

## CLINICAL STUDY

# Immunofluorescent study of polyps in nose and paranasal cavities

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**Abstract:** *Objectives:* Aim of this research was an immunofluorescent study and to measure immunoglobulin status of the polyps in the nose and paranasal cavities.

*Background:* Polyps of the nose and the paranasal cavities are very often guised, and their frequency is growing with increasing chemicals and allergens. These factors interfere important research on polyps. Developments in allergology and immunology help in the detection of etiopathogenetical mechanisms of polyposis development, like the disturbance in mucus immunity.

*Methods:* Clinical material was collected from 100 hospitalized patients at the Department for otorinolaryngology, Clinical center of Niš. All patients had transnasal ethmoidectomy and polypectomy. In 19 patients trepanation of maxillary sinus (Coldwell Luc's) was made. Materials were examined by immunofluorescence.

*Results:* IgA immunofluorescency was negative in all examined parameters when examined under a ultraviolet luminescent with immunofluorescent microscope. IgM immunofluorescency was also negative in all examined parameters while IgG immunofluorescency was positive, but with different degree of intensity. The C3b fraction complement showed positive immunofluorescency in 80 % with standard intensity ++++ in all examined preparations.

*Conclusion:* Study of adenoids approved disarrangement in immune elimination in all examined preparations has shown very little immunity including the "second line of defense". High percent positive C3b complement fractions, with alongside emphasis on IgG response, instigate existing humoral reaction. The epithelium is very liable to many recurrent infections, wherewith beginning end of one permanent etiopathogenetical circle IgG-C3b-mastocits-eozinophils-IgA. Profusely blocked immune-eliminations and large production of mucous can cause some nasal diseases (*Tab. 2, Fig. 2, Ref. 15*). Full Text (Free, PDF) [www.bmj.sk](http://www.bmj.sk).

Key words: adenoids, nose, paranasal cavities, immunofluorescency, immunoglobuline.

Last decade immunology and allergology was very quickly develop therefore we will have an interesting for implementation this sciences for detection etiopatogenetical mechanism in issuing nasal polyps and paranasal adenoids (1). The question of dysfunctions of nasal mucosa is onward actual and this question has hither, was poor researching.

Considering than polyps of nose and paranasal cavities are today very often guise, and theirs frequency are grower with progressing chemical irritating factors and allergens, it's intruding necessary to their researching. Alongside, occurring question is how much immune-allergic mechanism are initiating, as well as, how are his responsible for feature and maintenances polyposis (2). Also, insisting for development to parallel correlations between this epidemical moment, possible new etiopatogenetical mechanisms and consequently effects to upper respiratory system, like are is obstruction. Automatically, postulate and suspicion obtruding question about disabling mucosal immunity of this region like qualify reaction to chemical and physical factors (3, 4).

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## Aim of research

Aim of research is immunofluorescent study and examination measuring immunoglobulin status of adenoids in nose and paranasal cavities. This like positive rating will be instigating to existing some new etiopatogenetical mechanism in evolution of nasal polyps and paranasal cavities.

## Material and methods

Clinical material used for research comes from about 100 hospitalized patients from the Clinic for ear, nose and throat, Clinical center of Niš. There were 77 man and 23 women patients, age rating 8–77. The all patient was outputting transnasal ethmoidectomy and transnasal polypectomy. At 19 patients trepanation of maxillary sinus in Coldwell Luc's was made. All operation was made in general (endo-tracheal) anesthesia with habitual surgery technique, mind then integrity of polyps be maximally preserved.

Material is necessary treated for immunofluorescens observing. For determent concentrations Ig and C3 fraction of complement we was using method of immunofluorescency. Suspensions that were used are: antihuman serums IgA, IgM, IgG and C3

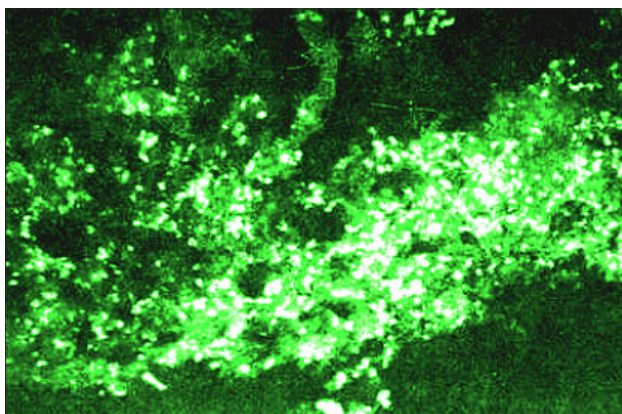


Fig. 1. Immunofluorescence of C3b fraction of complement.

complement, marked with fluoresceinisocianat (FITC) and PBS puffer.

