VASOMOTOR RHINITIS

by Z. Krajina M.D. *

Observations regarding the seasonal vasomotor rhinitis began to enter into rhinological literature at a relatively early date, because they were connected with some definite and clear facts, whereas the knowledge of the perrenial vasomotor rhinitis was arrived at later due to the more complex etiology and its indefinite course. An explanation of many cases of vasomotor rhinitis became possible through its study, but, on the other hand, it led to the abuse of the notion of allergy, so that every nose with an edematose bluish-grey mucous membrane was placed into the group of allergic manifestations. Such a conception is erroneous because, although a great number of processes in their final stage have similar macroscopic and even histological characteristics, we must separate them according to the etiological factor. Vasomotor rhinitis is just a complex notion which requires such a conception.

The nasal mucous membrane possesses the general characteristics of the respiratory mucous membrane, the difference being that some of the elements are represented more strongly and more numerously. This is in connection with the functional activity to which the nasal mucous membrane is most exposed, as compared with the rest of the respiratory mucous membrane. The rich nervous network in the area of the nose has its justification in a series of physiological functions of the respiration of the nasal mucous membrane, but, on the other hand, this nervous mechanism enables also many reflexes to appear which at a certain time will be the source of pathological reactions in the mucous membrane, such as appear in vasomotor rhinitis.

In 1660 **Schneider** insisted that nasal secretion was the product of the membrane, which covers the nasal cavity, and in 1943 **Inglestedt** and **Ivstam** proved that this secretion was of glandular origin. In histological studies we found cases with very pronounced glandular elements, so that we placed them into a special glandular group. But we also had examples of vasomotor rhinitis with normal glandular elements, and sometimes even with less pronounced ones. Furthermore, with rabbits, after the extirpation of the sympathic chains of the neck, we also noticed a profuse secretion of the same side of the nose, while the glands were very poorly represented in the histological findings of the nasal mucous membrane. In consequence of this we believe that the secretion is not only the product of the glandular function, but also of the rich transudate, which leaves the blood vessels and distends the structure

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of the subepithelial tissue. Accordingly, the secretion is the product of the glands, which are at the stage of hyperfunction and of the extra-vasate of the enlarged blood vessels, the goblet-cells of the epithelium and of the intraepithelial glandular formations. In view of all these facts, the question arises: which factors cause such increased secretion?

With the allergic reactions in the nasal mucous membrane the H substance is freed, which leads to the spasms of the smooth mascular elements, to the enlargement of the capillaries with exsudation, to increased influence upon the glandular elements and to the changing of the superficial epithelium into the goblet-cells and glandular formations. The anti-bodies, produced in the nasal mucous membrane, are transferred through several generations of the same kind of cells, so that the possibility of the sensibilisation of such tissue is retained for a longer period of time. Just as denervation changes the sensibility of the cell to various excitements, so does the disturbed balance between the sympathic and parasympathic systems on the nasal mucous membrane provoke the change of the sensibility of the mucous membrane. The products of the reaction antigene-antibody are the para-sympaticomimetic substances, and in this way an increased tonus of the parasympathic system and its effect upon the mucous membrane will ensue. This is one of the ways through which vasomotor rhinitis is created.

Fowler published a case of unilateral vasomotor rhinitis after the resection of the upper cervical sympathic ganglion. We also found this with the patients on whom stellectomy was done. The symptoms usually lasted between 3-6 months until the regeneration of the sympathicus and the re-establishment of the balance was obtained. We tried the same by experiment with rabbits, and we also obtained the effect of vasomotor rhinitis on the side of the removed upper cervical ganglion and the decortication of the carotid. But such and similar disturbances can also appear due to various developments in the closer and more distant vicinity of the nose. **Secrétan** published three cases of vasomotor rhinitis after stellectomy, the resection of the trigeminal nerve following the ganglion Gasseri and the extirpation of a lipoma from the fossa canina.

Wolf made biopsies of the nasal mucosa with a patient in a normal state and, afterwards, with the same person in a state of fright or excitement. In psychically changed conditions he found the mucous glands enlarged, filled with secretion and the vascular and lymph vessels dilated. The whole group of psychosomatic vasomotor rhinitides has its origin in this mechanism.

