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Correspondence

Inflammatory cell types in nasal polyps

Dear Editor, Nasal polyposis is a common health problem affecting 4% of the world population.[1,2] However, the exact pathogenesis is still unknown.[3] Currently, there are no studies in the literature reporting the cellular types characterizing the surface of nasal polyps, just as there is no description of the correlations between different inflammatory cell types and their clinical features. The aim of this study was to investigate the different cell types, their frequency and the correlated symptoms [asthma, aspirin sensitivity (AS), aspirin sensitivity with asthma (AS-asthma)], family of atopy, asthma, AS, or nasal polyposis and recurrence rate in a group of 144 patients (66 female, 78 male; mean age 46 years) suffering from nasal polyps not associated with allergic rhinitis. Atopy was excluded by negative skin prick tests. The diagnosis of nasal polyposis was made using a fibre optic endoscope (Vision Sciences ENT 2000 having a diameter of 3.4 mm; Orangeburg, NY, USA).

Cytological samples were obtained by scraping with a Rhino-Probe™. The samples were collected from the medial portion of the inferior middle turbinate. The samples were prepared following standard methodology: air-dried May-Grunwald–Giemsa (MGG) slides were prepared as previously reported.[4,5] Eosinophilic type (Figure 1a) was diagnosed if nasal eosinophils comprised > 20% of total cells recovered from nasal scraping, including both inflammatory and epithelial cells. Mast cell type (Figure 1b) was diagnosed if mast cells comprised > 10% of total cells. Neutrophilic type (Figure 1c) was diagnosed if neutrophils comprised > 50% of total cells. Eosinophilic-mast cell type (Figure 1d) was defined if eosinophils comprised > 20% and mast cells > 10% of total cells in accordance with previous study[5].

Correspondence:
G. Ciprandi, Ospedale San Martino, Largo R. Benzi 10, Genoa 16132, Italy
Tel.: +39 10 35338120; Fax +39 10 3537573;
E-mail gio.cip@libero.it

Eosinophilic type was found in 89 patients (61.8%); 46 patients (31.9%) presented an eosinophil-mast cell type, five patients (3.5%) presented nasal mastocytosis, and four patients (2.8%) presented neutrophilic type. Table 1 reports the cell types and clinical findings. AS was seen in only three cases (3.3%), all of which were eosinophilic type. Asthma was associated with all the cellular types, except neutrophilic, and was present in 17 (19.1%) of 89 eosinophilic type, nine (19.5%) of 46 eosinophilic-mast cell type and one (20%) of five mast cell type. AS-asthma was more frequent in eosinophilic-mast cell type (six of 46 cases; 13%) than with eosinophilic type (five of 89 cases; 5.6%), although the difference was not significant; no association was seen in the mast cell and neutrophilic forms. Family history of nasal polyps was reported in seven (7.8%) of 89 eosinophilic type, 10 (21.7%) of 46 eosinophilic-mast cell type, one (25%) of four neutrophilic form, and one (20%) of five mast cell type. One patient with neutrophilic type had nasal polyps associated with cystic fibrosis. Postsurgical recurrences were seen in 28 patients (31.4%) of 89 eosinophilic type, 19 (41.3%) of eosinophilic-mast cell type, one (25%) of four neutrophilic type and one (20%) of five mast cell form.

These preliminary data suggest that more than half of the patients (61.8%) with nasal polyposis are characterized by eosinophilic type cellularity. Such findings are in accordance with histological studies and classified as eosinophilic polyposis[4]. The high prevalence of this type of cellularity was not associated with atopy and, when it occurs, nasal polyposis is considered as an independent disease.[1] Such aspects express the clinically specific chronicity existing between the two diseases, besides a possible genetically determined predisposition. In this study, a family history was associated with all cell types, with a higher percentage observed in the eosinophilic-mast cell type (21.7%). Another interesting result is the relatively high percentage of nasal polyposis characterized by eosinophilic-mast cell type cellularity (31.9%). This cell type, similar to the eosinophilic type, was associated with asthma in 19.5% of patients and slightly more frequently with

