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

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CONTRIBUTIONS TO THE CHARACTERIZATION OF BIOCENOSIS 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 biocenosis 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: BIOCENOSIS, ORAL BIO-TYPE, ORAL MUCOSA, ORAL CANDIDIASIS.

Oral cavity biocenosis forms an ecological system like other natural biocenes 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>
<thead>
<tr>
<th>Disease</th>
<th>No. cases</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute thrush</td>
<td>1</td>
<td>4.35</td>
</tr>
<tr>
<td>Glossitis</td>
<td>1</td>
<td>4.35</td>
</tr>
<tr>
<td>Candidal uranitis</td>
<td>1</td>
<td>4.35</td>
</tr>
<tr>
<td>Pemphigoid candidiasis</td>
<td>1</td>
<td>4.35</td>
</tr>
<tr>
<td>Geographic tongue</td>
<td>1</td>
<td>4.35</td>
</tr>
<tr>
<td>Exacerbated clinical phenomena</td>
<td>4</td>
<td>17.39</td>
</tr>
<tr>
<td>Various forms of glossitis</td>
<td>15</td>
<td>65.22</td>
</tr>
</tbody>
</table>

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

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; macro-
glossia was also recorded in other 3 pa-
tients, teeth impressions and scrotal ap-
pearance 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, parti-
cally covered by white leukokeratotic de-
posits; glossitis associated with candidal ura-
nitis was recorded in a patient with Kissing
“mirror” lesions. The median palatine ra-
phe 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 dis-
crete 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 con-
isted in the administration of nystatin for a
period of 12 days concurrently with treat-
ment to balance diabetes and increase body
resistance;

7. A 52-year-old male patient with
chronic lung disease treated with antibio-
tics 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 entire-
ly 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 trig-
gered by the ingestion of sweet foods. The
condition is a little troublesome, the gen-
eral state is good, but is frequently associ-
ated with perleche, onychia with perio-
nychia 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 condi-
tions many pathogenic species become
virulent in the host organism. These condi-
tions are induced by the administration of
antibiotics, corticoids, immunosuppressive,
antifungal and psychotropic drugs, contra-
ceptives, radiation therapy, hormone trea-
tment, etc. Both in general conditions, fa-
vored by metabolic disturbances and de-
creased 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 multi-
disciplinary 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 conditions 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.

REFERENCES
Contributions to the characterization of biocenosis complex of the ecosystem in the oral cavity


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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. Haynesa,1, Andrew L. Frelinger IIIb, Emma K. Gilesa, Richard D. Goldsteinc, Hoa Tran, Harry P. Kozakewichia, Elisabeth A. Haasd, Anja J. Gerritsb, Othon J. Menae, 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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