

SURGERY IN ATROPHIC RHINITIS

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Introduction

Before one attempts the surgery necessary to correct atrophic rhinitis, he should understand the nature of the disease. Atrophic rhinitis is a chronic, degenerative, inflammatory disease involving the nasal mucosa, the underlying structures, and neighboring tissues. It does not appear suddenly, but may exist for years before becoming evident. Part or all of the nasal anatomy may be involved in the disorder. The late or final stage of degeneration in atrophic rhinitis, which we call *ozena*, is observable in crusting, bleeding, and an offensive odor. The earlier stages of the disease, which is insidious in its onset and development, may manifest themselves in difficulty in breathing and in other physical and emotional phenomena involving the nasopharynx, pharynx, larynx, and lungs, either singly or in combination.

Etiology and Pathology

Pathologically, the changes that take place in the nasal tissues involve the blood supply or one or more mucosal structures. Many interesting theories have been advanced as to the cause of this condition. Such factors as heredity, injury, bacterial infection (e.g., diphtheria, syphilis), chronic infection of the nasal areas, hormonal imbalance, allergy, metabolic irregularity, avitaminosis, and countless other diseases have been speculated to cause this disease. It is believed by some that one or more of these factors may involve the sphenopalatine ganglion nerve with its parasympathetic and sympathetic connections in such a way as to initiate this disease. It is possible that these nerves or ganglions produce substances which cause spasm or constriction of the arteries and arterioles of the nasal mucosa who eventually produce these atrophic changes? These factors, and indeed many more, may produce a disturbance which not only alters the shape and form of the inner nose, but may directly or indirectly produce atrophic changes outwardly which may change the shape and form of the external nose.

In early atrophic rhinitis the only physical findings may be minimal changes in parts or all of the nasal mucosa. These may be present in any case as thin, dry, pale patches with localized crusts, ulcers, or bleeding. In more moderate atrophic cases, other changes may involve part or parts of one or both nasal chambers in such a way as to affect the septum and turbinate areas with or without further involvement of the rest of the upper respiratory tract. These changes may progress slowly and then appear dormant only to again become progressive and reappear with all the symptoms of *ozena*, aggravated by trauma, illness, and other disease factors. As the nose ages and as the internal nasal disease progresses, there is a gradual deformity which takes place not only within the nose, but which also changes its external structure to produce such conditions as saddling of the dorsum, widening of the nose, ballooning or widening of the valve or upper lateral cartilage, and disproportioning of the lobule and the rest of the nasal pyramid. Such developments may mean further progression of the atrophy of the nose.

Surgical Considerations

Medical management consisting of topical and systemic endocrine, steroid, and antibiotic therapy with or without prostigmine and vasodilators has proved of some paliative value. Dr. Cottle and others believe that major emphasis should be on surgery to vary the air passages of the nose.

Many early surgeons like Rouge, Volkmann, Sanger, and Lautenschläger have had procedures involving the narrowing of the nasal chambers and other procedures requiring implantations of different types of material into the nasal structures. Later, others like Proud emphasized the removal of the atrophic hard septum and introduction of acrylic implants. Rethi recommended the construction of baffles from the septum to obstruct the nasal chamber. The use of Stenson's duct, and the implantation of fresh, living autogenous materials of bone and cartilage under the mucosa of the septum, the nasal floor, and lateral walls have also been long employed. Dr. Cottle was probably the first to use cancellous bone as a true graft simultaneously in the septum, in the lateral wall, and in the floor of the nose after submucous removal of the hard structures of the septum.

More recently the rhinoplastic principles of Joseph, Foman, and Cottle were added to the above combination of procedures and were found to be even more valuable, the rationale being that a decreased amount of air gets into the nose with each inspiration, resulting in less drying of the mucosa and the secretions. Dr. Cottle believes that the remedy is not as simple as this, however, and suggests that the following other factors should be considered:

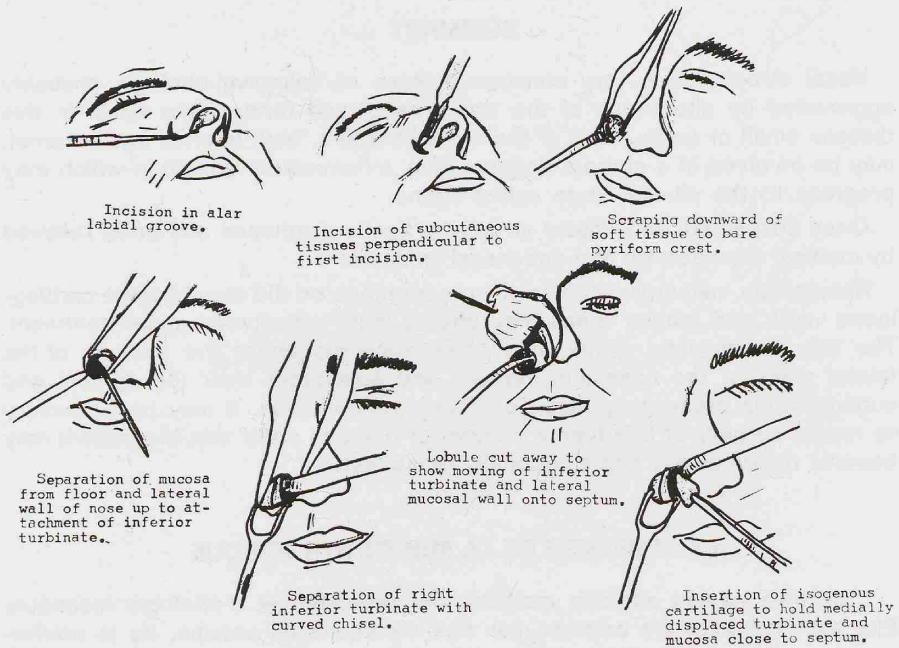
1. That the direction of air currents can be affected by the size, shape, and position of the nostrils in their relationship to the pyramid.
2. That the air stream flow can be affected by the function of the lobular cartilages and their valve effect.
3. That air flow turbulence and direction can be influenced by the anterior portion of the inferior and middle turbinates in inspiration.
4. That the air flow turbulence and stagnation can be affected by the posterior ends of the inferior turbinate.
5. That the efficiency of the erectile tissue of the turbinate can determine its cyclic excursion to the septum in response to the atmosphere, sleep, etc.
6. That implants or grafts under mucosa may stimulate and increase blood supply and thus stimulate activity of the mucosal glands and other structures.
7. That any material implanted may be expected to remain in situ or be absorbed and replaced by fibrous tissue having a new blood supply of its own.

