and polypi are as a rule quite uninflu-

enced by medical remedies. They are best treated by means of the galvano-cautery snare, puncture, or simple furrowing, the mucous membrane having previously been rendered insensitive by the application of a 5 to 10 per cent. solution of cocaine hydrochlorate. The sensitive areas within the nose, upon whose irritation cough or asthma seems to depend, are also best treated by the application of the galvano-cautery. With regard to polypi, the great advantage of the galvano-cautery is, that not only can we remove the larger polypi, but by passing the cautery freely over and through the rootlets of those which cannot be removed, we have a greater chance of preventing their growth and assumption of the place of the larger polypi. In the cases of necrosis with polypi, the diseased bone ought also to be removed. It ought to be remembered that the inferior turbinate, being a separate bone, is much more tolerant of interference than the superior or middle turbinates, which are parts of the ethmoid.

I have not attempted to enumerate to you the various therapeutical agencies which may be adopted for the treatment of chronic rhinitis, as these will subsequently, in my lecture on "Respiratory Therapeutics," be considered in greater detail. I am more anxious that you should grasp the principles upon which this treatment should be founded, and recognise the necessity of examining not only the chest and throat, but also the nose, in all cases of recurrent or spasmodic laryngeal or pulmonary affections.

THERAPEUTICS OF HAY FEVER.

By CARL GENTH, M.D.,

Langen Schwallbach.

THE approach of the time at which hay fever usually appears induces me to offer you the following notes and observations.

For the past ten years, a young medical man of my acquaintance has suffered, from the beginning of May to the end of June, so severely from hay fever that his practice has been seriously interfered with. It will be understood, as a matter of course, that he had in succession tried all the many and much-lauded remedies without any good result. Quinine, in large quantities, alone produced favourable results, and not before symptoms of poisoning presented themselves. It may not be without interest to mention that urticaria broke out, beginning on each side of the spine, following the course of the chief nerve-branches down the arms and legs, and finally covering the whole body. This painful state lasted for three days, at the end of which the hay fever disappeared—leaving, however, in the patient no desire to repeat the experiment with quinine.

In a comparatively large number of cases of hay fever, I found that the primary indication of the disease was a slight twitching sensation at the inner corner of the eye. This sensation becomes more intense day by day; next follows a swelling of the conjunctiva, with all the accompanying symptoms of acute conjunctivitis, and the symptoms referable to the mucous membrane of the nose, asthma, etc., set in later. These slight premonitory symptoms, which sometimes precede the final outbreak by a fortnight, and perhaps disappear with a change of weather, may easily be forgotten. But even assuming that, now and again, the disease does not begin in the eyes, but in the nose or the bronchial tubes—a possibility which in principle cannot be rejected—the exception would not by any means invalidate the assertion that hay fever usually begins with the symptoms of conjunctivitis.

Upon these facts I build my therapeutic plan. Since the first symptoms of hay fever manifest themselves in the eye, it is probable that the agent which is to be regarded as the cause of the hay fever (I do not here refer to the pollen grains which are everywhere present during the season in which the fever prevails, and are consequently to be found in the secretion of the conjunctiva and in the mucus of the respiratory tracts) first attacks the conjunctiva; under favourable circumstances (heat) it multiplies there, and then diffuses itself over the mucous membrane of the respiratory organs, perhaps through the medium of the laryngeal canal. To be effective the condition must be attacked by local treatment, directed to the eyes at the earliest possible date.