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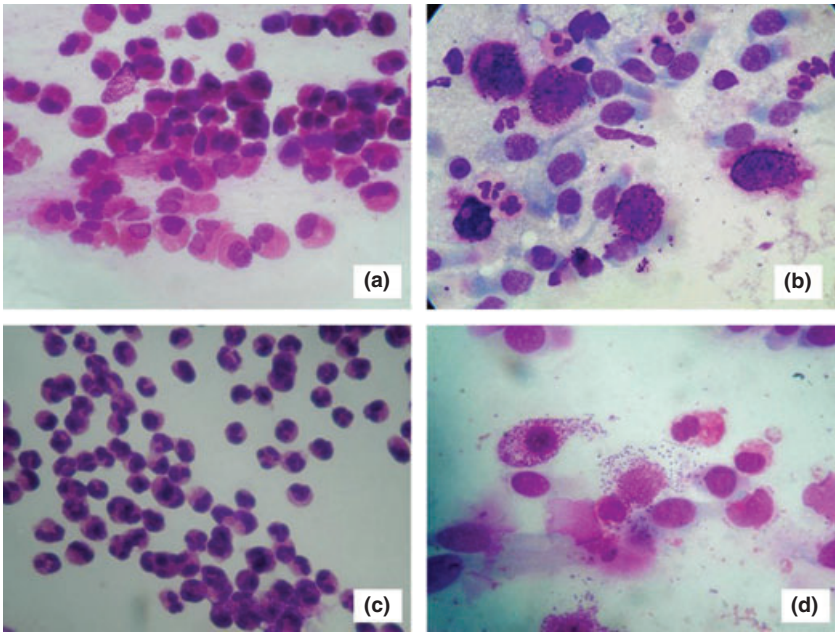

Figure 1. (a) Eosinophilic polyps: numerous eosinophils, some of which are degranulated. (b) Mast cell polyps: numerous mast cells, some of which are degranulated. (c) Neutrophilic polyps: numerous neutrophils. (d) Eosinophilic-mast cell polyps: numerous partly degranulated eosinophils and mast cells.

Table 1. Clinical-cytological correlations in nasal polyposis

Cell types	Heredity	ASA	Asthma	ASA + asthma	Polyp recurrence
Eosinophilic 89 Cases (61.8%)	7 (7.8%)	3 (3.3%)	17 (19.1%)	5 (5.6%)	28 (31.4%)
Eosinophil-mast cell 46 cases (31.9%)	10 (21.7%)	–	9 (19.5%)	6 (13%)	19 (41.3%)
Mastocytosis 5 cases (3.5%)	1 (20%)	–	1 (20%)	–	1 (20%)
Neutrophilic 4 cases (2.8%)	1 (25%)	–	–	–	1 (25%)

ASA 4

AS-asthma than eosinophil type (13% compared with 5.6%). The eosinophilic-mast cell type has been already described as a well-defined entity: non-allergic rhinitis with eosinophils and mast cells 3(NARESMA)[6] presents more aggressive symptoms and worst quality of life than non-allergic rhinitis with eosinophils (NARES)[5]. NARESMA might be also considered a predisposing condition for nasal polyposis as well as NARES. The frequency of postsurgery recurrences was not significantly different in the eosinophilic-mast type (41.3%) and eosinophilic cell type (31.4%). Mast cell type nasal polyposis was seen in 3.5% of cases. The low percentage of cases prompted us to search for particular clinical prognostic aspects of this type of cellularity. Finally, the neutrophilic type, although rare (2.8% of cases), if associated with bilateral nasal polyps should lead the specialist to perform additional clinical-diagnostic tests (sweat test, ciliary motility, ultrastructural studies of the cilia etc.). This cellular form is more frequently associated with congenital inflammatory diseases such as cystic fibrosis, antrocoanal polyposis, and inverted papilloma.

In conclusion, nasal cytology represents a relevant investigation for diagnosing not only rhinoallergic diseases, but also nasal inflammatory diseases.

