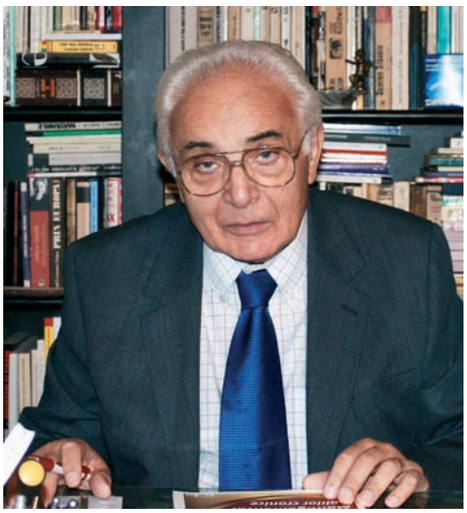
Romanian Journal of Rhinology, Vol. 1, No. 3, July - September 2011

EDITORIAL

Monosymptomatic nasal obstruction



Nasal obstruction represents in context, but most of the times as the only symptom, the principal manifestation of the rhinosinusal disease.

Taken as a whole, the rhinosinusal disease – regardless of cause – manifests through the following 8 dominant symptoms: nasal obstruction, dysosmia, anterior rhinorrhea, posterior rhinorrhea, pain, sneezing, nasal pruritus, and epistaxis.

The most frequent requests for consultation in rhinology are determined by nasal obstruction.

Monosymptomatic nasal obstruction is commonly found in the urban population, being a consequence of the urban environment quality. Patients usually seek medical advice after long periods of self-medication, with nasal instillations using various vasoconstrictors, when their nasal desobtruant effect becomes null.

The patient asks for ENT consultation complaining of a monosymptomatic suffering – nasal obstruction. The other nasal symptomatic manifestations either do not exist, or their extent is so small that they become undetectable for the patient, who is exclusively concerned with the obstruction.

Approaching a patient complaining of stubborn, monosymptomatic nasal obstruction, should establish if this symptom is unique or a dominant one accompanied by others. The phisician should take in consideration the unilaterality or bilaterality, the trigger and the releasing factors, and the type of the obstruction - periodic or permanent.

The absence or the presence of signs associated with nasal obstruction can be established by asking or examining the patient in a precise order, suggested by the following acronyms – S A P O R E - **S** = Sneezing; **A** = Anosmia (dysosmia – cacosmia); **P** = Pain; **O** = Obstruction; **R** = Rhinorrhea; **E** = Epistaxis.

In a patient's history with nasal obstruction one can encounter: nasal or craniofacial trauma, endonasal surgery, rhinoplasty, allergy, asthma, pollutants.

The anatomical nasal structures involved in nasal obstruction are hypetrophic inferior turbinates. In these circumstances the main symptom is the blocked nose, bilateral or alternating berween the two sides, accentuated in supine position.

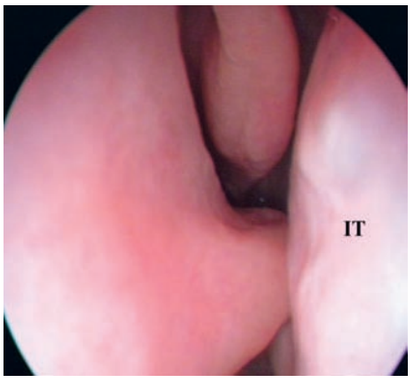
Also the nasal septum deviations, blocking the nasal fossae, can determine a permanent unilateral obstruction, uninfluenced by position.

The alar cartilages, part of the nasal valve can produce nasal obstruction due to: loss of tonicity, nasal valve incompetence or scars following prior surgery in the area. The diagnostic protocol of nasal valve incompetence consists of: external and endonasal clinical examination and paraclinic evaluation.

