

Letter to the editor

The presence of *Staphylococcus aureus* is not equivalent to an immune reaction to its enterotoxins

Dear editor,

The article of Niederfuhr et al. entitled *Staphylococcus aureus* in nasal lavage and biopsy of patients with chronic rhinosinusitis (1) published in *Allergy*, October 2008, comes to the conclusion that there is no higher prevalence of *S. aureus* among chronic rhinosinusitis patients with (CRSwNP) or without nasal polyps vs control patients. They also conclude that *S. aureus* does not intensify the TH2 shift in CRSwNP patients. We do not share these conclusions for the following reasons.

First, there are various studies showing that colonization with *S. aureus* is more frequent in patients with CRS, more specifically with nasal polyps, either pre- or postoperatively compared with control patients (2–5). The authors of the article do fail to confirm this finding possibly because of the technique they used for sampling (nasal lavage), which does not specifically harvest the bacteria from the middle meatus, but instead from the whole nasal cavity and vestibulum.

Second, the authors could not regularly identify *S. aureus* in tissue using fluorescence *in situ* hybridization with the specific peptide nucleic acid probe (PNA-FISH). However, PNA-FISH has repeatedly demonstrated excellent sensitivity and specificity for the detection of *S. aureus* in blood (6) and of other bacteria (7) in different tissues. In addition, Lefmann et al. identified isolates of mycobacteria in paraffin embedded tissue sections (8). In our hands, this technique gives reliable results to identify *S. aureus* in the nasal mucosa (Fig. 1, unpublished data). We therefore believe that a technical mistake may account for the difference in observations.

Third, the authors refer to some of our publications (1, 2), but seem to wrongly interpret them; they do not refer to a recent

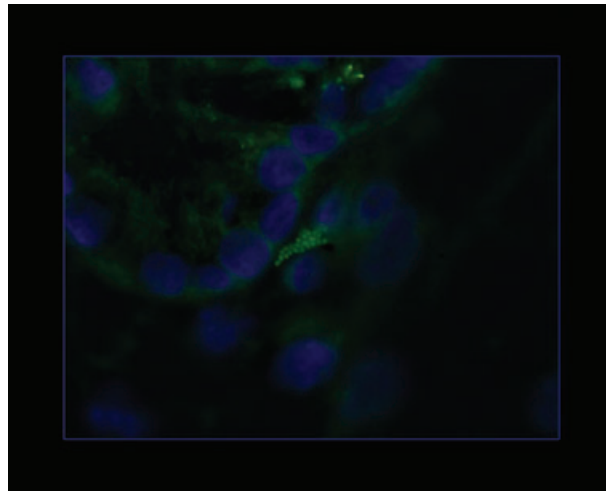


Figure 1. Nasal polyp tissue stained for *S. aureus* with PNA-FISH Kit (Cat. No. KT001, AdvanDX, Woburn, MA, USA). Zeiss axioplan epifluorescence microscope with a CCD camera (Sony IMAC-CCD S30) using a fluorescein isothiocyanate filter at 100 $\times$ under oil.

publication showing no difference in the superantigen production potential between germs from healthy people and nasal polyp patients (9); otherwise, they would not have expected a correlation between *S. aureus* presence and inflammatory parameters. Such changes are dependent on an immune reaction of the local TH2 cells to *S. aureus* superantigens (SAE). As described in previous studies, we refer to the presence of SAE-specific IgE antibodies as a marker of such reaction, which is associated with a significant increase in eosinophil-related inflammatory parameters such as IL-5 and ECP (2, 10, 11). Unfortunately, although taking a biopsy, the authors did not attempt to measure total and SAE-IgE in tissue homogenates.

Finally, the authors used nasal lavage for the measurement of cytokines and mediators of inflammation, hoping that concen-

trations in nasal secretions would reflect those in tissue. They confirmed that IL-5 and IgE were higher in CRSwNP compared with controls, but did not report a difference in ECP. However, the amplitude of concentrations of IgE and IL-5 is very small, so that differences between subgroups obviously would be difficult to uncover. The authors, as they comment themselves in their discussion, should better have used homogenates from mucosal tissue instead of nasal lavage.

In summary, the authors should have interpreted their results much more carefully and should have discussed the shortcomings in order to avoid wrong conclusions from their paper.

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