

EXAMINATION OF THE NOSE

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In light of some of the modern concepts in Rhinology as to the role the nose itself plays in maintaining health, it is indeed timely to re-examine and re-evaluate the subject of nasal examination. Because mankind alone is the only animal with an external nasal pyramid, it makes man unique in that you may say he has two noses one, an external nose which is the nose you see on his face and, two, an internal nose which lies behind the external. It is the study of this external nose which chiefly concerns us because it projects away from the face so it is subject, all through life from birth to death, to injury and consequently abnormal anatomy.

It goes without saying that to recognize the abnormal one must know the normal. The external nose consists of three components: the external nasal pyramid; the lobule; and that part of the septum which supports the dorsum. The external nasal pyramid has two parts also; bone and cartilage, the two nasal bones and the upper lateral cartilages. The lobule consists of the lobular cartilages and the skin and soft tissues of the vestibule.

We believe the function of the external nose is to prepare and condition the air for the internal nose, which, in turn, prepares and conditions the air for the larynx and the lungs. This certainly is over-simplification but for the purposes of examination this is statement enough. We further believe that the external nasal pyramid acts like a roof and hence as an insulating factor. We believe that the lobule helps direct, control, and warm the air. The septum enables the nose to rest so when one sleeps he is breathing through the upper side only and the septum thereby provides two noses. In time the head turns and reverses the sides hence letting one side rest while the other side works. If these statements are true any anatomical variation can cause pathologic symptoms and, in our opinion, frequently does. These symptoms, in the main, are nasal obstruction, stuffiness of the nose, altered secretion of mucous (either too much or too little), dryness, headaches, cough, sore throat, nose bleeds, and so on. Time again does not permit an adequate discussion of these concepts but a knowledge of them is essential to have in mind in order to properly examine a nose.

It is helpful in the actual examination to have a routine. Begin with the skin. Consider its thickness, its sebaceous secreting qualities. Is there enough of it to cover a graft or implant? Is there so much it will not drape properly after removal of some of the substance of the nose? Are there blemishes or scars? These should be noted before surgery. Does the individual have a sensitivity to tape or medicines? The healing quality of the skin has a lot to do with a good surgical result.

After the skin, examine the external nasal pyramid. Its skeleton is composed of the two nasal bones and the paired upper lateral cartilages. Consider the bones first. They may be large or small, symmetrical or not, thin or thick. They may make up most of the roof of the dorsum to the lobule or just a little beyond the nasion area. They should articulate with each other and

form a peaked roof. They should cover somewhat the cartilage. Palpate them and note their extent and position. Do they tilt? Is one side longer than the other? Is the curvature that may be present, due to the twisted bones or cartilage or both? Are the bones present at all?

Next examine the upper lateral cartilage. See if the three parts of the cartilage are present: one, the keystone area or that part which attaches to the under surface of the nasal bones which, with the septum, provides the main support for the dorsum; two, the roof part of the cartilage and, third, the free mobile caudal border which with the septum forms the valve of the nose.

One should then consider the lobule. In fact, the lobule is almost a separate organ. It should be free and not hanging up or attached to the septum. The most important structure of the lobule is the lobular cartilages. There are two cartilages in the lobule, one on either side. Each consists of two parts or crurae, lateral and medial. The two medial crurae come together at the mid-line to form part of the columella. Both crurae, lateral and medial, project into the nasal chamber to form, in effect, baffles or interference with the inspirational breathing. Variations of the lobule are common: asymmetrical nostrils, uneven tip, two domes, wide flat tip, dimples in the alar rim, differences in the convexity and concavity of the cartilage on one side or the other; large cartilage in one side, and so on. Look carefully at the base. Note the position of the alar feet. When these do not complete the ring of the nostril sometimes embryonic disturbances are thereby indicated. Look for the ventricle and the relationship of the upper lateral cartilage and the lobular cartilage. There should be an adequate cul-de-sac of soft tissue attachment between the two cartilages.

This completes the general external examination but there are some special procedures to help in diagnosis and prognosis that it is well to do before continuing with the internal nasal examination.

It was stated that mankind alone has an external nasal pyramid and hence two noses; an external and an internal. Our conception is that these two noses should fit one another and comply with the ethnic origin of the individual. Briefly there are many differences between the noses of the platyrrhine and the leptorrhine. The problem of air condition in the one race is to dry and cool the air, while the other is to moisten and warm it. Hence, it is logical that the two noses should be different and they are. In brief the colored man's nose is wide and open and the caucasian's nose is narrow and long and has not much space. In the course of development the nose goes through various stages. At times the white man's nose has the characteristics of the colored man's nose and continues to develop its caucasian qualities as the individual matures. Injury during the development period may inhibit or arrest further development so it is not uncommon to see on a white adult the external nose with negroid anatomy and characteristics. Hence, a disharmony between the external nose and the internal nose exists. In other words the external nose does not fit that individual's internal nose and consequently trouble ensues. In considering diagnosis and prognosis attention to these conditions must be paid.

