



Rhinology findings and their clinical usefulness for closer asthma fenotyping



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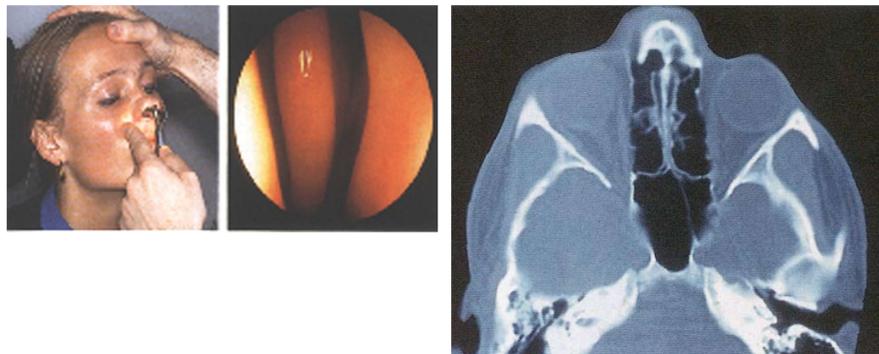
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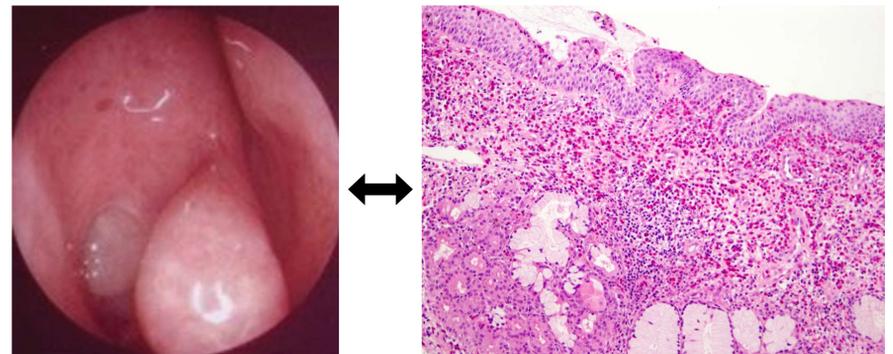
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Background: Our previous research findings conducted on patients with severe persistent asthma indicated a strong correlation between eosinophilic inflammation of upper and lower airways using the following methods: induced sputum (IS), bronchoalveolar lavage fluid (BALTe) and the biopsy of nasal mucosa



Results: Significant correlations were found in eosinophil counts in NM and nasal polyps presentation ($p=0,0012, p=0,0001$, koef. 0.55). The intensity of nasal polyps (stage I, II, III) correlated with intensity of eosinophils counts stage (I, II, III) $p= 0,0001$, koef.0.45. (Graph 1)



Nasal polyp

Eosinophils in NM biopsy

(NM). The aim of presented study was to determine whether there are existing differences between the intensity of eosinophilia and/or polyp presentation in upper airways in patients with eosinophilic asthma with no clinically significant allergies versus patients with eosinophilic and allergic asthma.

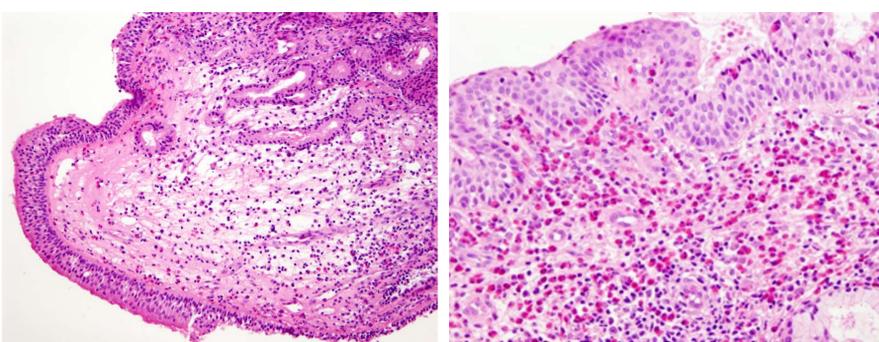
Methods: 32 patients with partially controlled severe persistent asthma treated by high doses of ICS combined with LABA were included for evaluation at the beginning (BALTe done), than 128 asthmatics with different severity were also evaluated for this study (BALTe not done). According to markers of eosinophilia (FeNO, ECP, eo in NM, BALTe, IS and FBC) and allergy (skin prick tests, specific IgE) we divided asthmatics into three groups:

- I. Eosinophilic and allergic,
- II. Eosinophilic but non-allergic
- III. Non-eosinophilic asthma.

We also focused on presence of perennial allergy and NSAID intolerance. CT scan of paranasal sinuses, rhinology examination, rhinology operation history were included for evaluation of nasal polyps presentation. Previous study data were considered (ERS Barcelona 2010, abstract No. 258034).

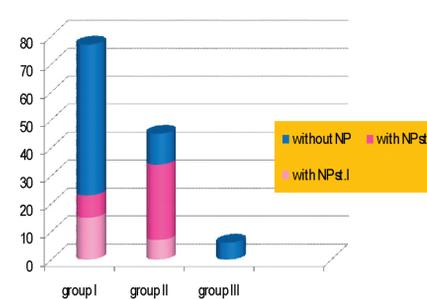
Nasal polyps presentation correlated mostly with eosinophilic but non-allergic asthma ($0,0117, p=0,0001$). No nasal polyps were found in noneosinophilic asthma. (graph 2). The intensity of eosinophilia in NM and presentation of nasal polyps correlated in the group I mostly with mould allergy ($p=0,0005, koef.0,38$). In the group II with NSAID intolerance ($p<0,05$). We found a correlation between presence of nasal polyps and presence of severe asthma ($p=0,0001, koef 0,358$), severe asthma patients have statistically more mould allergy ($p=0,0031, koef 0,259$). NSAID intolerance is also statistically more presented in severe asthma patients ($p= 0,0090, koef 0,230$).

Conclusion: According to our previous study – nasal mucosa biopsy showed a close correlation to (residual) eosinophilic inflammation in the bronchi. The results of presented study show a close correlation of the presence of eosinophilic inflammation in the nasal mucosa and nasal polyps presentation, mainly occurred in eosinophilic but non-allergic asthma. We found presence of nasal polyps as a negative prognostic factor in patients with severe asthma – in allergic asthmatics indicates the risk for mould allergy, in non-allergic asthmatics for NSAID intolerance.

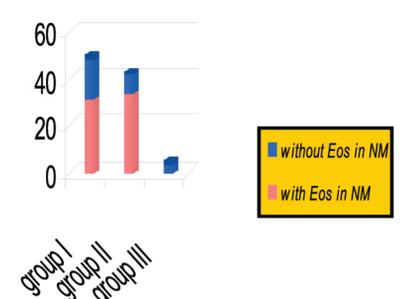


Nasal mucosa biopsy without eosinophils

Eosinophils in NM biopsy



Graph 1: The intensity of nasal polyps according to asthma group



Graph 2: Eos in NM were found in asthma group I. (eosinophilic and allergic) in 70,4%, group II. (eosinophilic non allergic) – in 80,9%, there were no Eos in NM in asthma group III. (non-eosinophilic)

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