The vegetative nerve system has the closest connection with the endocrine system. The endocrine system actually maintains harmony in the activity of nerve processes. Among all endocrine disbalances we noticed the greatest repercussion upon the nasal mucosa with the hypofunction of the thyroid gland and the changed function of the sexual glands. The irregular function of the thyroid gland can lead to disregulation of the normal mechanisms of the nasal mucosa. Such patients show an increased susceptibility for nasal infection and allergy. Basal metabolism need not always be very low, it can even be about zero, but, if there is some cholesterine in the blood above 250 mg, there is always in such cases the indication of therapy with the extract of the thyroid gland.

The nose and the sexual glands have the strongest parasympathic innervation in the body. At the time of puberty and climacterium the repercussions upon the nasal mucous membrane are the most frequent. In puberty these changes are relatively rare, because there exist better conditions of adaptation of the organism, including the nerve system, while they are much more pronounced with women at the climacterium. We very often find vasomotor rhinitis with women in climacterium, without any special local changes in the nose. The conchae are of normal size, colour and appearance. In such cases we can explain this state by the disturbance of the equilibrium of the vegetative system, which, in addition to the nose, appears also in different organs and systems of the organism.

Sometimes with vasomotor rhinitis, as well as with asthma, we find that the beginning of illness took place after a cured infection, especially flu. The bacteriological findings are usually negative. We believe that such cases can also be explained by local perturbation of the vegetative system as a result of infection, especially virus infection, which is reflected upon the tissue elements of the mucous membrane in the form of a disarranged metabolism and nerve irritation.

In all these cases of vasomotor rhinitis we have proved in our examinations that there regularly exists a hyper-reflection. We have studied the reflexes of the nasal mucous membrane on the blood pressure, on the pulse and on the changes of the white blood picture. In this way we have established that these differences are evident with vasomotor rhinitis. (Table I.)

	Number of Cases	Blood Pressure	Pulse	Leucocytes
Vasomotor Rhinitis	22	20-35 mm Hg	10-25	600-2000
State after laryngectomy	8	5-15 mm Hg	5-10	200- 400
Ozaena	6	5-10 mm Hg	8-14	300- 500
Ménière disease	6	10-20 mm Hg	10-15	400- 900
Without any affection	10	5-10 mm Hg	5-10	100- 500

Table 1: The average value of the difference of the bloodpressure, pulse and leucocytes before and after cocainization of the nasal mucosa:

Consequently, the vasomotor rhinitis is the syndrome of many closer and more distant disturbances of the organism which are reflected with the disbalance of the vegetative nerve system in the area of the nasal mucous membrane, which leads to irregular reactions of the nasal mucous membrane to external noxae, even in the physiological rating. (Table 2.)

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a. Allergic : seasonal
perennial

b. Non-allergic : endocrine
physical
toxic/postinfectious/
psychosomatic
postoperative
vegetative disturbances
either general or local in the nose
vasomotor and gland secretion troubles
typical attacks of vasomotor rhinitis

The etiology of vasomotor rhinitis being of many different types, the therapy cannot be uniform. We are of the opinion that every case of vasomotor rhinitis should be examined in detail, both clinically and laboratorily, in order to be able to apply the appropriate therapy. However, such general therapy, as well as specific and non-specific desensibilization take a long time and their effect is not immediate, so that from the beginning we also apply local therapy. Sympathomimetics, calcium submucously applied, cortisone, local anaesthetics and ignipuncture come into consideration as local therapy. Best results have been obtained, regardless of the etiology, with the calcium submucously applied. Although local therapy has a more symptomatic significance, a certain measure of success, sometimes of longer duration, may be obtained. In such a case, by normalizing the condition of the nasal mucous membrane, we make it possible for the organism to compensate the noxa on the mucous membrane more easily.

Non-specific histaminic desensibilization gives good results providing its application is justified. Our results from as early as 1954 confirm this belief. In this it is important to use small doses of diluted histamine for a longer period (4 to 6 months).

SUMMARY

Seasonal vasomotor rhinitis is an allergic manifestation of the nasal mucous membrane to various pollens which correspond to various seasons of the year. Perennial vasomotor rhinitis can be allergic, but also non-allergic of various etiology (endocrine, psychosomatic, postinfectious, postoperative). Allergic and non-allergic etiologies lead to vegetative disbalance on the nasal mucous membrane which causes an excessive sensibility of the nasal mucous membrane also to external physiological irritations. That is why we see similar clinical as well as histological findings in the nose in vasomotor rhinitis of different etiologies, (because their effect upon the nasal mucous membrane is similar).

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