APPROACH UNDER THE FORM OF SEMIQUANTITATIVE CYTOLOGICAL EVALUATION FOR CHRONIC PHARYNGITIS

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Abstract

In this study, we propose a semi-quantitative evaluation form for diagnosis of chronic pharyngitis based on both subjective and objective parameters. The data collection symptom of patients together with the microscopic evaluation of the cytological specimen allows to diagnose with a high degree of certainty the severity of the inflammatory state of the pharynx. This assessment is certainly very important for the evaluation of therapeutic treatment in relation to the severity of the disease

Keywords: Pharyngitis, pharyngeal cytology, evaluation form, Papanicolaou test

Introduction:

Chronic pharyngitis is a condition of infection (bacterial or viral) or irritation (chemical or physical) type that involves the inflammation of the pharyngeal mucosa persistent for at least one year, for more than six hours a day, for more than two weeks a month, for more than three months a year.

From a clinical point of view are known three forms of chronic pharyngitis

- *single or catarrhal*: pharyngeal mucosa diffusely reddened, swollen, with evident lymphoid follicles, covered with catarrhal exudate, more or less abundant and fluid;
- *hypertrophic*: bright red pharyngeal mucosa, thickened and irregular due to the presence of enlarged, red-violet lymph follicles, with traces of catarrhal or mucopurulent exudate;
- *atrophic*: dry, smooth, shiny, pink or red pharyngeal mucosa, without detectable lymph follicles, with traces of mucopurulent exudate dry or congealed into scabs.

Subjective symptoms of chronic pharyngitis are:

- irritation of the throat, which can be referred as a feeling of dryness/discomfort/sting;
- hoarseness;
- sensation of postnasal drip or sensation of presence of retronasal secretions that can compel the patient to repeated acts of clearing the throat;
- sensation of constriction or sensation of foreign body, which may intensify in swallowing of saliva, while it is less felt when swallowing solid food or liquids.

Objective symptoms of chronic pharyngitis are:

- congestion of the pharyngeal mucosa (rear wall, soft palate, uvula, palatine pillars);
- presence of mucopurulent or catarrhal secretion, fluid or clotted scabs;

- evidence of lymphoid follicles present on the rear wall (hypertrophic forms) or atrophy of the mucosa which appears dry, smooth, shiny (atrophic forms).

The microscopic examination of the normal pharyngeal mucosa shows a layer of stratified squamous epithelium, not horny, surrounded by vascularized fibrous connective tissue. In pharyngeal chronic inflammation, the microscopic morphological picture is characterized by hyperemia and edema of the mucosa, chorion transudate with formation of corpuscular, full of exudate lymphocytes; epithelial lining is hypertrophic and hyperplastic onset, while in the chronic phase it undergoes progressive atrophy that also involves the glandular formations. For this reasons, many authors have established therapeutic modalities to achieve both clinical improvement cytomorphological[1].

From the point of view of etiopathogenic, the deterioration of the pharyngeal mucosa is in part due to an alteration in physiological mucous secretion. The latter is produced in the entire cavity, along the tracheobronchial tree and in the pulmonary alveoli[2]

The mucus are a heterogeneous mixture and changes of its composition are responsible for:

- changing the normal physiology of the tissue;
- respiratory system in a daily amount of 100 mL which spreads and stratifies from the nasal destabilizing the balance that the resident bacterial flora establishes with the microenvironment;
- triggering inflammatory processes and immunoallergic reactions;
- activating repair processes induced by physic-chemical trauma[3]

With the aim to observe cytologic changes above reported and in order to achieve a therapeutic and predictive most suitable, an observational study using an optical microscope with a magnification of 60x to dry was performed. In survey are taken into account both the morphological changes associated with degeneration, both repair (Fig. 1). The observations can be summarized in the following table[4]

Degeneration	Reparation
a) bluning of chromatine, breakdown of nuclear membrane, cytoplasmic vacuolation b) nuclear shrinkage and condensation of chromatine (Karyopyknosin) c) nuclear fragmentation and agglutination of chromatin (Karyorrhexis) d) almost complete dissolution of nucleus (Karyolysis)	e) nuclear enlargement, prominent nuclear border f) multinucleation g) slight corseting of cromatin, slight nuclear hypocromasie, undulation in the nuclear membrane h) prominent nucleoli

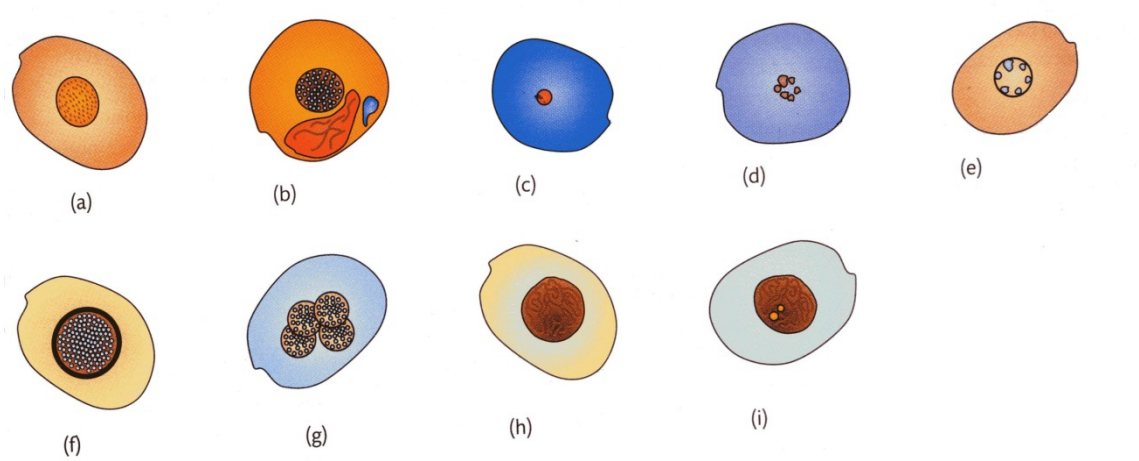

Fig 1. Diagrammatic representation of cells undergoing degeneration (a-e) and repair (f-i)

