

Conclusion.

1. Application of distraction device looks as a perspective method at metacarpal head and neck fractures treatment.
2. The advantages of the device are: ability of bone fragments stable fixation, avoid fingers deformation and fast recovery of movement volume at metacarpophalangeal joints.
3. Distraction device is allows to stable fixation and reduce by distraction bone fragments deformation.
4. The distraction device can be used in outpatient setting.

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THE MODERN VIEWS ON A CANDIDIASIS PATHOGENESIS
(LITERATURE REVIEW)

ABSTRACT

In this work the literary review of the modern views on the problems of epidemiology and pathogenetic mechanisms of the most widely spread disease of oral mucous membrane, candidal affection, is made. The factors of aggression of Candida fungi, that ensure their pathogenic nature, were indicated to play important role in appearance and development of fungus injure of oral cavity. The most frequent exogenous and endogenous factors, which favor the activation of Candida fungi and the development of the disease, were summed up and reported.

The initial contact of the person with the yeast fungi of Candida genus happens in early childhood, quite often at the first hours or on the first days of his life. As found, in 4-18 % of full-term infants the colonization with Candida fungi can be observed within the first day. By the 3-4 week the number of colonized children rises up to 80%. Skin and mucous membrane of gastrointestinal tract are the first to be colonized.

The peculiarities of fungi-causative agents, that make them pathogenic, play the important role in occurrence and development of fungal affection of oral cavity. The characteristics of Candida are the following ones: the ability to fix on CO, colonization and penetration/

The recent investigations have revealed the endocellular as well as exocellular location of fungi and their ability of reproduction in epithelial cells of microorganism. Penetrating into epithelial cells, Candida uses these cells for reproduction and growing in them. The depth of the penetration of fungi into tissues is different: from the surface epithelial cells at surface candidosis (at the affection of oral mucous membrane) to interstitial and basilar cells of epithelial layer.

Key words: epidemiology, pathogenetic mechanisms, oral cavity, mucosal diseases.

It is known that hundreds of different species of microorganisms vegetate in the mouth. In a healthy body, sanated mouth presents mainly stabilising kinds of microbes with their physiological role. Against the background of diseases of the internal organs and systems of various external factors, primary and secondary disorders of the immune system is not always adequate medication (mostly antibiotic) therapy cubioz there are violations of the human body that appears to change the competitive ratio of microorganisms.

Population change in the size and composition of microbial species and their metabolic activity contributes dysbiotic shift towards increased «opportunistic» infections, including mikotic ones [19].

In Europe, particularly in Ukraine, where there are no epidemiological focus particularly dangerous fungal infections conditionally – pathogenic fungi occupy a leading place in the structure mikotic pathology [22].

According to the WHO's 1995 on mycosis of different localization were suffered 20% inhabitants of our planet, and with the beginning of the XXI century, the figure has doubled. This allows us to estimate the prevalence of fungal infections as mass infection [25].

The most frequent diseases caused mikotic infection in people of different ages, caused by fungi of genus *Candida*, which is 72% of all cases [5].

Noteworthy data Fedotov VP (2004), which suggest that the growth of fungal infections in Ukraine contribute to a number of factors:

- 1) deterioration of the socio-economic sphere of the environment;
- 2) the difficulty of diagnosis of fungal infections, due to the occurrence of mixed infection, a large number of atypical, common and complicated forms of the disease
- 3) the high cost of modern systemic drugs that prevents the therapy of patients;
- 4) lack of health and educational activity, lack of preventive measures;
- 5) significant use both in medicine and in industry and agriculture, antibiotics, biologics and other drugs that induce the activation of mushrooms;
- 6) increase in the number of immunocompromised patients as congenital and acquired as a result of various infections autoaggression, using antimetabolites and cytotoxic drugs for therapeutic purposes;
- 7) Reducing health professionals focus to this infection.

Danger of fungal infection to humans is first, in causing pathological changes of internal organs, tunics mucosa and the skin, on – second long chronic course leads to the development of serious complications mycotoxicoses formation and development of secondary immunodeficiency. Fungi contribute to the development of allergies due to prolonged existence of mycoses and also induce various diseases.

Most other common affection of the mucous membranes and, above all, mouth and gastro – intestinal tract [9,26].

