# VASOMOTOR RHINITIS.*

By Dr A. BROWN KELLY.

I ASSUME that the title of our discussion—paroxysmal rhinorrhœa—was chosen in order to avoid the use of the term vasomotor rhinitis. Objection has been taken in the past to the word rhinitis in this connection, as it was supposed to imply inflammation, but according to a note recently published in the *British Medical Journal*, the suffix *itis*, strictly speaking, signifies disease and not inflammation, so that vasomotor rhinitis means vasomotor disease of the nose. It is, therefore, correct to apply that designation to the group of nasal affections characterised by pronounced vasomotor manifestations and including nasal toxic idiopathies or nasal allergy, vasomotor nasal neuroses, and certain disorders of metabolism. In this paper I shall deal with the symptoms and signs of vasomotor rhinitis and with some aspects of the vasomotor nasal neuroses.

**Symptoms.**—Vasomotor disturbance in the nose manifests itself by paroxysmal sneezing, profuse hydrorrhœa, and excessive swelling of the inferior turbinates. A typical vasomotor attack,—which, for convenience, may be termed a nasal crisis—sets in suddenly with frequent and violent sneezing. This is accompanied by abundant watery discharge which may saturate a dozen or more large handkerchiefs in an hour. Usually, at a later stage, the nose becomes completely blocked by turgescence of the erectile tissue. The symptoms persist for a period varying from a few minutes to several hours, and pass off as suddenly as they came. When violent or long-continued they may leave the patient prostrate.

A nasal crisis, such as outlined, differs from acute rhinitis or true cold in the head in that it is not due to infection and is not infectious; it is not ushered in with irritation in the nasopharynx, shivering, malaise, and rise of temperature; it rarely lasts longer than a day; and it is not followed by a discharge of muco-pus.

Sometimes the two conditions—acute coryza and a nasal crisis—are associated and produce what is popularly known as

* Introductory communication at the Discussion on Paroxysmal Rhinorrhœa, Section of Laryngology, Royal Society of Medicine, London, 3rd April 1925.



https://doi.org/10.1017/S0022215100027845 Published online by Cambridge University Press

a "streaming cold." The attacks are at long intervals—perhaps twice yearly; the immediate cause may be exposure; the symptoms are severe and render the patient unfit to do anything but go to bed and attend to his nose; the attack usually lasts two days and is followed by a muco-purulent stage.

We rarely have an opportunity of seeing our patients during a nasal crisis and are thus dependent upon them for a description of their ailment. Generally this is summed up in the statement that they suffer from "catarrh" or "colds," and it is only by questioning them closely that we elucidate what is really wrong. When the three leading signs—sneezing, rhinorrhœa, and obstruction—are pronounced and co-exist, there is no difficulty in recognising this affection, but when they occur singly or in association with other nasal diseases which mask them, the vasomotor element is readily overlooked. It is, therefore, desirable to be acquainted with the special characters which each of these signs acquires when due to vasomotor irritability.

All three are marked by suddenness of onset and cessation, and by unusual intensity while present. Consequently the qualification "paroxysmal" is equally applicable to each.

Inquiry should be made as to the frequency and cause of the sneezing. If it is found to come in violent paroxysms, which continue for half an hour at a time or recur at short intervals, and is excited by slight causes which are not apparent, as when it sets in while the patient is resting and reading or asleep in bed, then we may assume with a fair degree of certainty that it is a manifestation of a vasomotor neurosis.

As to the rhinorrhœa, it is more difficult to get an accurate and relevant account which enables us to distinguish it from the rhinorrhœa accompanying rhinitis or certain disturbances of nasal respiration. The chief points to be determined, besides the presence of the paroxysmal characters already mentioned, are the duration, amount, and characters of the discharge, and the absence of a subsequent muco-purulent stage.

Swelling of the nasal erectile tissue is the third, and, it should be noted, occasionally the only sign of a vasomotor disturbance. The swelling takes place suddenly, causes complete blocking, and, after a varying interval, suddenly subsides; and yet, the patient does not feel that he has a cold in the head. When symptoms such as these exist, and especially if within a short period they have developed to a pronounced degree in



https://doi.org/10.1017/S0022215100027845 Published online by Cambridge University Press

one who hitherto has had no trouble with his nose, they are probably vasomotor in nature.