Treatment was consisting to clippings part polyp height 5x5x5 mm colder to -20 %, after that was cutting ultra thin preparation thickness 10–20nm in the cryotron brand “Beckman”. Drying attained preparations was made under lamp 20 minutes. Preparations washing with PBS puffer 3 times per 5 min and after that recasting with cold acetate, who was been in frizz. After that, again it follows recasting with PBS puffer hereafter deposition antihuman serum marked with FITC. Again it follows washing out attained preparations in PBS, 3 times, and their covering with glycerin.

Observing was made with ultraviolet light immunofluorescent, s microscope brand “Olympus” where was recording madding too.

Standard parameters were used for statistical processing results.

**Results**

With immunofluorescent researching we are observing 100 patterns of nasal polyps and paranasal cavities per inquired with IgA, IgG, IgM and C3b fraction of complement.

Commodity researching we are affirming then immunofluorescency of IgA was be negative in all observing parameters, in the stroma, as well as in to the epithelia of polyps (in all examined parameters).

Immunofluorescency of IgM was also been negative in all examined parameters.

C3b fraction of complement is in 80 % patterns showed positive immunofluorescency, and in 20 % cases was be negative. At

Tab. 1. Immunofluorescency of C3b fraction of complement.

Result	n	%
positive	80	80
negative	20	20

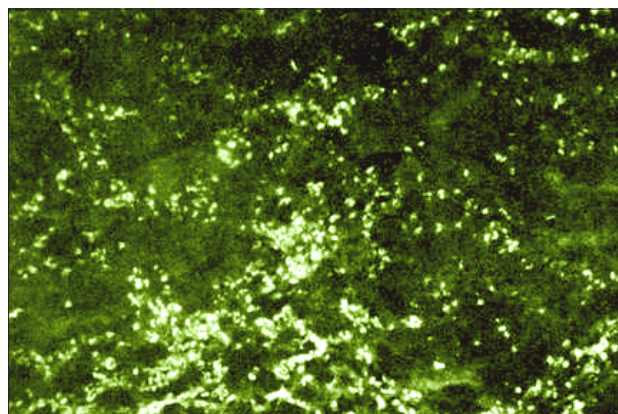


Fig. 2. Immunofluorescency of IgG.

positive immunofluorescency intensity was always be ++++ (Fig. 1, Tab. 1).

Immunofluorescency of IgG was be in all examined preparation positive, but with different intensity degree (Fig. 2, Tab. 2).

**Discussion**

Immunofluorescent study was revealing positive result for IgG, mostly in the cells of strome which were be with different degree of intensity, what we can see from illustrated results.

It’s can’t say then this like result was specific, considering his not been connected for some special structure or some another specific predilection field (the border place between stroma and epithelium) (5, 6). This can be representing like non specific response to existing inflammation process, which are recognized in all examined polyps on our light-microscope. Occurrence absolute IgM negativity and IgG positively is confirmation for chronically process in nasal polyposis and paranasal cavities with possible protracted and recidivate infection in background. Permanent exposition with antigen in nose and paranasal cavities, manage permanent contacts antibody with lymphoplasmocitary system cells. Consequence this contacts and richness lymphoid tissue in that region will be immunization and accordingly will be developing the primary hummoral immune response (7, 8). Consequents of primary contact, during a primary immune response give rise to antibody class IgM, and all next contact IgM and IgG antibody.

At new exposition to specific antigen advent reaction antigen-antibody. Thereby beginning many natural biochemical re-

Tab. 2. Immunofluorescency of IgG.

Intensity	n	%
+	14	14
++	28	28
+++	35	35
++++	23	23

actions ant to the CH2 domain hard chain IgG opening receptor for connection with first component of complement. For that receptor C1q was binding, and after activation bind and activating C1r who binding and activating C1s. In this way arisen active C1 esterase. Creature esterase potent to C4 component of complement, activating her and rifting at C4a and C4b fractions, after that C1 esterase make reaction with C2 component of complement and ripping her to C2a and C2b, those way producing fractions C2a and C4b whose confluent and making C3 convertase. This convertase is potent for C3 and destroying her to C3a and C3b fractions. Smaller fragment going in circulation where strongly chemotaxic and anaphylactic effects have as well as reacting local vasodilatation. C3b binding for cell's membrane next to complex C2aC3bC4b (9, 10). Especially attention deserves revelation huge number of mastocytes in different stages of degranulation – especially if these occur observing with constellation emphatically C3b positively.