At first literary publications information about diseases associated with candidiasis occurring in the late XVIII-th century. By 1939 the disease in publications met under different terms: «*Candida*», «candidiasis», «thrush», «fungal stomatitis», «yeast», «yeast stomatitis.» And on the III International Congress for microbiologists on the proposal of the Austrian researcher Verkhout agent «thrush» was adopted the term *Candida*, and for disease – the term «candidiasis.»

The etiology of candidiasis

Etiological factor candidiasis according to the classification Kroeger (1952) are fungi of the genus *Candida*, which belong to the family Cryptococcaceae. This family of

fungi includes many genera, but pathogenic species are found among the genus: *Cryptococcus*, *Candida*, *Geotrichum*.

The most distinct pathogenic properties of the pathogen *Candida albicans candida* and ranks first in the pathology – (90% of the surface and about 80% of deep candidiasis) of all identified pathogenic fungi of the genus [16]. Second place is occupied by *Candida tropicalis* (up to 20% of the patients). *Pseudotropicalis*, *Candida glabrata*, *Candida crusei* have pronounced less pathogenic potential.

According to the researches of M. Nguyen et al. (1996) with a deep and superficial candidiasis relatively rare species of *Candida* (*glabrata*, *srusei*, *ciferri*), which can cause half of the cases of infection, while their share in the etiology candida infection increases. At the same time the percentage of fungal infections of the skin and mucous membrane caused by these species is negligible.

In Europe and the U.S. there is a tendency to reduce the proportion of *Candida albicans* in the etiology of oral candidiasis and sheaths, while in the latter case, *Candida glabrata* can cause in 1/3 of the infection [22].

Fungi of the genus *Candida* belongs to the resident (conditional – pathogenic) microorganisms. They are aerobes, with optimum growth at $t^{\circ} 30 - 370$ C, Gram stain, Romanovsky-Himze methylene blue.

In a microscopic examination of pathological material taken from the skin or mucous membrane, are oval, rounded cells measuring $1,5 \times 1,5 - 6 \times 8$ mm, an average of 3-6 microns. Fungi of the genus *Candida* can form a filamentous form. Mycelium of the fungus *Candida* devoid of common walls, has a simple structure of intercellular membranes so according to microbiological classification is unreal mycelium or pseudomycelia which looks like an elongated, filamentous cells, which consists of separate segments.

Filamentous forms characterize active reproduction of fungi, so their detection in microscopy to determine the active material reproduction of microorganisms, thus the diagnosis of disease is caused by these organisms [25]. Pseudomycelia is one of the most invasive vegetative forms of yeast fungus in the pathology of the oral tunica mucosa.

Fungi are resistant to drying and freezing, dying under direct sunlight for prolonged exposure and artificial UV radiation. Boiling and autoclaving of *Candida* die within 3-5 minutes in both monoculture and in pathological material. They are sensitive to the disinfectant solution (2-5% formalin, lysol, phenol), alcoholic solutions of iodine (2-5%), aniline dyes (metylviolet and hentsianviolet).

Association of opportunistic and pathogenic bacteria plays a special role in the formation of chronic oral candidiasis. *St. epidermidis*, *st. pyogenes*, *staph. aureus* more often exist as asociativ group.

So, studies conducted by Kovalev EV (2001) in patients with mucous membrane candidiasis indicate that the association of *Candida* from pathogens is 52.4% of the pathogen of the disease. These data are confirmed by other researchers [6].

Epidemiology and pathogenesis of candidiasis

Fungi of the genus *Candida* are widespread in the environment associated with the normal microflora of the skin, oral tunica mucosa, gastrointestinal tract, female genital organs, cavities, periodontal pockets on the inner surfaces of dentures without causing significant pathological changes that is known as phenomenon of candida carrying.

However, they are not related to the bacteria that constantly occur in all people and, not all people who have been found these fungi growing candidiasis.

According to the literature, oropharyngeal colonization fungi *Candida* occurs in 30-55% of healthy adolescents, 20-70% of healthy individuals were isolated in stool – 40-80%, in a vagina of healthy non-pregnant women – 10-17%, in pregnant women – in 26-33%, in tunica conjunctiva – 15% -14%, in sputum [13, 14, 25].

