

Current concepts in the surgical management of nasal polyposis

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One of the most common and occasionally frustrating health care problems is that of nasal polyposis. Patient symptoms are debilitating and have a tendency to recur despite the treatment modality used. Nasal endoscopy is a significant advancement for the early diagnosis and objective assessment of treatment modalities used for nasal polyposis. Surgery used in conjunction with medical therapies offers a safe, thorough means of relieving patient symptoms. It is possible to monitor these patients closely for recurrence with nasal endoscopy as well as debride early recurrences before they become symptomatic. (J ALLERGY CLIN IMMUNOL 1992;543-6.)

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Health care complaints leading to the diagnosis of sinusitis afflicted 31 million Americans in 1988 to 1989.¹ Nasal polyposis is commonly found in association with chronic or recurrent acute sinusitis, and it afflicts as many as 1 in 20 patients referred to otolaryngologists.² Nasal polyps account for 4% of patient referrals to allergy clinics, and 7% of patients with asthma have them.² Only 2% of patients who complain of chronic rhinitis eventually have nasal polyps, but as many as 10% of children with cystic fibrosis may have concomitant nasal polyposis.² Multiple causes are associated with the development of nasal polyposis, and it can be thought of as the final common pathway or nasal manifestation of a variety of underlying disorders.¹ Many mechanisms have been implicated and several are related to allergy, infection, autonomic imbalance, environmental irritants, and genetic factors.²

Recent reports in the literature stress the importance of multiple environmental factors in the development of mucosal reactivity within the upper airway. Dowse³ demonstrated an increased incidence of asthma (from 0.1% to 7.3% between 1970 and 1980) in adults living in the high lands of Eastern New Guinea. The primary change identified by these authors during the intervening period was the introduction of cotton blankets,

cow's milk, and canned fish to the area. Pollution has been found to be an important factor in the development of bronchial reactivity and sinonasal complaints. A study of 5300 Swedish school children indicated a significantly higher incidence of asthma and hay fever in those living close to a polluting paper factory than in those living 40 km from the factory.⁴ Similarly, it has been suggested that the increased incidence of nasal polyposis and acute frontal sinusitis seen during the decade spanning 1977 to 1986 in southwestern Finland is related to an increase in air pollution.⁵

DIAGNOSIS

The diagnosis of nasal polyposis can be made readily in the most striking case when a patient complains of nasal obstruction and has polyps protruding from their nostrils. However, more frequently these benign fleshy tumors of the respiratory mucosa are not so readily visible. Anterior rhinoscopy will frequently reveal polyps that extend anteriorly beyond the margin of the middle turbinate, but this technique for diagnosis relies on the existence of fairly advanced nasal polyposis for the correct diagnosis. Availability of technologic advancements has made nasal endoscopy with either the rigid or flexible nasal endoscope an essential modality for the busy otolaryngologist or allergist.

NASAL ENDOSCOPY

Rigid nasal endoscopy offers superior optical quality when compared with the flexible system. The rigid system will also permit mobilization of the turbinates and allow inspection of some difficult-to-reach passageways that are not routinely visible with the flexible system. By its very nature, however, the flexible sys-

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tem is more versatile and may permit complete visualization of postoperative sinus cavities that are not completely visible when only a 30-degree rigid nasal endoscopy is available. Flexible nasal endoscopy is generally a more comfortable examination for the patient. However, properly performed both forms of nasal endoscopy are very well tolerated in the adult population.

Whichever instrumentation for nasal endoscopy is used, the technique used should be methodical. Topical anesthetics and nasal decongestants are recommended and may be delivered to the nose in a variety of ways. A system that atomizes the topical solutions is optimal. If rigid endoscopy is to be performed, then cotton-tipped nasal applicators with supplemental anesthetic may be required. The nasal floor, septum, nasopharynx, and lateral nasal wall should be inspected routinely.

The nasal endoscope is essential not only for the diagnosis of early polypoid disease within the nose, but it is indispensable for the objective assessment of response to treatment modalities.