M. Gelardi*, C. Russo*, M. L. Fiorella*,
R. Fiorella* and G. Ciprandi†
*Department of Ophthalmology and Otolaryngology-Otolaryngology II, University School of Medicine, Bari and †Department of Internal Medicine, University of Genoa, Genoa, Italy

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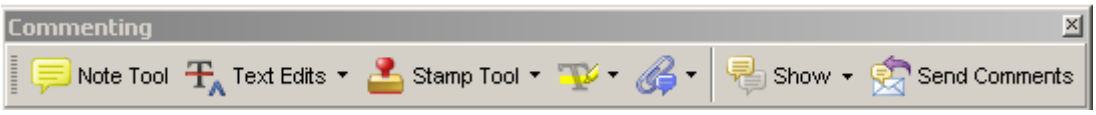

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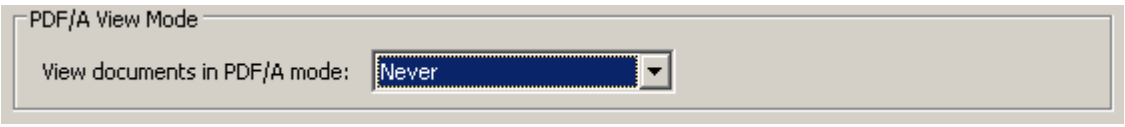

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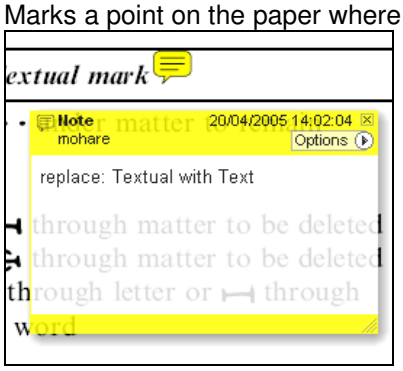

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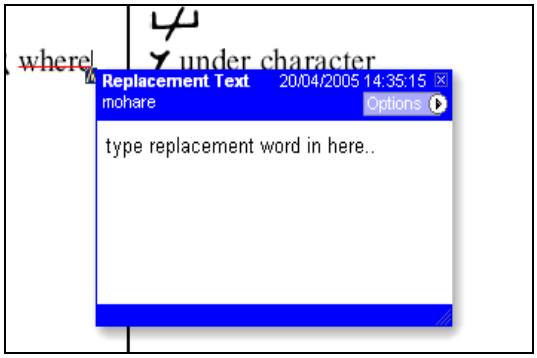

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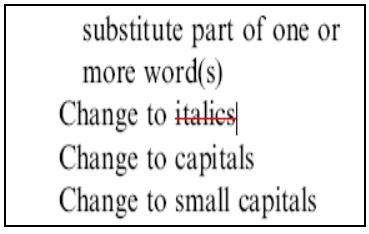

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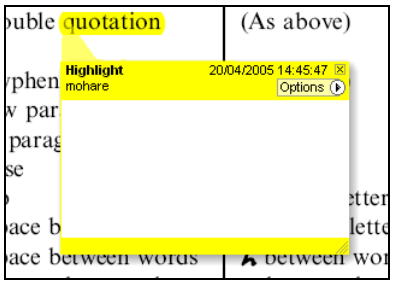

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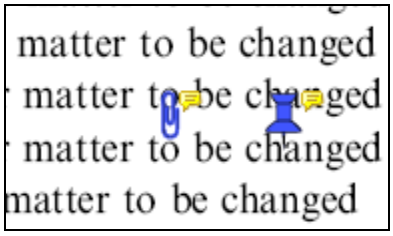

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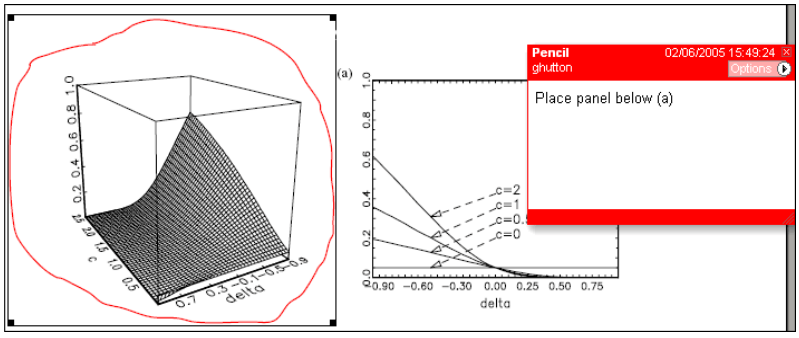

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