Epidemiological studies Karaev ZA, et al., (1987) found widespread fungi in raw meat (28.8%), in dairy products, particularly in ice-cream and cheese curds (78%). The environment can also be a source of infection (water, plants, air). Among infants oral candidiasis is found in 5%, almost 10% is found in infants, and about 65% children are determined as candida carriers [15]. In the elderly candidal lesions occur in 10-12% of patients, in patients suffering from tuberculosis, pathology of gastro-intestinal path the rate is 20% [13].

Viderska GV (2004) found high (100%) prevalence of chronic mucous membrane candidiasis in this population of patients which allows classify this pathology as «diabetoids», studying nosological characteristics mucous membrane diseases in diabetic patients. The author notes a direct connection with the disease severity of diabetes.

In HIV – positive patients; in most cases, there are clinical signs of oral candidiasis [778]. So studies conducted by Kononov AV (2004) indicate that of mucous membrane – is the most frequent manifestation of HIV / AIDS, found one-third of HIV-positive patients and 90% of AIDS patients in different periods of the disease.

According to Kazmirchuk V., Kovalchuk L., (2006) the development of clinically manifest forms of fungal lesions associated with severe immune deficiency need. However, this is not the only reason of these features. The fact is that due to the nature of cell metabolism pathogenic fungi often unable to withstand competition from the bacterial flora that inhabits the barrier organs of microorganism. Therefore, fungal infections often develop after a powerful antibiotic therapy aimed the destruction of antagonistic bacterial flora. Especially dangerous is the usage of antibiotics in early neonatal life, which is associated with impaired formation processes in epithelial protective-bacteria stratum, which are ones of life-important organs [27].

Thus, the *Candida* fungi in human life can be considered as

- Part of the transient flora of the mucous membranes of the mouth, intestines;
 - The agent of candidiasis;
 - Member of microbial associations with bacterial and viral infections.
- Candida* carriers and patients, especially fresh forms of candidiasis may be a source of infection to other people. Infection is possible with direct contact with patients – oro-oral route (eg, kissing) and by sexual contact. *Candida* infection that enters through the

mouth, to 44% may be the cause of all forms of candidiasis [6]. Features biotope mouth, namely constant risk of pathogenic contamination, a high probability of the presence of chronic foci of infection determines its role for normal function of colonization system resistance in a whole.

Infection can be transmitted sexually. When diseases of the genital organs only pathologically changed the skin plays a role in the epidemiology of infections caused by the yeast-like fungi, and only changed (not necessarily visually) mucosa may be a reservoir of these mushrooms. The first meeting of a man with yeast *Candida* often occurs in early childhood, often in the first hours and days of life. It is established that during the first day of life in 4-18% of the time babies can be set colonization by *Candida*. To 3-4 weeks of life the number of colonies of children increased to 80%. First of all, skin and mucosa of the gastrointestinal tract are colonized by *Candida* [14, 20, 25].

According to some authors, the formation of protective factors in ontogenesis is not happening simultaneously, so a newborn baby there is insufficient activity of protective mechanisms, which contributes to the development of diseases caused by fungi of the genus *Candida*. Perhaps this is due to the fact that the newborn child not active is the functioning of the phagocytosis cells and unstable part of the normal microflora of the mucous membranes of gastrointestinal tract and skin. Infection of children mycotic infection occurs when passing through the birth canal, especially if the newborn immunodeficiencies, prematurity, asphyxia. Possibly intrauterine infection of the fetus. It is connected with the ability of fungi to penetrate through the intact shell placenta. As according to researches of genital candidiasis occurs almost 75% of women under conditions of reducing the resistance of the walls of blood vessels and increasing the level of hyaluronidase is possible to increase the permeability of fabrics and facilitate the transmission of HIV from mother to fetus [5, 14, 23].

Infection is also possible through the nipple of the mother during breast, through tunica mucosa oris, the skin with water. In maternity hospitals newborns may become infected health-care workers to and during medical manipulations (vessels catheterization, parenteral nutrition).

In occurrence and development of fungal lesions of the oral cavity play an important role properties of fungi-agents, that provide their pathogenicity. Typical signs of *Candida* are: the ability to commit to the mucous membranes, colonization and penetration them.

Factors of aggression in *Candida* is their components dimorphism, cytotoxicity, resistance to phagocytosis, hemolysins, dermatoneurotoxic activity, adhesiveness, endotoxin. Some strains of *Candida* produce enzymes that break down IgA1, IgA2, IgG1, which leads to the persistence of mushrooms on mucous membranes. They can destroy inhibitors plasma protein alpha – 1-antitrypsin, A2-macroglobulin.

