Operative treatment of rhinopathia vasomotoria

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TO us, vasomotor rhinopathia is an oversensitive, so to speak an autonomic nervous nose, that overly reacts to normal subthreshold stimuli of various types with swelling of the mucus membranes and conchae, as well as hypersecretion and sneezing. The large number of possible causal factors, a few of which are seen in Figure 1, make an etiological differentiation difficult (Beickert, 1960; van Dishoeck and Majer, 1964; Naumann, 1964, among others). Regardless of its origin, clinical experience has shown that functional vasomotor disturbances of the nose can often be considerably improved if it is possible to move even one of the disturbing factors. As, at least in our patients, complaints of displaced nasal breathing dominate, our surgical therapy naturally concentrates on the restoration and maintenance of an open air passage.

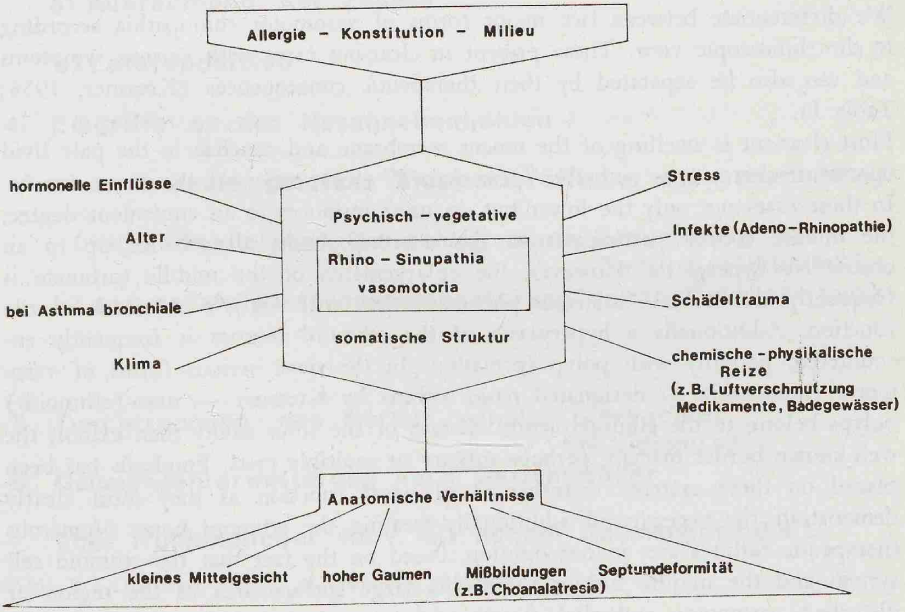

Figure 1. Causal factors of vasomotor rhinopathia.

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Nasenatmung	wechselnd behindert (rasche Reaktionänderung, abhänig von der Körperlage)	ständig behindert (träge Reaktionsänderung)
Sekretion	eher trocken sonst anfallsweise seröse Hypersekretion	serös–schleimige (–eitrige) Hypersekretion
Niesreiz	anfallsweise	anfallsweise
Riechfunktion	normal (selten Hyposmie)	häufiger Hyposmie (– Anosmie)
Kopfschmerz	falls vorhanden: Koinzidenz	häufiger (Kausalität unsicher)
Os conchale	untere Muschel: oft stark vorspringend großer Winkel zur lateralen Nasenwand mittlere Muschel: oft pneumatisiert	untere Muschel: stark entwickelt „prominenter Muschelkopf" mittlere Muschel: oft pneumatisiert
Nasennebenhöhlen	unbeteiligt	Zysten, Polypen, „Randsaum"
Kombination mit Asthma bronchiale	fehlt	häufig „Nasenasthma"
Rhinoskopischer Befund	a) oft unauffällig (larvierte Formen) b) gleichmäßige Muschelhyperplasie c) mittlere Muschel oft groß ohne wesentliches Schwellkörpergewebe (Bulla ethmoidalis) d) keine Nasenpolypen	a) charakteristisches Bild b) unregelmäßige Muschelhyperplasien c) Stauungen, hintere Enden, Septumpolster d) nicht selten Nasenpolypen

Table I. Various symptoms and sign of "red" and "pale livid" forms of vasomotor rhinopathia.

We differentiate between two major forms of vasomotor rhinopathia according to the rhinoscopic view. These present in clear-out cases with various symptoms and can also be separated by their therapeutic consequences (Kressner, 1953; Table I).

