

CONTRIBUTIONS TO THE CHARACTERIZATION OF BIOECENOSIS COMPLEX OF THE ECOSYSTEM IN THE ORAL CAVITY

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CONTRIBUTIONS TO THE CHARACTERIZATION OF BIOECENOSIS COMPLEX OF THE ECOSYSTEM IN THE ORAL CAVITY (Abstract): Oral biotype includes the local defense factors represented by oral mucosa, reticulohistiocytic system and saliva which opposes bioecenosis composed of various microorganisms, normally achieving the state of “biological balance”. **Material and methods:** The study included 23 patients with clinical manifestations of oral candidiasis admitted during the period 2014-2016 to the Dental Surgery Clinic of the Iasi “Grigore T. Popa” University of Medicine and Pharmacy. **Results:** Under favorable conditions, many non-pathogenic species become virulent in the host organism. These conditions are created using antibiotics, corticoids, immunosuppressant, antifungal, psychotropic drugs, contraceptives, radiation therapy, hormone treatment, etc. In general conditions caused by metabolic disturbances and decreased body resistance associated with microbial, vitamin and enzymatic imbalances the development of mycoses is favored. **Conclusions:** Diagnosis and correct treatment of mycoses of the oral cavity avoiding complications, oral cavity being the starting point for many endogenous infections, sepsis included. **Keywords:** BIOECENOSIS, ORAL BIOTYPE, ORAL MUCOSA, ORAL CANDIDIASIS.

Oral cavity bioecenosis forms an ecological system like other natural bioecenoses located in the gingival ditch and dorsal surface of the tongue, where the microbial concentration can be 100 times higher. Of these, 29 microbial species are permanently present in the oral fluid, to which others from the external environment are occasionally added, which make up the fluctuating or temporary flora (1, 2). In case of poor oral hygiene, anaerobic and proteolytic bacteria predominate. Yeasts, microscopic fungi are also present, and in case of

poor oral hygiene they are present in high concentration on the dorsal surface of the tongue (3, 4).

Mycoses, diseases produced by the development of microscopic fungi in the tissues, are distinct from mycotoxicosis, fungal allergies, and infections caused by Actinomyces. The most common conditions are candidiasis C, related to the presence of blast spore fungi of the genus *Candida*. They may be local or general, acute, sub-acute or chronic. Certain mycoses are strictly human, but animal mycoses can be

transmitted to humans by direct or indirect contact with contaminated air and soil.

MATERIAL AND METHODS

The study included 23 patients with clinical manifestations of oral candidiasis admitted during the period 2014-2016 to the Clinic of Dental Surgery of the Iasi “Grigore T. Popa” University of Medicine and Pharmacy. The following were found: one case each (4.35%) of acute oral thrush, glossitis, candidal uranitis, pemphigoid candidiasis, geographic language; 4 (17.39%) cases with exacerbated phenomena and 15 (65.22%) cases with glossitis (tab. I).

TABLE I
Distribution of the study group
by disease categories

Disease	No. cases	%
Acute thrush	1	4.35
Glossitis	1	4.35
Candidal uranitis	1	4.35
Pemphigoid candidiasis	1	4.35
Geographic tongue	1	4.35
Exacerbated clinical phenomena	4	17.39
Various forms of glossitis	15	65.22

The results were evaluated by the statistical and mathematical methods included in EPIDEMIOLOGICAL PROGRAMS (EPI-INFO).

RESULTS

In this study the following cases were recorded:

1. A 72-year-old totally edentulous female patient, who, following the extraction of her only remaining molar on the upper left hemi arcade, presented acute thrush, form located on the jugular and especially gingival mucosa in the upper cul-de-sac

around the extraction site due to the antibiotic placed in the dental alveolus and on the post extraction wound;

2. In a subgroup of 15 cases of glossitis - of which one case of depapillated median tongue following penicillin treatment; one case with median rhomboid glossitis characterized by a rhomboid lesion with papillated mucosa, located in the middle of the dorsal surface of the tongue, with the great anteroposterior axis just anterior to the V region of circumvallated papillae, placed quite regularly on both sides of the median line of the tongue; a case with chronic glossitis associated with perleche/angular cheilitis, lesion characterized by a depapillated area with irregular margins at the base of the tongue on the right side; healing was obtained only after the discontinuation of antibiotic treatment and administration of a specific antifungal; 2 cases of candidal glossitis, presenting on the mid-dorsal surface of the tongue, jugular mucosa and left commissural lesions of chronic thrush in the form of leukokeratotic deposits in large spots with a carmine red contour in the center of the tongue;

3. Another case is a 61-year-old patient with a diagnosis of gastric neoplasm presenting whitish leukokeratotic deposits with irregular appearance disseminated throughout the dorsal surface of the tongue; the underweight patient was operated 2 months earlier and was undergoing chemotherapy;

4. A female patient with *chronic erosive candidal glossitis* on the whole surface of the tongue, partially covered by white leukokeratosis deposits; laboratory examination made the diagnosis of oral candidiasis;

5. Other cases: *chronic glossitis* in 6 patients, 3 of which had macroglossia and moderately scrotal tongue with superim-

posed infection with Candidal; macroglossia was also recorded in other 3 patients, teeth impressions and scrotal appearance with white Candidal deposits being seen on the margins of the tongue; *chronic erosive candidal glossitis* was diagnosed in a patient with erosive lesions on the whole surface of the tongue, partially covered by white leukokeratotic deposits; glossitis associated with candidal uranitis was recorded in a patient with Kissing "mirror" lesions. The median palatine raphe presented a longitudinal band from where white keratotic granulations come off. On the lateral aspects of the soft palate, close to the tooth cervices, there were discrete erythematous and keratotic placards corresponding to those on the margins of the tongue. Uranitis progressed in parallel with glossitis;