Materials and Methods

The study was conducted by selecting 20 subjects, related to the surgery ENT diagnostic AIAS Afragola in collaboration with the University of Naples "Federico II". and the hospital "Vincenzo Monaldi". The criteria for inclusion powers: a history of chronic pharyngeal pathology and physical examination suggestive of chronic pharyngitis Orl. Were excluded from the study patients showing the following symptoms: systemic diseases, pregnancy and lactation, GERD (gastro esophageal reflux disease), oncological diseases, pharmacological treatment for chronic pharyngitis in the last 30 days. The selected subjects who joined the study were 20 patients aged between 20 and 60 years, mean age 25.5, 15 males, 5 females (group A). As a point of reference we have examined a homogeneous group composed by 20 healthy subjects (group B).

The path to follow-up was performed by a history-taking and physical examination ~~is~~ was performed through direct observation, and by means of a fiberscope to assess the state of the mucosa. Subsequently the patients compiled the form of enlistment in which were evaluated the following subjective symptoms:

- Direction of itchy throat
- Hoarseness
- Pain
- Odynophagia
- Cough
- Otalgia

An intensity scale (0: absent, 1: moderate 2: intense, 3: very intense) was associated with symptoms reported above. Then exfoliative cytology, practiced by Ayre spatula modified by us was performed using the convex side of the spatula, to increase the amount of cells to be taken. The withdrawn exfoliated cells were affixed on both a microscope slide, in a standardized space, and fixed. Subsequently they were stained with the Papanicolaou test.

In the observation the following parameters were evaluated: the number of squamous cells and pathological conditions, their relationship with the total number of cells and the presence of inflammatory cells; possible inclusions of keratin, as well as the presence of bacteria. These aspects have been recorded and analysed by an evaluation board and created specifically covered by this report TAB 1.

The statistical analysis was performed using Wilcoxon Two-Sample Test (t approximation); significance level was set at 0.05 ($p < 0.05$ was considered as statistically significant).

Control group (B) was undergone to the same protocol of analysis.

Discussion

The aspects that were analysed were related to cell tropism and specifically to the relationship between the squamous cells and the total number of cells. Furthermore, the presence of inflammatory cells, characterized by the presence of neutrophils, and any inclusions of keratin, as well as the presence of bacteria were evaluated. These aspects, as previously mentioned, were recorded and analysed by an evaluation board created for the scope and object of this report. It was divided in the two groups, and shows a comparison of the subjective symptoms and the cytologic detection.Data reported in Table 1 show the following results:

- 3 cases: rare cells, rare neutrophils, lymphocytes. Ratio <100% score 1;

- 10 cases: some squamous cells, neutrophils, lymphocytes. Ratio <100% score 2;
- 6 cases: numerous squamous cells, neutrophils, lymphocytes. Ratio <100% score 3;
- 1 case: numerous squamous cells, neutrophils, lymphocytes. Ratio <100% score 3

For patients in group B was noticed generally, the absence of pathological cells and inflammatory cells Ratio = 100% Score 0.

Name _____ Surname _____

FORM OF PHARYNGEAL CYTOLOGY:
LEGEND OF SEMIQUANTITATIVE EVALUETION

Date _____ Time ___

Total Cells (CT)		Microscopic Fields 400- 600 * x					0.....10.....20.....30.....40.....50													
	0 NR	+ (rare)					++ (some)					+++ (many)					++++ (very many)				
Squamous Cells (CS)	0	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20
Pathological Cells (CP)	0	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20
Regenerative change	0	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20
Degenerative change	0	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20
Neutrophyls	0											20	20	20			20	20	20		
Lymphocytes	0																				
Batteria	0																				
Spores	0																				
CP/CT x 100		= 100 %					< 100%					= 100 %					Inclusions O S B /F O INTRA O EXTRA O				

TAB 1

LEGEND: : *indicate the magnification used ; Cell count: 20groups / 50 fields; lymphocytes, neutrophils, bacteria, spores single/50 fields; CP / CT % =ratio% abnormal cells / total cells.Inclusions: SB/F = Bacterial or fungal spots; Intra= Intracellular bodies ;Extra=extracellular bodies

Conclusion

The study carried out allowed us to perform a precise assessment of cytology symptoms in a form of disease that is usually diagnosed through a physical examination and a subjective evaluation. The consequence of applying subjective evaluation ~~is~~ can be that the therapeutic procedure may be susceptible to changes (depending on evaluator) or it can result in afailure. In light of the foregoing, the cytological investigations corroborated by subjective evaluations, allow us to establish that they are a crucial element for the evaluation of the forms of pharyngitis in an objective manner.

In fact, the proposal of a semiquantitative table could be not only an element of classification of the pharyngitis in mild, medium, severe and very severe forms (due from the count of the elements and inflammatory disease), but it could be a tool for the evaluation of a therapeutic treatment.

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