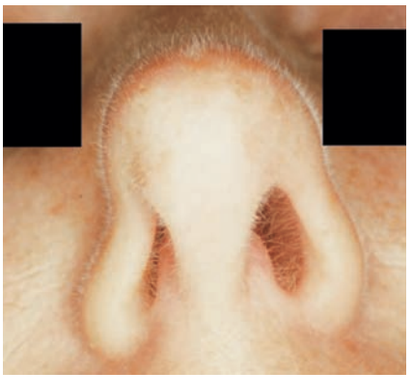
The external clinical examination of the nose evaluates the aspect of the dorsum nasi, the presence of scars, the nasal tension in the lobule, previous rhinoplasties, the aspect of the columella and nostril expansion or inequality.

During the endonasal clinical examination emphasis should be on the structures hypothetically involved in nasal obstruction, depending on certain data reported during this evaluation. Nasal endoscopy is necessarily bilateral and it will cover: the nasal septum (location of the nasal septum deformities), the inferior turbinate volume, the conchae tails, the choinea and the nasal valve elements.

Chronic hypertrophic rhinitis



Nasal septum deviation



Alar deficiency

The nasal valve is a dihedral angle structure with the external wall consisting of the upper lateral cartilage, while the internal wall is made up of the high portion of the septal cartilage, immediately above the plica nasi.

Nasal valve stenosis, with consecutive functional deficiency, may be the consequence of: triangular cartilage suffering (external), septal cartilage deformity (internal) or mixed, by changes of both sides.

Once completed the study of nasal anatomical structures, the endoscopy will take into consideration the following aspects: nasal mucosa (hypertrophy or atrophy, colour, vascularisation, secretions), middle and superior meatus findings and the presence of polyps or tumors.

The presence of these pathological changes, however, exceeds the monosymptomatic nasal obstruction, since they perfectly fit in the corresponding chapter of the rhinosinusal pathology.

Finally, endoscopic examination will end with the observation of the choanal openings. They can be affected by choanal imperforation or by nasopharyngeal tumors.

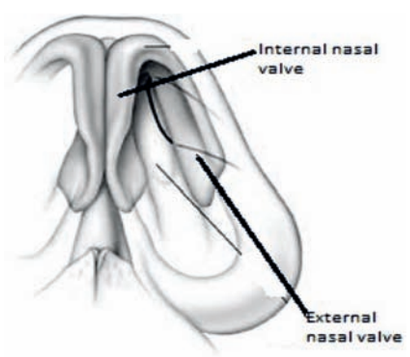
Endoscopic examination of the nose will be completed with an imaging examination and a 4 -phase – rhinomanometry.

As regards the imaging examination, it is worth noting that nowadays standard radiology clichés have been replaced by computer tomography, which can be simple, spiral, with three-dimensional reconstruction, highlighting exactly the aspect of the sinuses, the concha bullosa, the aspect of conchas or of the nasal septum, providing accurate hints for the type and extent of therapeutic interventions.

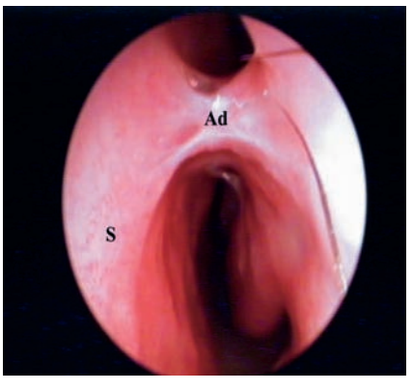
4– phase – rhinomanometry, very little used in practice, allows measurement of respiratory flow for each nostril separately. In case of low flows due to anatomic changes in the nasal valve, its expansion by Cottle maneuver (for the alar cartilage) and by Beckmann maneuver (for the superior angle of the nasal valve) can normalize the respiratory flow, by indicating the location of the future therapeutic intervention.

Nasal diseases of allergic nature particularly require the active anterior rhinomanometry for two main reasons: establishing the degree of nasal obstruction and monitoring the efficiency of anti-allergic treatment.

In certain situations, the causes of nasal respiratory dysfunction cannot be fully elucidated through



Alar valve



Septoturbinal synechiae

the methods mentioned. In these cases, it is recommended to complete investigations with rhinoflowmetry (RFM). RFM consists in applying a tension endonasal Holter to study fluctuations in nasal obstruction for 24-36 hours.