MEDICAL MANAGEMENT OF NASAL POLYPOSIS

Prevention of any health care problem is the best and most cost-effective treatment modality. Unfortunately, in almost all circumstances we are unable to identify in advance who is most likely to develop nasal polyposis. Treatment modalities aimed at the underlying pathophysiology are also limited, because the causes of nasal polyposis in a given individual are frequently unidentifiable. When environmental irritants and allergens are involved in the development of nasal polyps, avoidance, the mainstay of allergy therapy, is indicated. However, it is frequently impractical to fully realize this objective.

The current treatment modalities are most often targeted at the polyp and not the underlying cause. This explains the proclivity of this health care problem to recur once the treatment is withdrawn. Nasal polyps can lead to various symptoms including nasal obstruction, anosmia or hyposmia, recurrent bouts of sinusitis with exacerbations of asthma, chronic drainage, dry mouth, and facial pressure or headache. Hypertension and the development of obstructive sleep apnea have been linked to nasal polyposis. It is not hard to imagine the great relief patients feel when this source of nasal obstruction can be resolved even if it is only temporary.

Topical nasal steroids are essential for the management of all patients with nasal polyposis who do not have hypersensitivity to the ingredients of the various

preparations. Failure of topical nasal steroids as a single agent for the treatment of nasal polyposis has at least in part been attributed to the coexistence of untreated bacterial infection—promoting polyposis.

Obstruction at the level of the ostiomeatal unit or at the opening to any paranasal sinus by polypoid disease will almost certainly lead to blockage of mucous clearance from the dependent sinuses. Mucous stasis can result in bacterial overgrowth and subsequent infection. Therefore the importance of nasal polyposis in the development of chronic or recurrent acute bacterial sinusitis cannot be overemphasized.

Treatment of nasal polyposis should be simultaneously aimed at treatment of associated bacterial or fungal infections. Antibiotic therapy is delivered best on the basis of culture findings. However, because chronic sinusitis is often associated with the presence of polyps,⁶ antibiotic coverage should include empiric anaerobic coverage. Cromolyn sodium decongestants and antihistamines are of limited value in the treatment of nasal polyps. Allergic desensitization can be a key therapy for the management of nasal polyposis. Aspirin desensitization for those persons with nasal polyposis has been reported with some success.⁷

Systemic steroid therapy is an important treatment modality in patients who have no contraindication to their use. It has been suggested that this treatment is as efficacious as surgery. Patients with nasal polyposis that is refractory to maximal medical therapy are considered candidates for surgery. Again, surgical therapy is most successful for the management of nasal polyposis when it is used in conjunction with appropriate medical therapy. Patients with steroid-dependent asthma will require temporary increases in their prednisone dose during the perioperative period.

SURGICAL OPTIONS

Surgery is considered an option for those individuals whose quality of life is significantly disrupted and have failed an adequate trial of rigorous medical therapy or who have a contraindication to some aspect of medical therapy. In general, however, surgery is elective and should be considered as part of the continuum of therapy and not independent of medical therapies. That is to say, surgical removal is usually not a complete answer to the problem.

Intranasal polypectomy can be performed in the office or the operating room. Polypectomy as a single therapy is effective for temporary relief of symptoms that lasts a variable but usually short duration. Physicians who decide on this surgical management will occasionally carry out dozens of these procedures for a single patient until the patient finds another modality

or becomes exasperated altogether. More lasting surgical relief is obtained with more extensive procedures that remove the tissue source of the polyp. Therefore as with chronic sinusitis, nasal polyposis can be surgically addressed either by ethmoidectomy alone or in conjunction with associated procedures that address polypoid disease in the frontal, maxillary, or sphenoid sinuses.

The Caldwell-Luc procedure has long been the standard approach for the surgical management of polyposis of the maxillary sinuses; however, it is no longer routinely advocated since the advent of functional endoscopic sinus surgery. Many believe that in most instances where a dependent sinus (i.e., maxillary, sphenoid, or frontal) is involved with polypoid disease, that removal of the obstruction to these sinuses will allow for adequate ventilation and ultimately for reversal of the disease. Therefore the pansinusectomy that had been previously advocated by many is no longer advocated. It is true that when long-standing disease is present, more traditional surgical approaches may be indicated (and when there is no hope for reversal of the disease in a dependent sinus).

