

## Septoplasty for Migraine?

*Case History and Follow-up Submitted by Randolph W. Evans, MD*

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Migraineurs are treated by a variety of physician specialists who, according to training, clinical experience, and bias, may recommend different treatments.

### CLINICAL HISTORY

A 35-year-old woman reported a history of migraine without aura since a teenager. The headaches occurred 1 to 2 times weekly and were relieved with a triptan within 1 to 2 hours. She chose not to try a preventive medication. At a follow-up visit, she reported having seen an ear, nose, and throat (ENT) physician who found a nasal spur and recommended nasoplasty—a procedure that might also eliminate her migraines. She brought in a newsletter from the physician's office with the following information:

Septoplasty is a simple procedure whereby the bony projection within the nose is removed and the pressure point is relieved. In some cases this cures headaches. However, there is no guarantee because there are various causes of headaches. A review of my headache patients last year revealed that 40% were cured, 50% had less severe or less frequent headaches and 10% were unchanged.

She also brought in a newspaper advertisement from another ENT physician:

Chronic difficulty breathing through the nose? Headaches? Pains in the head? Even headaches during sex? Much, more often than not...it isn't migraine. Regardless of what you may have been told—especially

in smoggy Houston. Now: precise, affordable, television-guided nose and sinus surgery right in the doctor's office may be the answer to your head pain, stopped-up nose, nasal polyps, sinusitis. Believe it or not hidden pressure points in the nose and sinus areas rank among the most common causes of head and face pain—pains in the back of the neck, the forehead, behind, around and below the eyes, the teeth—almost anywhere in the head.

The advertisement then discussed that surgery may be necessary for enlarged, hollow, or badly shaped swollen turbinates or a twisted nasal septum.

**Question.**—The patient asked for my advice regarding surgery for migraine. What should I recommend?

### EXPERT COMMENTARY

Patients consulting an otolaryngologist often complain of headache. The differential diagnoses for headache include migraine; other primary headache, ophthalmic, rhinologic, temporomandibular joint, or cervical spine disorders; and vascular or neurologic disease.

Rhinologic headache has been characterized as a referred pain. Experimental stimulation within the nasal cavity and paranasal sinuses with various noxious stimuli has yielded interesting findings. The mucosa around the sinus ostia seems to be most sensitive, while the mucosa of the turbinates is less so, and the mucosa within the paranasal sinuses is least sensitive. The pain was rarely felt at the site of stimulation, however, but was referred to other areas of the head. Different authors have reported an association between various nasal and paranasal pathologies and head or face pains.<sup>1</sup>

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Rhinologic headache most frequently accompanies infectious or allergic paranasal sinus disease. Mucosal edema resulting from infection or allergy can produce sinus ostial obstruction. This results in insufficient ventilation of the sinus that will lead to a relative negative pressure within the sinus and decreased ability to adjust to external barometric pressure changes. This mechanism underlies the head or face pain that can occur with altitude changes associated with air travel during active allergic or inflammatory sinonasal disease.

Similar to what occurs with middle ear disease and eustachian tube dysfunction, an effusion can develop within an obstructed sinus that can serve as a culture medium for bacterial contamination and acute sinusitis. Bacterial sinusitis in the immunocompetent host produces an inflammatory response that produces mucosal secretion into the obstructed sinus and a relative positive pressure. Both the relative negative and positive pressure states within a sinus can produce the classic headache associated with allergic rhinitis and acute and chronic sinusitis.

Mucosal edema has also been shown to arrest the normal ciliary beating that is responsible for mucociliary clearance of the nose and paranasal sinuses. The mucous blanket that collects foreign particulate matter within the nose becomes static. This stasis yields an ideal setting for bacterial infection that, in turn, produces rhinitis and sinusitis.<sup>2</sup>

Another mechanism for rhinologic headache resulting from mucosal edema due to infectious or allergic sinonasal disease is contact-point headache. In a normal setting, the mucosal surfaces surrounding the nasal airway may be separated by only a few millimeters. With varying amounts of mucosal edema, septal spurs and deviations contact the turbinates. In some patients, direct contact can be found even in the absence of mucosal edema. Constant intense mucosal contact can produce referred headache. A frequently sited point of contact is between the middle turbinate and the nasal septum. Parsons et al reported a 91% reduction in headache intensity and an 85% reduction in headache frequency among 34 patients undergoing limited endoscopic sinus surgery to relieve contact points between the nasal septum and one or more turbinates observed via office nasal endoscopy.<sup>3</sup> Ku-

nachak described a minimally invasive technique to relieve contact-point headaches using a small metal tongue depressor to fracture the middle turbinate laterally under topical anesthesia.<sup>4</sup> Forty-eight of 55 patients experienced complete clinical symptom resolution after 1 treatment, and all had resolution after 2 treatments.

The appropriate management of a patient suspected to have rhinologic headache begins with a complete history and a thorough physical examination, including nasal endoscopy. The history should focus on detecting any legacy of paranasal sinus disease and seasonal or perennial allergy. If infection or allergy is suggested by history or physical examination, appropriate treatment with antibiotics, decongestants, and antihistamines is warranted. Treatment duration for chronic sinusitis can extend up to 6 weeks. Imaging of the nose and paranasal sinuses with a fine-cut computed tomography (CT) scan with axial and coronal views is indicated in patients who fail to improve with appropriate medical treatment, or in those patients suspected to have contact-point headache or rhinologic headache from other etiologies (including nasal or sinus neoplasm). The CT scan can provide detailed information about mucosal inflammation due to recalcitrant sinusitis or the presence of contact points, or both.