Several years ago Dr. Maurice Cottle of Chicago introduced the measuring of the so-called clinical nasal index and another index called the tip index. These special examinations are helpful. The nasal index is the comparison of the width of the pyriform aperture with the height of the nose. The clinical nasal index is the same measurement on the soft tissue of the skin and has comparative values. The caucasian is 61 or less and the negro is 70 to 75 or more.

When the clinical nasal index is wrong for the individual not too much change or correction can be expected, hence its prognostic value. The tip index also described by Cottle measures the comparison of the nasal tip with the widest dimension of the base. This has normal values as follows; for the platyrrhine 33/44 and the caucasian it is 22/33. The tip index may, many times, be modified by surgery. Hence, again it is of great prognostic and diagnostic value. To measure the tip index, note the widest dimension above the apex of the nostril in millimeters; then note the widest dimension of the base. Multiply the first by 100 and divide by the second. In the caucasian this should be 66; in the negro 75. To take the clinical nasal index, feel with the fingers and thumb of the left hand the widest point of the pyriform crest. Then measure from the skin above the nasion to the subnasale which marks the bony point of the nasal spine. Multiply the first by 100 and divide by the second. The values of this index have been given above.

The inside of the nose should now be examined. First consider the septum. Recall its special anatomical features. Look at the caudal border; look at the footplate of the septum or the processus lateralis ventralis; look at the anterior cartilage; look at the bones; the maxillae, the premaxillae, the vomer, the palatine, the ethmoidal plate. Look for deviations, obstructions and impactions. Check the membranous septum. Is it mobile? Pay particular attention to the valve area and note the angle with the upper lateral cartilage. Normally it is about 15 degrees. Less than this means obstruction and more than this means lack of resistance necessary for proper inspiration and expiration. The valve area should be examined with the head in various positions to note its mobility and its ability to function as a valve. To see this, a gentle retraction with the fingers or a lid retractor or, sometime, an electric otoscope is helpful. Look for scars and retractions on the caudal border of the upper lateral cartilages.

To complete the inside examination, observe the membrane for its thickness, crusting, scars, ulcers, and perforations. There are many degrees of nasal atrophy which sometimes are early manifested in the nasal mucosa. Lastly, look at the turbinates; size and position, presence of polyps, and evidences of sinus infection.

This, in general, completes the routine examination but some other special procedures are helpful. Photography is one. It is wise to have at least two cameras; one to take color slides and one to take a standard size black and white picture. (The recommended size is 5 x 7 inches.) The actual taking of the pictures should be done by the surgeon himself. It gives a good opportunity to establish an understanding with the patient and the doctor as to the patient's difficulties, his limitations, and his aspirations. It also is, of course, helpful in the analysis of the case and is an important part of the

medical record. Mask making is another valuable adjunct to the examination. Even more important is the use of nasal manometry in studying nasal pressures and air flow. This examination will, no doubt, become more used and valuable in the future. Time and space do not permit an adequate discussion of these important phases but their importance should be strongly emphasized none the less.

In closing I would say to properly examine a nose one must make use of the simple senses of touch and sight more, and depend less on artificial aids, instruments, x-rays, machines, and so forth to make a proper and helpful examination.

L'EXAMEN DU NEZ

Les conceptions modernes de la rhinologie exigent plus ou moins la révision des méthodes d'examen du nez. Du fait de l'importance du nez externe dans la préparation de l'air nécessaire aux fosses nasales, l'examen anatomique de la pyramide nasale externe, de la pointe du nez et de la cloison nasale est nécessaire en vue de distinguer les états normaux des états anormaux.

Le fait que, de tout le genre animal, l'homme est le seul à posséder une pyramide nasale externe, rend l'étude du nez externe particulièrement importante dans sa relation avec les fosses nasales. Ces deux nez doivent concorder et s'adapter l'un à l'autre, et coïncider exactement avec la composition ethnique de l'individu, ou bien alors des troubles s'ensuivent. Des symptômes cliniques suivent une altération anatomique du nez externe. Les indices platyrrhinien et leptorhinien du nez sont différents l'un de l'autre. Suivant COTTLE, la description et la définition de l'indice nasal clinique ainsi que celles de l'indice de l'extrémité du nez (mesure proportionnelle de la base du nez) sont très utiles dans les diagnostics et les pronostics.

La photographie, spécialement dans le cas du chirurgien prenant lui-même les photos, est d'une grande aide en ce qui concerne le diagnostic. On peut dire la même chose de la confection de masques.

La manométrie nasale, qui est maintenant utilisable, est une méthode relativement nouvelle. C'est un moyen simple et pratique de déterminer les pressions nasales et le courant d'air; cette méthode jouera sans doute le rôle le plus important dans l'examen du nez. La mesure des pressions et des courants d'air nasaux est depuis longtemps un sujet d'intérêt pour les Rhinologues, et c'est également COTTLE qui a inventé une méthode réalisant ces objectifs. Cette méthode a l'avantage d'être pratique et utilisable par tous les cliniciens.

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