I will pass over the details of the experiments that were ineffectual. On the advice of my learned friend Dr. Pagenstecher, of Wiesbaden, I chose instillation and bathing of the conjunctiva with sublimate solution, of the strength of 1 in 3,000. The bathing began perhaps fourteen days before the appearance of the hay fever, whenever the patient returned home after open-air exercise. The patient was besides required to keep as cool as possible, and

to wear pale blue spectacles. The result of the treatment was that he remained free from his trouble for a length of time. Not before the end of June did slight irritation of the conjunctiva reappear, which, however, could not be compared in intensity to former attacks, and involved no complication. Relying probably upon his generally healthy condition, the bathing had not been performed with sufficient energy. Although the sublimate solution came in contact with the mucous membranes of the nose or throat only slightly, or perhaps not at all, neither of these organs was affected, which must have happened if the virus of the hay fever passed into the body through the nose and mouth. In such an exceptional case, it would be simple enough to apply the solution by a nose douche, by garglings, or perhaps even by cautious inhalation.

THE VALUE OF INSPECTING THE ORIFICES OF THE URETERS BY ELECTRIC LIGHT IN THE DIAGNOSIS OF "SYMPTOMLESS" HÆMATURIA AND PYURIA.¹

By E. HURRY FENWICK, F.R.C.S.,

Surgeon (Out-patients) to St. Peter's Hospital for Urinary Diseases; Assistant-Surgeon to the London Hospital.

IN the endoscopic examination of the eye, the ear, or larynx, the operator first directs the light upon the most important structure—the optic disc, the drum, or vocal cords, and having satisfied himself as to their condition, he turns his scrutiny to their surroundings. The need for it in exploration becomes more pressing as the field we have to search enlarges, and in the wider areas the rule of starting from some fixed important point is often no mean factor of success. Thus, in abdominal section for obstruction the hand first feels the cæcum to ascertain if it be full or empty, and from thence the fingers trace the coils of large or small intestine according to the clue which cæcal distension or contraction may afford.

In the exploration of the bladder with the electric light it is necessary to have some such starting point in order that the examination may be systematic, rapid and effective. The most important section of the bladder, speaking cystoscopically, is the inferior zone, and the cardinal points in this area are the orifices of the ureters. Upon them the operator should first direct the light,² and from them the search should radiate. There are several reasons for this choice. From the orifices of the ureters may be seen to issue fine jets of renal blood in kidney bleeding, the semi-vividness of which may prove fallacious (without the cystoscope) in the diagnosis of the source of symptomless hæmaturia. Upon their lips or in their immediate neighbourhood are most often to be found those tumours which can baffle diagnosis.³ Moreover, their appearance, their clean-cut, slit-like openings, or their tumid, gaping mouths—that is, their healthy or unhealthy aspect—is an index to the soundness or unsoundness of the remainder of the mucous membrane, which cannot be neglected in the treatment or prognosis of disease.

In hæmaturia I generally first satisfy myself that the ureters are free from tumours, and then make a rapid survey of the rest of the bladder, proceeding from below upwards (that is, inversely to the tendency the zones evince to growth).⁴ If I can find no cause for hæmorrhage I return to the orifice of each ureter, and watch the colour and amount of its efflux. In three cases lately I have thus been able to detect the renal source of symptomless hæmaturia, which otherwise I might have overlooked.

CASE I.—Mr. B. consulted me in January, 1888, in reference to a hæmaturia. He brought with him a specimen of bloody urine

¹ Excerpt from a demonstration of the value of the electric light in the diagnosis and treatment of obscure vesico-urethral diseases given before the Staffordshire Branch of the British Medical Association, May 31st, 1888. This subject is an appropriate addition to an editorial on "The Surgery of the Ureter," in the JOURNAL, June 2nd, 1888.

² Vide author: A Description of the Electric Cystoscope, JOURNAL, February 4th, 1888.

³ Single villous papillomata are found at the right ureteral orifice in 43 per cent., and at the left in 26 per cent. of the cases. Fibromata and small single myxomata in 90 per cent. of the cases are situated at the ureteral orifices. Author, *Lancet*, March 10th, 1888.

⁴ The liability of the three zones to become affected by single cancerous growths may be expressed thus:—The upper : middle : lower zone : 1 : 3 : 6. Author, *Pathological Transactions*, Carcinoma of the Bladder, 1888.