*Examination of the Nose.*—The intranasal appearances in a case of nasal vasomotor neurosis are often normal between the attacks of sneezing, rhinorrhœa, and obstruction. During the examination one must keep in view the patient's nervous tension or state of mind which causes contraction of the nasal erectile tissues and cessation of the hypersecretion. The patient may remark upon the temporary improvement and express regret that the examination is being made while the nose is at its best. In such cases, however, it is not uncommon on probing to find hypersensitiveness of the nasal mucosa. This sign should suggest the presence of a neurosis.

On the other hand, if the examination is made in an old-established case while pronounced vasomotor swelling of the inferior turbinates is present, several peculiar features may be observed. The swelling involves the inferior turbinate in its whole depth, whereas in rhinitis the lower part is mainly or alone enlarged; the mucous membrane is pale, œdematous, and slightly nodular; the œdematous tissue may be very firm so that it does not yield under the probe as does the congested inferior turbinate, and it does not readily subside under the action of cocain. If adrenalin is also applied, it may or may not cause contraction, but several hours later some of the patients suffer from violent sneezing and rhinorrhœa, or what they term "a fearful cold." This reaction is occasionally so severe that a membranous exudate forms between the inferior turbinate and septum.

**Vasomotor Disturbance Secondary to Intranasal Disease.**—Various nasal diseases, *e.g.*, turbinal congestion and hypertrophy, polypus, and septal deviation may be associated with vasomotor instability and may mask its manifestations. In some cases the vasomotor symptoms are excited or maintained by the gross nasal disease and pass off when it is corrected. A striking example of this connection and one which is not generally known is the *Aspergillus*. This fungus occasionally gains a foothold in the nose, especially in the posterior part of the middle meatus, where it gives rise to the formation of a mass of extremely tough, greenish mucus which is found to be largely composed of the mycelia of *Aspergillus*. This collection produces mechanically, or by its toxins, a very severe



https://doi.org/10.1017/S0022215100027845 Published online by Cambridge University Press

unilateral vasomotor reaction which persists until the fungus has been removed.

In cases of deviation of the septum it is generally found that, when the patient is out of doors, the free side discharges much more than the obstructed one. This is probably due to two causes: First, the temperature in the wide fossa is lower than in the narrow fossa, and, in consequence, more of the moisture in the expired air is condensed within it; and secondly, the larger volume of inspired air in the wide side excites a corresponding increase of secretion. When nasal hyperæsthesia is superadded to deviation of the septum, hypersecretion sets in on the wide side with very slight alterations in temperature such as are experienced in passing from one room to another, so that individuals thus affected, even while moving about the house, are constantly blowing and sniffing, and the tendency to do so passes off only after the septal deviation has been rectified.

**Intranasal Disease Secondary to Vasomotor Disturbance.**—In another group of cases the vasomotor disturbance is the fundamental affection, and the turbinal enlargements and polypi are secondary. If we ask patients with polypi as to whether the pronounced nasal obstruction due to the growths was preceded or followed by paroxysmal sneezing and rhinorrhæa, it will be found that in the majority of cases the sneezing followed the obstruction, but that in a considerable proportion the vasomotor symptoms were present for years before marked or constant obstruction was experienced. In some of the patients belonging to the latter class the sneezing ceases after the nose has become filled by polypi, and sets in again after their removal, showing that the air current is more of an irritant than the pressure of the polypi.

I have patients suffering from intractable vasomotor disturbance in the nose who have attended me at intervals over a period of many years. In several of these I have noted a succession of changes in the nose attributable to chronic vasodilatation. These patients complained first of symptoms due to hypersensitiveness and turbinal swelling; later, turbinal hypertrophies developed, and, still later, polypi. The recurrence of the polypi was largely influenced by the state of the vasomotor mechanism for the time being. When stable, the nose was quiescent and no fresh growths appeared. Then came a period of instability with frequent nasal crises,



https://doi.org/10.1017/S0022215100027845 Published online by Cambridge University Press

and rapid recurrence took place. The radical cure of polypi is thus difficult or impossible as long as a vasomotor disturbance exists.

Nasal polypi often run in families. In some of these one can trace an inherited nasal vasomotor neurosis which is probably the underlying cause of the polypi.