Is cognizing (well reputed) namely, than this fraction of complement has key role in to the control stability of “target cells” mastocytes at priory, apropos mastocytes have in their membrane strongly expiated receptors for C3b fraction. Namely, mastocit's degranulation with releasing a numerous primary and secondary anaphylactic mediators is possibly consequents owing to effecting C3b fraction of complement. Mastocyt's degranulation is just secondary phenomena and consequence due to excessive activity C3b fraction pending repeatedly infections. In this method explained many clinical manifestations according to first type hypersensitivity, inherently presence on polyposis of nose and paranasal cavities. One of dominated histological characteristics is presence enormous number of eosinophyl's granulocytes. Theirs highly presence very nice correlating with, likewise high C3b positively.

Certainly is knowing than C3b fraction besides said anaphylactic activity has and signifying chemotaxic role, especially for eosinophils (11). This is way are in patterns have presence this like number of eosinophil,s granulocytes. High percent of C3b positively, especially with emphatic IgG response, suggest to persisting significant hummoral reaction (histological verified numerous plasmocytes).

This like immunological constellation, who was repeating with high consistently, into all testing patients with polyps of nasal and paranasal cavities, consider to existing some trigger for mentioned effector's immunological mechanism – repetitive infect.

Such methaplastic varied epithelia of nasal polyps haven't potentation for extroverting secretorial IgA, wherewith was explained absolute IgA negativity to inspecting patterns. Entirely sporadic registrations of positive immunofluorescents with IgA (just in two cases) coincide with presence, still irreversible lamina propria on to scanning patterns where several immunocytes still have function for synthesis excretion, what is normal occasion Missing surfacing IgA epithelia is denuding own first and probably most reliability line of defense. This like epithelium are liable to numerous recurrently infections, whereby into perpetual etiopathogenetical,s circle swinging in chain IgG-C3b-masto-

cytes-eozinophils-IgA (12). We have opinions then anyhow there does about some local phenomena and then here do not exist some deeper disturbances of immune response regulations.

Relevance number addition of immunocytes with IgG is presence into chronically mucosal inflammation, within per surface, such as into glandules. Concentration nasal IgG who are expanded may create so called second line of defense because antibody of this immunoglobulin wield potential capacity for immune elimination via expanded phagocytes and activation C factors or killer cells (killer, K) (13, 14). This theory was corroborating with facts that C factor participate in clearing viral antigens from nasal mucosa. As far as coming to onward extinction immune eliminations due to persisting topical propagation of antigens, actives C immune complex was prevailing within mucosa and also within excretres. Therein cases can expect additional mucosal permeability for different inflammatorily molecules. Accordingly develop circle that induce permanence chronically infection in the base immunopathology, including type 2 and type 3 on hypersensitivity. Imposing numeral priority IgG piercing antibody in regard to IgA is often at polyposial tissues. Permanent releasing lizozomal enzymes off phagocytes (neutrophiles) is incompatible with maintained mucosal immunity (15).

Profusely blockaded immune elimination and overgrow production of mucus will reacted some nasal disease (sickness). Luminal mucus,s accumulation in nasal polyps is connected with degeneration of secretor epithelia and losing external transport of IgA. Protection of nasal mucosa depending primary out of first line of defense, whom making secretarial IgA system including local production IgA dimmers.

Secretorial IgA antibody rises phenomena “stickle paper” of mucosal counterpane and reacting accordant with some few hummoral (non specific) antimicrobial factors, in order to mediating into immune elimination strange materials (4). The second line of defense can associated with inflammation including pathotopical potentiation of local immunity via passive transfer serum's antibody and other protective factors from blood to interstitial liquid of mucosa. Local production IgG antibody may contribute internal defenses whose primary aim is elimination strange materials off epithelia and lamina propriae (3).

Pathotopical potentiation may to exceed defense with amplification on diffusion antibody and other protected factors into the secrets.

Participation IgG and IgE into nasal defense give rise to immunological “circulus vitiosus” when elimination of strange materials will be unsuccessful.

Antibody their isotopes reducing to potential expansion to biological mechanism what will, with alongside, reducing to occurrage immunopatological development if allowed their further process. If don't making adequate clinical intervention result will be manifest nasal mucosa sickness.

## Conclusion

Denudation and reduction cell's variety and goblet-cells methaplasia, depleting barrier function of nasal mucosa and

paranasal cavities. Thereby antigens via T cells system and macrophages required evolution of plasmocytes and immunoglobulin productions, especially IgE antibody, who making connections with surface of mastocytes and at again contact with antigens according degranulation the their self , when that qualify release whole serial mediators, amongst histamine, heparin, leucotriens etc. That leading to reduction of general purposing immunology of polyps with reflecting an missing IgA (owing to glandular methaplasia to account serosal glandules) necessary for secretorial elimination Antigens, and parallel presence IgG in their tissues betoken about poorly immunity and including “second line of defense”.

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