6. The appearance of *geographic tongue* and the smear, culture and positive germ-tube test pleaded for an over-infection with *Candida albicans*. Effective treatment consisted in the administration of nystatin for a period of 12 days concurrently with treatment to balance diabetes and increase body resistance;

7. A 52-year-old male patient with chronic lung disease treated with antibiotics and corticoids for about 30 days showed among others such subjective signs as the inability to masticate and swallow. Thus, besides dryness and burning sensation, the patient complained of pain and even altered sense of taste, worsened in the presence of acid or fermented food. The subjective and objective phenomena disappeared only after sustained treatment for 10 days and discontinuation of antibiotic and corticoid treatment;

8. A male patient with oral candidiasis characterized by large areas of ulcers very

similar to pemphigus was diagnosed with chronic pemphigoid candidiasis. The lesion mimicked an oral stomatitis, with, two large superficial ulcerations with slightly irregular contours, bright-red background, partially covered by a white-yellow fibrin layer on the dorsal surface of the tongue. The neighboring mucosa was almost entirely covered by a white parakeratosis bed. The patient complained of troublesome pains and functional impotence;

9. In some patients, chronic oral thrush was characterized by episodes often triggered by the ingestion of sweet foods. The condition is a little troublesome, the general state is good, but is frequently associated with perleche, onychia with perionychia or vulvitis. Intraoral examination revealed stomatitis involving the tongue, soft palate and the jugular mucosa, glossitis being the predominant lesion, or possible associated lesions.

DISCUSSION

It is proven that under favorable conditions many pathogenic species become virulent in the host organism. These conditions are induced by the administration of antibiotics, corticoids, immunosuppressive, antifungal and psychotropic drugs, contraceptives, radiation therapy, hormone treatment, etc. Both in general conditions, favored by metabolic disturbances and decreased body resistance, as well as in local conditions due to microbial, vitamin, or enzymatic imbalances iatrogenic mycoses have been triggered (5, 6).

At present there is a growing incidence of fungal diseases and a diversification of their localization, thus becoming a multidisciplinary concern (7, 8). As the number of patients with such complains is high, there is a need for clarification on "fungal

labeling” of the described situations particularly with respect to the criteria for assessing the pathogenic implications of candida species in the oral cavity (9, 10).

Modern therapeutics, often irrational, excessive and injudicious, and aggressive for the body, gives the chance to some “opportunistic mycetes” to manifest their pathogenicity. Mycology has tracked the evolution of this pathology, bringing solutions to many problems posed by the clinical and biological diagnosis, as well as by therapeutic difficulty (11).

Correct diagnosis and treatment of these conditions is of importance both due to the highest frequency of the species in the oral cavity and the serious complications they may induce, this being the starting point for most endogenous infections (12).

It has been proven that the most common diseases are those caused by the presence of blast spore mycetes of the *Candida* genus. They may be local or general, acute sub-acute or chronic (13).

Mycoses can be distinguished not only by clinical aspect, but also by their geographical distribution, some being ubiquitous, such as *Candida*. Others require con-

ditions and are met in limited geographic areas, being part of the import pathology.

CONCLUSIONS

Our study showed an increase in the incidence of oral fungal infections, important finding because many of them do not remain localized but can disseminate, sometimes leading to septicemic and visceral complications with poor prognosis.

Clinical manifestations in adults and the elderly are extremely diverse, imposing mandatory exams for diagnosis and treatment, as well as dispensing, with frequent recurrent forms.

Etiologically, iatrogenic mycoses ranked first, being the result of antibiotic therapy (27.8%), corticotherapy (4.9%) and psychotherapy (3.1%), thus requiring a more judicious administration of these treatments and their association with long-term nystatin prophylaxis.

Clinical manifestations in adults and the elderly are extremely varied, requiring mandatory exams to make the diagnosis and initiate a treatment, as well as follow-up given the fact that recurrences are common.

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NEWS

SEROTONIN - A POTENTIAL PERIPHERAL BIOMARKER IN SUDDEN INFANT DEATH SYNDROME

Although Sudden infant death syndrome (SIDS) has been related to deficiencies of the central serotonin (5-hydroxytryptamine, 5-HT) localized in the brainstem, recent serum studies have associated the elevation of serum 5-HT levels in the development of SIDS. The authors analyzed the serum 5-HT levels in SIDS infants (n=61) compared with autopsied controls (n=15), using the Enzyme-Linked Immunosorbent Assay (ELISA) test and validated it using High-Performance Liquid Chromatography (HPLC). The test results identified a significant elevation (95%) in serum 5-HT in the SIDS cohort versus control cases. Although the mechanism involving the increased serum 5-HT levels is not well defined or explained, this study clearly indicates/establish that SIDS is associated with peripheral abnormalities in the 5-HT pathway. These results instigate us to believe that high serum 5-HT may be used as a forensic biomarker in autopsied infants with SIDS with serotonergic defects (Robin L. Haynes, I, Andrew L. Frelinger IIIb, Emma K. Giles, Richard D. Goldsteinc, Hoa Trana, Harry P. Kozakewicha, Elisabeth A. Haasd, Anja J. Gerritsb, Othon J. Mena, Felicia L. Trachtenbergf, David S. Patersona, Gerard T. Berryg, Khosrow Adelih, Hannah C. Kinneya, and Alan D. Michelsonb. High serum serotonin in sudden infant death syndrome. *Proc Natl Acad Sci USA* 2017; 114(29): 7695-7700).

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