It is, therefore, of importance to be on the outlook for such associations, in order that the vasomotor instability when present may be detected and treated as well as the more obvious nasal disease. If this precaution is neglected before operating, various difficulties are likely to be encountered. Thus, in spite of the free use of cocain, the tissues remain swollen and imperfectly anæsthetised; on an attempt being made to snare large posterior ends, they collapse and are strangely elusive; polypi shrink surprisingly and the bleeding is unusually profuse. After resection the septum may swell and œdema may persist, so that a permanent, boggy condition of the anterior and upper part results. Such was present in several patients shown at meetings of this Section.[1] In cases with a vasomotor complication, although the enlarged inferior turbinates have been reduced to a normal size, they may still swell so as to cause discomfort, and the sneezing and rhinorrhœa may continue. If the surgeon has not yet recognised the presence of a vasomotor disturbance, he is likely to consider further operation or operations necessary, until in despair he may even have recourse to turbinectomy—the least scientific of nasal procedures. I have seen patients who had derived no benefit to their symptoms from resection of the septum and removal of the greater part of both inferior and middle turbinates, improve quickly under constitutional treatment.

To a train of circumstances such as outlined, galvano-cauterisation owes its undeservedly bad reputation in some quarters. If the important part played by the vasomotor element is not appreciated, the nose may be cauterised over and over again in order to make the patient comfortable, but usually with indifferent success. The probability that errors of this kind are not uncommon suggests itself in explanation of the hesitancy shown by some patients to have their noses cauterised. Apparently they have learned of cases in which the treatment had to be continued long or repeated often. This prejudice is unfortunate, for the cautery is a valuable method of dealing with chronic congestion of the inferior turbinate, but when this



https://doi.org/10.1017/S0022215100027845 Published online by Cambridge University Press

is complicated by a vasomotor disturbance, a dozen applications instead of one, or at the most two, which should suffice, may fail to establish the requisite patency.

*Nasal Hypersensitiveness.*—Hypersensitiveness of the nasal mucous membrane is the local condition which in most cases predisposes to the sneezing, rhinorrhœa, and turbinal swelling in vasomotor rhinitis. These manifestations are due to vaso-dilatation, and in this connection it is interesting to remember that the sensory nerves may convey not only afferent impulses to the central nervous system, but also vasodilator impulses in the opposite direction—the antidromic impulses of Bayliss. In a recent paper on the "Trigeminal System," Ivy Mackenzie[2] states that: "There is not the slightest doubt that a large proportion of the so-called vasomotor reactions, so well known to rhinologists, are in effect the result of central antidromic stimulation of 'sensory' nerves to the mucous membranes of the parts involved."

Abundant evidence is available of the presence of hyperæsthesia from the ease with which mild stimuli, *e.g.*, dust and slight differences in temperature, excite violent symptoms of vasomotor disturbance. Conclusive proof of the presence or absence for the time being of hypersensitiveness is obtainable by testing the mucous membrane.

For this purpose a long, thin, silver probe is used with which the parts are gently stroked. The regions which should be tested are: the tubercle of the septum, and outer wall of the nose quite anteriorly, corresponding to the distribution of the anterior ethmoidal nerve, the septum supplied by the naso-palatine, and the anterior end of the inferior turbinate which often is particularly sensitive. Upon these parts being gently stroked no complaint is made of discomfort when sensation is normal. If heightened, signs of irritation are produced, of which it is convenient to distinguish a slight, medium, and pronounced degree.

In recent years I have tested, in the manner mentioned, the nasal sensitiveness in many of my patients with vasomotor disturbance. From the results obtained the following conclusions are drawn: (1) Nasal hyperæsthesia was present on one or more occasions in a large proportion of the cases tested. (2) Very pronounced nasal hyperæsthesia may exist without vasomotor symptoms; such patients are usually hysterical or of a highly nervous temperament. (3) The hyper-



https://doi.org/10.1017/S0022215100027845 Published online by Cambridge University Press

æsthesia may vary from day to day, and at different times of the day. This is in accordance with the patient's feelings; he is aware of flitting variations, and notices particularly that the hypersensitiveness and his symptoms are worse when he is fatigued or worried. (4) The sensitiveness on the two sides of the nose often differs. The patient may state that the sneezing is due to irritation on a certain side. In deviation of the septum the wide fossa is usually the more sensitive. (5) The sensitiveness at different parts of the same nasal fossa often differs; posteriorly it may be normal, anteriorly it may be heightened, and vice versa. The spheno-palatine ganglion, therefore, is not a decisive factor. (6) The skin of the nose which is supplied by the external branch of the anterior ethmoidal nerve may also be hyperæsthetic. (7) As the sneezing and rhinorrhœa gradually abate under treatment, the hyperæsthesia, as a rule, also diminishes; in some persons, however, it persists after the symptoms have passed off.