Functional endoscopic sinus surgery for chronic sinusitis is reserved for those symptomatic patients with CT evidence of persistent disease after full-course medical treatment. As the name suggests, the surgery is intended to restore the natural function of the nose and paranasal sinuses, typically by relieving underlying sinus ostial obstruction. The surgery is limited to the extent of disease and should try to preserve as much native mucosa as possible. Restoration of sinus ventilation will commonly result in reversal of mucosal disease.

Sinus surgery for contact-point headaches is frequently successful in properly selected patients. The contact point should be evident on nasal endoscopy or CT scan, and other etiologies for rhinologic headache should be excluded. A trial of topical decongestant and anesthesia applied to the region of the contact point can be helpful in supporting the diagnosis. Kunachak comments that a good candidate for this treatment

is one whose contact-point pain persists after decongestion, but shows partial or total pain relief with anesthesia.

With regard to this particular case, a 35-year-old woman with a history of migraine without aura complains of headaches 1 to 2 times weekly that are relieved within 1 to 2 hours with a triptan (5-HT<sub>1</sub> receptor subtype agonist). She has chosen not to try a preventive medication, and inquires about sinonasal surgery to eliminate her migraines. No history of nasal or sinus disease or of perennial or seasonal allergies is provided.

This limited history is not suggestive of rhinologic headache and more likely represents migraine. Sinonasal surgery is not an appropriate treatment for migraine, but may be helpful in some cases of rhinologic headache. A reasonable and prudent plan for this patient would be to recommend a trial of decongestant treatment and to observe whether there is any symptomatic response. I would suggest that she use one of the available prescription nasal corticosteroid sprays daily, and most of those currently available offer the convenience of once daily administration. In addition, she also may use an over-the-counter, long-acting, sustained-release, systemic decongestant. I favor a 12-hour variety of pseudoephedrine taken early in the morning. (This lessens the likelihood of provoking sleep disturbance.) Contraindications to using systemic decongestants include a history of hypertension, coronary artery disease, diabetes, hyperthyroidism, urinary retention due to benign prostatic hypertrophy, or concomitant use of a monoamine oxidase inhibitor. I advise patients to discontinue this treatment if they note anxiety, palpitations, dizziness, or insomnia. Lastly, I would recommend that the patient use an over-the-counter, short-acting, decongestant nasal spray (eg, Afrin, Neo-Synephrine) up to once every 12 hours to abort any new acute headache. I would limit her to a total of 8 applications over a 2-week trial in order to avoid rebound nasal congestion.

After a 2-week therapeutic trial, she can assess her symptomatic response. At that time, I also suggest that she undergo a noncontrast CT scan of the paranasal sinuses with axial and coronal views. If there is indeed symptomatic improvement or the CT scan shows

evidence of paranasal sinus disease, it is reasonable to refer for an otolaryngologic evaluation. This is not a referral for surgery, but rather for an appropriate evaluation and logical sequence of treatment for possible rhinologic headache. If she does not experience any symptomatic improvement with a trial of decongestant treatment and the CT scan is unremarkable, I would encourage this patient to try preventive migraine medication.

## REFERENCES

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## FOLLOW-UP

I advised the patient that I could not recommend septoplasty as a treatment for migraine. Although the ENT physician's results sounded impressive, I explained that one really could not evaluate how effective surgery is for migraine prevention without a control group; surgery is a powerful placebo.<sup>1</sup> I also told her that in studies of medications for migraine prevention, about 20% of patients on placebo trials experience a 50% or greater reduction in migraine frequency. A prospective randomized study on the effect of septoplasty for the prevention of International Headache Society (IHS)-defined migraine in patients with nasal spurs, comparing the outcome with a control group (or ideally, a sham surgery group) would certainly be of interest. The patient decided to continue medical treatment.

## REFERENCE

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**EDITOR'S NOTE**

*I respectfully disagree with Dr. Willcox, share Dr. Evan's implied horror at the frivolous advertising cited in the clinical history, and applaud Dr. Evan's decision to treat the patient for the disorder she most likely has—migraine. To subject a patient with typical migraine to the management plan Dr. Willcox proposes appears a waste of health care resources that is likely to produce only diagnostic confusion.*

*I recently had the opportunity to evaluate a 47-year-old man who, for more than 10 years, had suffered bouts of intense right retro-orbital and upper molar pain. Individual attacks lasted 30 to 60 minutes, occurred 2 to 4*

*times daily, and were accompanied by ipsilateral tearing and profound nasal congestion/rhinorrhea. Each bout lasted about 6 weeks. He related that the bouts had continued despite extraction of most of his upper molars and no less than 17 sinus or nasal surgeries (including nasal septoplasty).*

*Granted, we are biased in our convictions by the nature of our training, our clinical experience, and the selective nature of the patient population we see. Nonetheless, it is difficult to muster up much enthusiasm for nasal or sinus surgery as a potential treatment for patients who clearly describe a primary headache disorder.*  
*John F. Rothrock, MD.*