

## Imaging tests identify role of allergies in chronic sinus disease

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Exposing patients with chronic sinus disease to allergens and then obtaining repeated images by X-ray or ultrasound reveals that nasal allergies may be involved in some cases of chronic sinus disease, according to a report in the December issue of *Archives of Otolaryngology-Head & Neck Surgery*.

Chronic disease of the maxillary sinus (the sinus cavity located in the mid-face beneath the cheeks, on either side of the nose) is common and affects a wide population of adults and children, according to background information in the article. "Although the involvement of hypersensitivity mechanisms, and especially of nasal allergy, in chronic disease of the maxillary sinuses has been recognized, the diagnostic procedures for this disorder and the relationship vary," the author writes. "There is a dearth of information regarding the direct causal involvement of hypersensitivity mechanisms of the nasal mucosa and potential consequences within the maxillary sinuses."

Zdenek Pelikan, M.D., Ph.D., of Allergy Research Foundation, Breda, the Netherlands, studied 71 patients with chronic maxillary sinus disease and 16 control individuals with allergic rhinitis but no history of sinus disease. The patients with sinus disease underwent a total of 135 nasal provocation tests, in which allergens were applied to the linings of their nasal cavities, and 71 control challenges in which only phosphatebuffered saline was applied. In the control patients, 16 positive nasal provocation tests were repeated. Before and repeatedly after these tests and challenges, images were taken of the maxillary sinuses using both



radiography (X-rays) and ultrasonography. Changes to the skeleton, air fluid level, thickening of the mucus membrane in the sinus and other parameters were noted.

Of the 71 patients with sinusitis, 67 developed 104 positive nasal responses to the provocation tests. Of these, 89 were accompanied by significant changes to the maxillary sinus on radiographs and 83 were also associated with significant changes on ultrasonograms. No significant changes on radiographs or ultrasonograms were noted during the 71 saline control tests on patients with sinus disease, or during the 16 nasal provocation tests conducted on control patients without sinus disease.

"The possible involvement of allergy, and especially of nasal allergy, in some forms of sinus disease has already been reported in the literature," the author writes. "There are a number of anatomic and physiologic similarities between the nasal mucosa and mucosa of the maxillary sinuses." The maxillary sinuses open into the nasal canal through a valve known as the ostium. If mucus membranes in the nasal cavity are swollen, the ostium can become blocked, trapping fluids in the sinus.

"In conclusion, nasal allergy may be involved in chronic disease of the maxillary sinuses in some patients," the author concludes. "Nasal challenge with allergen combined with ultrasonography and, if necessary, also with one of the radiographic imaging methods may be a useful supplement for the diagnosis of this disorder in the clinical practice, especially in children. The confirmation of involvement of nasal allergy in patients with chronic disease of the maxillary sinuses would indicate an additional treatment of the nasal allergy."

**More information:** Arch Otolaryngol Head Neck Surg. 2009;135[12]:1246-1255



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