

A case for multidisciplinary management of chronic rhinosinusitis with nasal polyposis

To the Editor:

Chronic rhinosinusitis with nasal polyposis (CRSwNP) is often recalcitrant to traditionally directed strategies and is frequently associated with lower airway disease and systemic comorbidities.^{1,2} Presence of asthma, atopy, allergic fungal rhinosinusitis (AFRS), aspirin exacerbated respiratory disease (AERD), eosinophilic granulomatosis with polyangiitis (EGPA), and primary immunodeficiency (PID) add additional layers of complexity in managing CRSwNP appropriately.

We make a case that multidisciplinary management must be the keystone of managing most CRSwNP patients. In the absence of optimal postoperative medical management, recurrence of nasal polyps is more likely to occur than not. Conversely, inadequate surgery contributes to recalcitrance. Providers that are essential to the care of CRSwNP patients are otolaryngology–head and neck specialists and allergists-immunologists (A-I) with expertise in problematic chronic rhinosinusitis. Most optimally, both A-I and otolaryngology specialists should co-manage CRSwNP patients together in a collaborative clinic. Pathologists who can provide a detailed histopathologic analysis are also advantageous to the team. Such data (eg, tissue eosinophilia, presence of fungal elements, etc.) can help prognosticate and direct long-term care.^{3,4}

There are 4 key areas where otolaryngology–head and neck surgery and A-I specialists can work together for CRSwNP: (1) guideline-based confirmation of CRSwNP diagnosis by appropriate evaluation and nasal endoscopy⁵; (2) subtyping CRSwNP^{1,6}; (3) identification of coexistent allergy and lower respiratory pathology; and (4) collaborative strategies to optimize outcomes from medical and surgical interventions.

An accurate diagnosis of CRSwNP is essential for proper care. Patients with CRSwNP warrant a methodical diagnostic and management approach that includes a thorough history, nasal endoscopy, and tests for assessing severity, subtype, and associated comorbid lower respiratory conditions. Performance of biopsies, cultures, and other special studies (eg, ciliary studies) may be most easily performed by otolaryngology–head and neck surgery specialists, whereas immunological evaluation is most expertly conducted by

A-I specialists. Additionally, a collaborative approach to learning cross-disciplinary skills can be very beneficial for management of CRSwNP. Otolaryngology–head and neck surgeons can provide training and tips to the A-I specialist for performing nasal endoscopy and share expertise in detailed anatomical examination of CT scans. A-I specialists can provide guidance on testing, interpretation, and management of conditions such as co-morbid asthma, allergy, AERD, AFRS, EGPA, and PID. AERD, AFRS, and EGPA are problematic subtypes of CRSwNP that require specialized treatment. Although relatively straightforward to diagnose by means of history and testing, AERD and EGPA are significantly underrecognized in practice. Antecedent sinus surgery may decrease the severity of aspirin-induced reactions during aspirin desensitization in patients with AERD, and may also help convert patients who failed aspirin desensitization before surgery to a more responsive subtype after surgery.^{7,8} Otolaryngology and A-I specialists have complementary expertise that can aid in accurate subtyping, which may lead to improved patient outcomes.

Sinus surgery alone is not considered curative for many subtypes of CRS; therefore, ongoing medical management is critical for disease control. For many patients, efficacy of medical management is optimized by appropriate surgery.⁹ Sinus surgery needs to be tailored based on the type of CRS being treated. CRSwNP and eosinophilic rhinosinusitis (characterized by type 2 inflammation) are not adequately treated by limited ostiomeatal surgery.¹⁰ Effective surgery is tailored to the disease process such that efficient mucociliary clearance can be achieved and postoperative topical therapy delivery is optimized.⁹ Effective surgery lays the foundation for effective postoperative control through medical therapy in CRSwNP. Surgery for CRSwNP must incorporate wide ethmoidal corridors and large sinus openings that facilitate both meticulous intraoperative disease removal as well as postoperative topical therapy delivery.^{10–12} Although effective surgery may completely remove nasal polyps and eosinophilic mucin, the challenge is avoiding recurrence. Postoperative medical therapy is critical to long-term success.

Subtype-directed therapy may be more effective than a traditionally deployed generic strategy that treats all patients similarly.¹³ Topical high-dose intranasal steroids delivered by means of sinus irrigations and atomizers can be effective in postsurgical eosinophilic CRS and CRSwNP patients.¹ The exhalation delivery system with fluticasone (EDS-FLU)¹⁴ and the mometasone-eluting device for postsurgical nasal polyp recurrence are other advancements with recent approval in the CRSwNP population.¹⁵ A new

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drug class has become available with the recent approval of dupilumab for severe CRSwNP.¹⁶ Although data on use of dupilumab beyond 52 weeks are not yet available, barring disease-modifying effects, there is no reason to assume that the need for biologic therapy (similar to topical steroids) would not be lifelong. Additionally, data on which CRSwNP patients may most benefit from this intervention is also needed. Some early data suggests that AERD patients may be responders.¹⁷ Bachert et al.¹⁸ reported that the magnitude of improvements in patient subgroups with comorbid asthma, AERD, or previous sinus surgery was similar to the overall dupilumab-treated group. Other biologics (omalizumab, reslizumab, mepolizumab, benralizumab) are currently under evaluation for use in CRSwNP. Collaboration with A-I in directing endotype-specific therapies will likely become even more relevant as newer therapies blockading novel inflammatory mediators become available. Collaboration between otolaryngology and A-I specialists also provides a unique opportunity to perform high-quality research on treatment outcomes of CRSwNP subtypes including cost-effectiveness. Cost-effectiveness analyses of sinus surgery and topical medical therapy vs long-term or lifelong use of biologic agents for CRSwNP is particularly important given the high cost of biologic agents.

In summary, we support multidisciplinary management of patients with CRSwNP. A personalized approach is warranted for CRSwNP patients to identify factors in disease pathogenesis that can be then targeted. The risk-benefit analyses for each patient may differ. The cost of each intervention must also be judged in the context of the individual patient and effect size. This approach requires appropriate clinical examination, immunologic profiling, and histopathological analysis, as well as interpretation of sinus computed tomography. The multidisciplinary approach may encompass multimodal therapeutic strategy in which conventional and newer medical interventions supplement surgical management. Although additional studies confirming the benefits of multidisciplinary teams for patients with CRSwNP are needed, a patient-centered approach that comprehensively evaluates and informs the affected

individual of surgical and medical therapeutic options is desirable.

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