Most clear-cut is swelling of the mucus membrane and conchae in the pale livid mucus membrane type with the "pear-shaped" cross-section of the lower concha. In these cases not only the lower but, in most instances to an equivalent degree, the middle concha participates in the neurocirculatory disturbance up to an obstructive hyperplasia. However, the enlargements of the middle turbinate is frequently due to an extensive pneumatisation with only a minimal erectile function. Additionally a hyperplasia of the ethmoid mucosa is frequently encountered, partially with polyp formation. In the most serious forms of vasomotor rhinopathia — designated nasal asthma by Kressner — naso-(ethmoid-) polyps belong to the clinical picture. X-rays of the sinus cavity then exhibit the well-known border margin, perhaps solitary or multiple cysts. Emphasis has been placed on these extreme disturbances of nasal function as they most clearly demonstrate the necessity of additionally treating the ethmoid bone. Numerous therapeutic failures are, in our opinion, based on the fact that the ethmoid cell system and the middle turbinate with its large surface area as the region of disturbed vasomotor epithelial function are not included in the therapeutic considerations.

The participation of the middle meatus is less clearly pronounced in cases of the less harmful red mucosal type with a "streamlined" lower turbinate. More

Operative Behandlung der Rhinopathia vasomotoria

1. Septumkorrektur
   a) submuböse Septumresektion (mit Knorpelreimplantation)
   b) Septumplastik
2. Eingriff an den unteren Muscheln
   a) Muschelbohrung nach Kressner
   b) zusätzliche Quetschkappung von hinteren Enden und Staungshyperplasien am unteren Rand
   (Misch- oder blasse Form)
3. Eingriffe an den mittleren Muscheln
   a) Ausräumung der Zelle(n)
   b) Lateroposition
4. Eingriffe an den Nasennebenhöhlen
   a) endonasale partielle Siebbeineröffnung und -ausräumung
   (vegetativ-nervöse Drosselung durch Reduzierung des Terminalretikulums)
   b) endonasale Kieferhöhlenfensterung (selten: Caldwell-Luc)
5. Durchtrennung des Nervus canalis pterygoidei (N. vidianus)
6. Gaumennahterweiterung nach Derichsweiler
   (bei frühkindlicher Rh. v. mit hohem Gaumengewölbe)

Table II. Operative therapy of vasomotor rhinopathia.

prominent in these cases is a uniform turbinate hypertrophy. This is harmless, as it is generally not related to bronchial disease and its course runs without sinus participation. The characteristic symptoms of both forms to be differentiated

are exhibited on opposite siders of the table. Notice should be taken of the numerically dominant mixed form with their overlapping symptoms and signs. A more or less pronounced impediment of nasal breathing, a disturbance of mucosal secretion (only very infrequently hyposecretion), as well as sneezing attacks occurring in various ways are always found.
Table II demonstrates the various methods which we use alone or in combination with each other:

To 1) Septum corrcction is practically always necessary as the impediment of nasal breathing is most often of primary concern. In cases of vasomotor rhinopathia we prefer the submucus resection with re-implantation of small pieces of cartilage because of the greater scarring of the mucosal layers. In milder cases, especially in the so-called red form with otherwise uncharacteristic rhinoscopic findings, a removal of the septum deformation alone usually alleviates the symptoms.

To 2) The vasomotor disturbances exhibit a particularly pronounced effect on the lower turbinate. If a clear-cut hypertrophy is present, the erectile tissue should be reduced. For many years we have carried out turbinate reduction using special clamps after Kressner. According to requirements, this can be combined with a removal of obstructed portions. In more serious cases, this conservative method which spares the epithelium, is not sufficient, particularly in cases of too well-developed Os conchale. Similar to Legler (1970) we therefore headed the old recommendation for a direct operation on the turbinate bone and tried submucus resection. Kressner (1969) described our procedure at the 18the German Congress for Postgraduate Medical Education in May of 1969 in Berlin. The results are very convincing. The submucus turbinectomy leads to considerable scarring of the erectile tissue with denervation of large portions of the turbinate, while retaining the functionally important mucosa. The procedure was considerably simplified as the bone dissection can be very tedious. Today, we drill through the Os conchale with a small fraise from dorsal to ventral, thereby boring out the extent of the hyperplasia from the turbinate (Figure 2). Only in certain cases of pale livid turbinate hyperplasia with polyps at the lower marginal border, is an additional reduction necessary. Thickened posterior ends are removed using a sling. This small procedure, which we designate as a turbinate drilling, can be carried out in a few minutes with variations as desired. It is practically without complications after some experience and leads to a definite reduction in turbinate size. In failures — when the extent of the possible swelling was falsely estimated and too conservatively treated — the procedure can be repeated at any time. The tendency to bleed is negligible. We discharge the patients after 1—2 days of observation.

To 3) The enlargement of the middle turbinate is often based on extensive pneumatisation. In such cases we excavate the cells and fracture and displace the medial portion of the turbinate, laterally.