A clinical quantitative method for assessing the permeability of the nasal valve, easy to apply in any specialized medical office, is: PNIF (peak nasal inspiratory flow) and PNE (peak nasal expiratory). Sometimes the peak nasal inspiratory flow can be influenced by a nostril collapse. In these cases, the estimation of the peak nasal expiratory becomes indispensible and enlightening for estimating the respiratory flow.

The treatment of monosymptomatic nasal obstruction could be medical or surgical.

The nasal fossae vascularity consists of a rich network having two characteristics: arteries, arterioles and cavernous plexuses. They are located in the mucosa of the inferior and middle turbinates and on the nasal septum mucosa. The cavernous plexuses play a decisive role in air flow control, in heating and purifying the inspired air. The arterioles and the cavernous plexuses are surrounded by sympathetic nerve fibers that innervate the adrenergic receptors.

So, the adrenergic receptors are of 2 kinds: α (the majority of them) and β. The stimulation of α vasoreceptors produces vasoconstriction, while stimulation of β vasoreceptors produces vasodilatation. Direct simpathomimetics have direct action on α receptors, while indirect simpathomimetics act through the norepinephrine that they release from the storage cells.

There are several classes of local vasoconstrictors such as: amine local vasoconstrictors (used as monotherapy or combined with mucolytics or antiseptics or corticosteroids and antibacterial drugs) and imidazole local vasoconstrictors (monotherapy or combined with corticosteroid, antibacterial drugs and anesthetic).

Local vasoconstrictors generally have a favourable action for a period of 4 hours (when using amine vasoconstrictors), respectively for 8 hours (when using imidazole vasoconstrictors). Prolonged use of local vasoconstrictors produces a „rebound" effect or drug-induced rhinitis. The „rebound" effect begins to settle after 7-9 days of treatment and it requires the increasingly frequent use of nasal sprays due to the shortened period of vasoconstriction. As a result the phenomenon of dependence appears characteristic of the drug-induced rhinitis. Trying to suppress local vasoconstrictors induces headache, agitation, anger, anxiety.

According to Huizing, turbinate hypertrophy can be classified into 5 groups:

1. Compensatory hypertrophy of a septal concavity.
2. Hypertrophy due to volume increase of the turbinate skeleton.
3. Hypertrophy of the head mucosa of the inferior turbinate (atopic).
4. Global hypertrophy resulting from nasal hyper-reactivity.
5. Caudal hypertrophy, resulting from purulent rhinorrhea of sinus origin.

These hypertrophies can be solved using radical or functional surgical techniques.

Nowadays, radical methods are indicated in selected cases depending on the type of hypertrophy, history of the patient and previous failed therapies. Functional methods include: diathermocoagulation, radiofrequency, LASER coblation and shavers.

Diathermocoagulation can be performed with mono- or bipolar electrodes, depending on the degree of hypertrophy and the extent of tissue to be displaced. Diathermocoagulation reduces vascularisation of the turbinate. Postoperatively, a local edema occurs and nasal obstruction is accentuated.

Radiofrequencys technigues uses electrodes with low frequency radio waves. The electrode penetrates the nasal mucosa and causes intratissular, submucosal heating, followed by a sclerosing scar, in the end achieving a reduction in volume of the inferior turbinate. Technically, more applications are made in the inferior turbinate – head, body, and underside. Turbinate volume reduction with radiofrequency is performed in all types of hypertrophy of the inferior turbinates, being an alternative to diathermocoagulation, laser phototherapy or failure of the drug-based treatment. It is very well tolerated and easily accepted by patients.

LASER represents a valuable therapeutic alternative for the reduction of the turbineates. The types of lasers in use are: CO_2 laser, YAG, Holmium, KTP, diode. The difference between the various types of lasers consists in the wavelength of the light emitted and its ability to penetrate in the depth. The effect of the laser wave is on the mucosa, having no effect on the skeleton of the concha. The method is quick, repeatable, painless, being followed by a local edema for several hours and crusts that disappear after 7-8 days.