With the object of reducing or abolishing nasal hyperæsthesia, I have made frequent use of alcohol injections into the regions traversed by the two principal nerve-trunks. A few drops were injected into the septum opposite the posterior third of the middle turbinate and another small amount into the septal tubercle. At a subsequent visit the other side of the septum was treated similarly. Some of my early cases were strikingly benefited, so that I was encouraged to continue the method. I still employ it when hyperæsthesia is a pronounced feature, and I do not doubt that in some cases the injection acts as a nerve block. In others, however, both success and failure are more likely attributable to the mental effect produced in the patient. This procedure in my hands has lost some of its previous efficacy, probably in consequence of the qualified opinion I have come to hold of its value. My experience supports Dr T. Ross' statement that "this phenomenon of early cures in the history of a treatment with gradually diminishing results is common to many kinds of therapy."[3]

**Causes of Nasal Hyperæsthesia.**—The detection of the cause of the hyperæsthesia in each case is of first importance, as it indicates the line of treatment to be adopted.

*Heredity* is an important predisposing cause of both general and local hypersensitivity. Patients with nasal vasomotor neuroses are often found to be highly strung and descended



https://doi.org/10.1017/S0022215100027845 Published online by Cambridge University Press

from a nervous stock, so that their general hypersensitivity renders them easily affected by strains and stresses where the individual with a normal nervous organisation escapes. Evidence of local inheritance is also not infrequently forthcoming. Thus, several of my patients have given a history of nasal hyperæsthesia in three generations; others have stated that some of their relatives suffered from asthma or nasal polypi.

*Nerve exhaustion* of emotional origin is, in my experience, one of the commonest causes of nasal hyperæsthesia. It is always important to inquire as to whether the onset of the vasomotor symptoms was preceded by a period of mental or physical tension. From the history obtained in many cases it would appear that ideal conditions for the development of a nasal vasomotor neurosis are prolonged anxiety or apprehension and a lower state of the general health. Typical examples are the following: The mother who tends day and night her delicate only child; the daughter who nurses a dying parent; the business man with financial worries; the schoolgirl overworking for an examination; and the young woman with her love affairs and approaching marriage. In some of the worst cases no cause is admitted, and only long afterwards proceedings in the divorce, bankruptcy, or criminal court, or death, bring to light the skeleton in the cupboard.

If we approach the question from the other side and inquire as to the manner in which nerve exhaustion produced by violent or prolonged emotion manifests itself, the psychologist replies—by hypersensitiveness chiefly. Maurice Craig[4] has emphasised this relation, and has stated that the hypersensitivity is observed on the physical or the psychical side or on both. It is precisely this condition that affects the nose. In addition, the patient often confesses to general irritability, apprehension, and disinclination and unfitness for mental exertion.

Toxæmias may lead to vasomotor disturbances by causing nerve exhaustion and its accompanying hypersensitiveness. Those of intestinal origin are probably commonest and of most importance, but it is our duty as rhinologists to search for focal sepsis in connection with the accessory sinuses and tonsils. I have seen on several occasions the nasal crises cease after a suppurating antrum had been drained. In such cases the disturbance may be due sometimes to protein sensitisation.



https://doi.org/10.1017/S0022215100027845 Published online by Cambridge University Press

Sexual excesses and irregularities cannot fail to be frequent causes of the nerve exhaustion in the affection under consideration. Reliable information as to this association is best obtained through the family physician.

I have dealt with only one of the chief causes of vasomotor rhinitis, but to form a correct estimate of a case, the other possible causes should be investigated.

**Treatment.**—In nasal vasomotor neuroses constitutional treatment is of first importance. Even if intranasal structural defects have to be remedied a short preliminary course of a nervine tonic is useful, especially if hyperæsthesia is pronounced. Quinine, arsenic, strychnine, phosphorus, and valerian exercise a strikingly beneficial influence in many cases of paroxysmal sneezing, rhinorrhœa, and obstruction.

Lastly, we should not be discouraged if, at first, our treatment is unsuccessful. We know little of what happens in the patient's home and still less of what is passing through the patient's mind. As long as the conditions of life are such as to cause considerable mental disquietude, vasomotor symptoms are likely to persist. We should also remember that this is a functional disease, which, as a rule, passes off sooner or later, but is liable to recur.

REFERENCES.—[1] *Proc. Roy. Soc. Med.*, 1923, vol. xvi. (Sect. Laryngol.), p. 27. [2] Ivy Mackenzie, *Trans. Ophthal. Soc.*, 1924, vol. xliv., p. 149. [3] T. A. Ross, *The Common Neuroses*, London, 1923. [4] Maurice Craig, *Nerve Exhaustion*, London, 1922.



https://doi.org/10.1017/S0022215100027845 Published online by Cambridge University Press