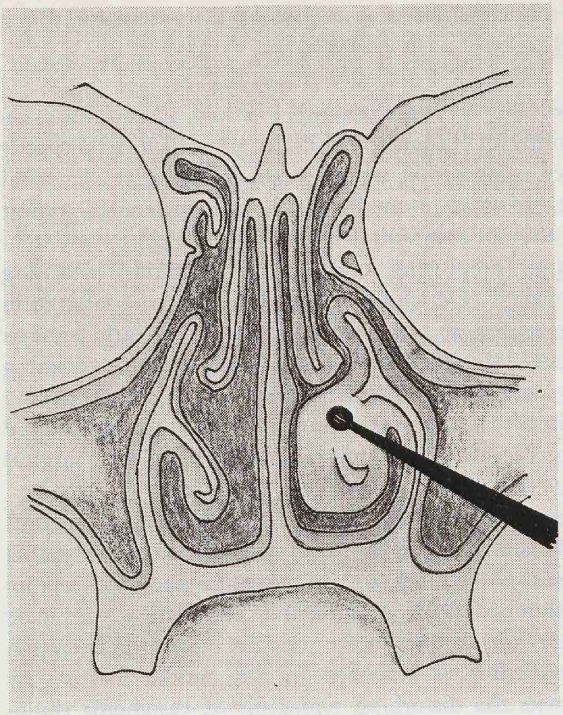

Figure 2: Schematic presentation of turbinate drilling. Not only the attachment of the Os conchale is separated with the fraise, but additional hypertrophic erectile tissue reduced through submucous "shelling".

To 4) The significance of the reaming out of the ethmoid should be pointed out with respect to the so-called nasal asthma. This procedure signifies the removal of polyps and creation of a unified space, in which obstructions caused by secretions are prevented, so that the aeration of the large sinuses is improved. In addition, through reduction of the mucosal surface with respect to the autonomic nervous supply, we achieve a further locally limited denervation of the middle nasal region, which positively influences the elimination of sneezing stimuli and hypersecretion. Thus, we open the ethmoid cell system — primarily the frontal and middle cells — not only in polyposis, but also remove an only slightly obstructed or hyperplastic mucosa.

Although we are very liberal with opening of the ethmoid and reaming, we would like to give clear-cut indications for radical sinus operation in cases of vasomotor rhinopathia. In the red form, the sinuses do not as a rule participate. In mixed forms and more frequently in the pale livid form at least a mild mucosal swelling (radiologically: border margin) with serous-viscous hypersecretion is frequently observed. In such cases the endonasal opening of the maxillary sinus is all that is required to secure drainage and aeration.

To 5) We only eliminate the vidian nerve in rare instances since with normalisation of nasal breathing and local denervation of the lower turbinate or the

middle nasal region, the symptoms of the various forms of the vasomotor rhinopathia can be reliably relieved.

To 6) In conclusion, for the sake of completeness, I would like to mention the therapy of the juvenile forms of vasomotor rhinopathia which is generally unknown. In cases of maxillary compression with a high palatal arch, the nasal sinuses are decreased in size, so that normally developed turbinates appear relatively too large. These are the children, who despite adenoidectomy and tonsillectomy, retain oral breathing. Employing oral surgical methods, widening of the palatal suture can be achieved (Derichsweiler, 1956). Thus the later form of the nasal cavity can be influenced if the therapy is employed early enough before the septum base and palatal suture become too solid. Employing a widening of the palatal suture, the bony nasal cavity is enlarged as seen in the increasing turbinate-septum distance. It is often impressive how vasomotor turbinate and mucosal membrane swelling can be influenced and eliminated using oral surgical techniques.

The selection of the aforementioned procedures depends on the rhinoscopic finding and the presenting complaints. In the red form of vasomotor rhinopathia with predominance of disturbed passage of air, in most instances, a septum correction suffices possibly combined with a unilateral or bilateral turbinate drilling. In the pale livid form and if the sneeze impulse and hypersecretion are primary complaints, the procedure is extended to the middle meatus. By varying this method, in most cases the disturbing symptoms of vasomotor rhinopathia can be significantly improved. The same is valid for true allergic rhinitis.

RÉSUMÉ

Les auteurs distinguent deux types de rhinopathie vasomotrice suivant l'aspect rhinoscopique: l'une est caractérisée par une hyperplasie irrégulière et une pâleur de la muqueuse des cornets moyens et inférieurs, souvent associées à une hyperplasie de la muqueuse ethmoïdale avec formation de polypes et à de l'asthma bronchique; l'autre, moins invalidante, sans participation sinusale, ni bronchique se traduit par une hyperplasie rouge, uniforme, des cornets inférieurs.

Les auteurs présentent diverses thérapeutiques chirurgicales et en donnent les indications respectives:

1. Résection sous-muqueuse du septum.
2. Résection partielle de la muqueuse du cornet inférieur ou résection sous-muqueuse de l'os turbinal. Cette dernière intervention a pour intérêt de préserver la muqueuse tout en entraînant une dénervation locale.
3. Curetage du squelette du cornet moyen en cas de pneumatisation étendue.
4. Ethmoïdectomie et polypectomie. Fenestration de la cloison intermaxillo-nasale.
5. Résection du nerf vidien.
6. Elargissement de la suture palatine en cas de palais ogival.

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