In general, it can be said that both submucosal implants and rhinoplastic methods should be utilized in most cases of surgery for the atrophic rhinitis problem. When indicated, septal, nasal pyramid, and lobular surgery should be done first. In early cases of atrophy, implants of cancellous bone or other materials can be introduced submucously by mobilizing the mucosa of the floor and lateral nasal walls.

In those cases in which the atrophic condition is more extensive, surgery implants may be done in two or more stages. Each nasal fossa can be operated on separately with an interval of six or more months between procedures. It must be borne in mind that the fragility of the nasal mucosa in these patients may make surgery technically difficult. Cancellous bone from the ileum is the material of choice for grafting in the septum and dorsum. Autogenous bone, when possible, should be used. Preserved or refrigerated cancellous bone is used for temporary implants. All varieties of bone may be used as small blocks, or sections, or pieces, or may be ground or mixed with plasma and blood into a soft mass or paste. Cartilage, living and preserved from any source, homologous or heterogenous, can be used as small blocks or pieces. Such implants as polyethylene and, more recently, teflon, which has the unusual property of being inert, self-lubricating, and one of the best tolerated prosthetic materials known, are being used. Teflon also has extreme resistance to fixation by tissue growth in the body.

The Operation

The operation for atrophic rhinitis should follow the narrowing of the external nasal bones and the cartilage compound and also the external narrowing of the lobule and internal narrowing of valves, as well as the narrowing and reforming of the nostrils and the base of the nose.



The approach to the floor of the nose and lateral nasal wall for the implantation of all substances is through an incision of skin at the alar-labial groove. The incision leads to the pyriform crest area. Through this incision a sub-

mucosal separation of the nasal membrane from the wall and floor is done. Separation of the inferior turbinate bone from the lateral nasal wall with a curved chisel and further moving of the lateral mucosal wall medially together with the inferior turbinate and lachrymal nasal duct can be accomplished. Once the mucosae of the lateral wall of the nose with the inferior turbinates are moved toward the septum, they are held in place with a substantial amount of submucosal implant of bone, cartilage or other material.

Implants of autogenous bone in the septum should be preceded by removal of septum down to the hard palate. If autogenous bone is available, the palate should be well scarified to permit the graft to take. If the nasal bones are greatly atrophied, they can be replaced by dorsal grafts of autogenous cancellous bone.

Septal perforations, whether spontaneous or traumatically produced, may complicate the surgical intervention of atrophic rhinitis and their closing might be considered at the same time. By extensive elevations of the remaining mucosa of the septum and the upper lateral cartilage, the rotation of these mucosae into the perforation can be accomplished. Split-skin grafting, fastened with sutures and packing, can be placed into the denuded area created. Small perforations may be closed in this fashion. Larger perforations may demand more extensive plastic and repeat procedures.

SUMMARY

Nasal atrophy is a very common disease of unknown etiology, probably aggravated by alterations of the size, shape, and form of the nose. In this disease small or large areas of the nasal structure, both internal and external, may be involved in a chronic degenerative, inflammatory condition which may progress to the clinical state called ozena.

Once suspected, early nasal atrophy is easily diagnosed and often relieved by medical management and endonasal implants.

Rhinoplasty, narrowing and smalling operations on the nasal bones, cartilaginous vault, and lobular areas may offer a more effective surgical treatment. The use of implants, grafts, and other materials under the mucosa of the lateral walls of the nose and septum, and sometimes over the dorsum and subcutaneous areas, may also be of exceptional value. It may be necessary to repeat surgery of this type a number of times in order that the patient may become rhinologically and emotionally rehabilitated.

LA CHIRURGIE DE LA RHINITE ATROPHIQUE

L'atrophie nasale est une maladie très répandue et d'étiologie inconnue. Elle est probablement empirée par des variations du volume, de la conformation et de la forme du nez. Dans cette maladie quelques surfaces, petites ou grandes, tant intérieures qu'extérieures, peuvent être atteintes d'un état chronique de dégénération et d'inflammation; cette maladie peut évoluer vers l'état clinique nommé ozène.

Sa présence une fois soupçonnée, l'atrophie nasale est facile à diagnostiquer dans sa première phase et souvent on la soulage par un traitement médical et des implantations endonasales.

La rhinoplastie: opérations pour rétrécir ou diminuer les os nasaux, la voûte cartilagineuse, et les régions détailes du nez peuvent fournir un traitement chirurgical plus efficace. L'implantation de greffes et d'autres matériaux sous les muqueuses des parois latérales du nez et de la cloison, et quelques fois sur l'arête nasale et les régions sous-cutanées, peut également avoir une valeur exceptionnelle. Il peut être nécessaire de répéter plusieurs fois cette chirurgie pour que le malade se rétablisse au point de vue rhinologique et émotionnel.

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