Allergy and sinus disease

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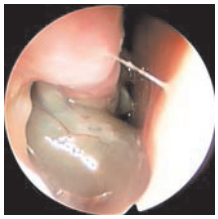

Does allergy predispose to acute infectious sinusitis? Some patients report sinus infections during the hayfever season, and it is commonly supposed that congestion associated with allergic rhinitis can predispose to infectious sinusitis by interfering with the function of the sinus ostia. However, there is no good evidence to support this hypothesis, and no good evidence that specific treatment by allergen avoidance or immunotherapy (or even non-specific treatment with continuous topical corticosteroids) can prevent acute infectious sinusitis in people who do not have underlying chronic sinusitis. Most episodes of acute sinusitis are sequelae to viral upper respiratory tract infections. However, topical corticosteroids are an effective adjunct to antibiotic therapy in cases of acute infectious sinusitis, with or without coexisting allergy (Level II).[1]

Evidence-based practice tip

Surgery is an effective treatment for chronic rhinosinusitis in patients who have failed medical treatment, with improvement in 75%–85% of patients (Level III).*

* NHMRC levels of evidence. ◆

Does allergy cause chronic rhinosinusitis or nasal polyposis? Chronic rhinosinusitis (CRS) (ie, inflammation of the mucosa of the nose and the paranasal sinuses) can be subdivided into two types according to the presence or absence of nasal polyposis (NP).[2] The mucosal inflammation in CRS without polyposis is usually neutrophil predominant, but when NP is present (CRS/NP) it is usually eosinophil predominant. The tissue eosinophilia and frequent association of CRS/NP with asthma[3] have led to the assumption that CRS/NP is caused by allergy. However, most studies have shown that the presence of IgE to environmental allergens (atopy) is no more common in people with CRS (with or without NP) than in the general population, and the symptoms of CRS are not affected by seasonal changes or allergen exposure. Thus it is now thought that allergy is not the cause of CRS in most cases. Atopy may coexist with CRS, and symptoms of allergic rhinitis can be superimposed on symptoms of CRS. There is no evidence that allergen avoidance or immunotherapy can alleviate CRS, but it may relieve superimposed hayfever symptoms.

A subset of CRS/NP associated with chronic fungal infection and systemic fungal allergy has been termed "allergic fungal sinusitis", but the exact parameters of this entity remain unclear. Antifungal treatments have been disappointing, and the evidence for effectiveness of immunotherapy for fungal allergy in this condition is limited.

In most cases, the cause of CRS is not apparent. Bacterial infection frequently coexists, but may not be causative. Current theories of causation include bacterial biofilms, fungal hypersensitivity, sensitivity to bacterial superantigens, and genetic factors.

What is the relationship between aspirin sensitivity and sinus disease? About a third of adults with CRS/NP and asthma also have aspirin sensitivity, in which the ingestion of aspirin or another non-steroidal anti-inflammatory drug (NSAID) causes an acute exacerbation of asthma or nasal symptoms or both. This is not an IgE-mediated allergy, but rather a pharmacological intolerance due to dysregulation of prostaglandin and leukotriene metabolism. Patients with CRS may also note symptom exacerbation after intake of alcohol or sulphites, or from aeroirritants such as smoke and fumes. Because these are not true allergies, skin prick testing and allergen desensitisation are not applicable. Aspirin desensitisation by graded oral doses can be effective, but must only be carried out by a specialist under controlled, supervised conditions.

Investigation and referral. CRS can cause symptoms similar to perennial allergic rhinitis, and may be indistinguishable on history alone. Anosmia and the presence of nasal polyps seen on anterior rhinoscopy (Figure) are good predictors of chronic sinusitis. However, the complaint of "sinus headache" is not a good predictor of a radiographic finding of sinusitis. Investigation for CRS is appropriate when symptoms of perennial rhinitis occur in the absence of allergy; when allergy is present but not relevant (eg, when there is allergy to seasonal pollens, but symptoms are perennial); or if the symptoms fail to respond adequately to allergy-directed treatment. A computed tomography scan of the sinuses is a useful diagnostic test and is more accurate and informative than a plain sinus x-ray.

Patients with CRS should be reviewed by both an allergist/immunologist and an ear, nose and throat surgeon for consideration of a range of issues including bacterial or fungal infection, coexistent allergy, immunoglobulin deficiency, aspirin/NSAID sensitivity, comorbidities (eg, asthma, Wegener granulomatosis, Churg–Strauss vasculitis, ciliary dyskinesia, cystic fibrosis), or surgery to restore sinus ostial patency.

Management. The mainstay of medical therapy is corticosteroids, which act on both allergic and non-allergic inflammation. Topical corticosteroids are effective for treating NP and concomitant allergic symptoms (Level II).[4] Brief courses of systemic corticosteroids can significantly reduce inflammation in CRS/NP and alleviate symptoms temporarily (Level III),[5] facilitating maintenance therapies or surgical intervention. Although polyp regrowth after surgery occurs quite frequently, surgery remains an important part of overall management.

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(Received 26 Mar 2006, accepted 26 Sep 2006) ❑