The use of telescopic vision within the nasal cavity polyposis can be managed with the functional endoscopic technique referred to in the previous article by these authors in this supplement. After endoscopic total sphenoidectomy, 85% of patients reported a marked improvement in symptoms (mean follow-up, 18 months). Unpublished data from the senior author suggest that the surgical results in patients with pansinusitis associated with chronic infection, polyposis, or Samter's triad (AKA, asthma-aspirin-polyposis triad) are equally good. Friedman et al.⁸ also found that those patients with the asthma-aspirin-polyposis triad did not fare significantly worse than those without this triad. The most important predictor of improvement in symptoms after surgery appears to be the preoperative extent of disease (unpublished data). The extent of preoperative disease might be related to the severity of underlying conditions such as asthma, or Samter's triad. Patients with nasal polyposis who are surgical candidates also tend to have extensive involvement of the sinuses.

Again the great advantage of the nasal endoscope is our ability to objectively scrutinize the condition of the nasal mucosa. Postoperative care is rendered vigorously as outlined in our previous article in this supplement. Topical nasal steroids may be continued into the immediate postoperative period and are known to help suppress the development of nasal polyps. Once the healing is completed, regularly scheduled follow-up appointments continue for the next year. During these visits any tiny polyps that might recur can undergo debridement with relative ease for both patient

and surgeon in a widely patent sphenoid cavity. The allergist working in conjunction with the surgeon can make similar assessments and report them to the surgeon during the intervening periods. A more aggressive return of polyps can be met with a rigorous course of increased use of topical nasal steroids, oral antibiotics, and if appropriate systemic steroids. If allergy is at the root of the underlying problem, allergic desensitization should continue throughout the perioperative period. If allergy has been newly diagnosed and desensitization is indicated, it should not be begun until all postoperative healing is complete. This will help avoid intranasal swelling, which can appear while the maintenance dose is being achieved.

CONCLUSIONS

Regardless of therapy, it appears that patients with diffuse sinonasal polyposis have a much greater likelihood of having recurrent disease. This does not mean that it is senseless to treat these individuals. To the contrary, many of these patients have a poor quality of life and can derive significant symptomatic relief of nasal obstruction, facial pressure, headache, and perhaps exacerbations of asthma through a rigorous and relentless approach to their health care problem. A functional endoscopic approach can yield relatively lasting symptomatic relief. It can also be used to survey and treat sinus cavities with postoperative asymptomatic persistent or recurrent polyposis.

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DISCUSSION

Dr. Slavin. With regard to management, you did not talk very much about topical nasal steroids. Is that routine in your patients undergoing polypectomy?

Dr. Lanza. Clearly, we believe that topical nasal steroids are essential therapy and is used in virtually all patients. We believe that pretreatment or concurrent treatment with systemic steroids can essentially reduce the mass and allow the intranasal steroids to get in and be more effective. We will, in the small group of patients who have allergy as well as polyps, if they have already been on allergic desensitization, recommend continuation of this therapy.

Dr. Spector. For completeness, I believe one thing that should be mentioned is aspirin desensitization. Would you

comment on the sinus obliteration procedures or the Montgomery procedure? Do you think there is still a place for that?

Dr. Lanza. Yes, I definitely believe there is. We still use the frontal sinus obliteration procedure in adults. However, I think that the frontal sinus obliteration procedure, as well as the Caldwell-Luc procedure, which although I have mentioned before, is on the decline. These procedures may never completely be eliminated since irreversible disease will be unresponsive to rigorous medical therapy and a functional procedure. An osteoplastic flap and then complete stripping the lining of the frontal sinus, followed by obliteration of the sinus with fat from the abdomen, is a very good procedure to help control symptoms.