Installed [5] that the *Candida albicans* can produce catalase, which prevents the action of hydrogen peroxide. In addition, mushrooms compete with microorganism cells for iron needed to implement oxidative microbicidal mechanisms macrophages. L.I. Chernyshova, Samarin D. (2006), studying the problem of fungal infection, came to the conclusion that there are no specific pathogenic to humans strains of fungi of the

genus *Candida*. The so-called pathogenicity factors is a generic feature of these microorganisms, these may be defined as the microorganisms isolated from patients with clinical symptoms of candidiasis and strains isolated from the environment (soil, food etc). The factors of aggression by fungi of the genus *Candida* include:

- endotoxin, highly relative to healthy tissue, with properties bruise endocrine organs and cause them to atrophy, thereby inducing autoimmune process;
- high antilizacyc activity;
- glicoprotein complexes, cause hyposensitization of the microorganism; adhesiveness to the epithelial cells. *Candida* fungi tend to penetrate into the mucous, parasitizing intracellularly in epithelial cells and phagocytes. This causes some difficulties for their recognition and destruction, as well as reduces the effectiveness of chemotherapy;
- *Candida* at phagocytosis block fungicidal system of neutrophilic granulocytes and macrophages, using these cells for reproduction and growth in them, thus contribute to the development of secondary immunodeficiency;
- proteolytic enzymes, protease and glycosidase received splitting IgA1, IgA2, IgG1;
- high virulence
- the ability to rapidly produce quantities of colonies and pseudomycella;
- oligosaccharides cell wall;
- perforative body.

In the works of the last years [5,26] revealed previously unknown patterns of interaction *Candida* with macroorganism at the initial stage of an infectious process of adhesion to the surface of a mucous membrane. Adhesion occurs due to specific interactions adhesive fungus, located on its wall and complementary them receptors. Fungi isolated from patients with active *Candida* process, has a more significant adhesive properties than those obtained from the holders of a fungal infection. High concentrations of sugar reinforce these properties. Mushrooms on a surface tunica mucosa oris often form aggregates, attaching itself not only to epitheliocytes, but also to each other. Within such units can generate high concentrations of lytic enzymes, which are enough to overcome the barrier properties of the epithelium, the destruction of its surface structures and invasion deep into the tissues.

Body of aggression of *Candida* fungus is highly specialized organoid, the so-called perforative authority: blastopore extended in the perforation zone cells in the human body occurs thinning of the wall of fungus and moving in this plot granules plate complex.

The development of fungal infection includes the following stages:

- 1) attach (adhesion) mushrooms to the tunica mucosa oris with subsequent colonization;
- 2) deepening (invasion) in the epithelium;
- 3) overcoming the barrier of the epithelial;
- 4) additions in the connective tissue propria of the mucous membrane;
- 5) overcoming of tissue and cell protective mechanisms;
- 6) the penetration of the vessels;

7) hematogenic dissemination with lesions of various organs and systems.

Such a scheme marks all stages of heavy progressive mycotic process, but in milder cases, the infection can be stabilized on one of the above-mentioned stages. Researches of recent years is set as the intracellular and extracellular placement of fungi and their ability to multiply in the epithelial cells of the microorganism. Penetrating into the epithelial cells of *Candida* uses these cells for reproduction and growth.

The depth of penetration of mushrooms in the fabric is different: from superficial epithelial cells at a superficial candidiasis (in the affected tunica mucosa oris) to intermediate and basal cells of epithelial layer.

However, for the development of candidiasis is not enough only the presence of the etiological factor. Necessary conditions for infectious pathogens that cause disease.

According to publications [1,2,14,23] the most common exogenous and endogenous factors that contribute to the activation of *Candida* and development of the disease are:

- ❖ genetic innate immunodeficiency States;
- ❖ «physiological» immunodeficiency condition, including pregnancy;
- ❖ AIDS;
- ❖ therapy antibacterial drugs, immunosuppressive drugs and glucocorticoids;
- ❖ oral contraception;
- ❖ viral, bacterial and protozoal infection of the mucous membranes (mixed infections);
- ❖ exhausting diseases (alcoholism, cancer, stress, cirrhosis of the liver, anemia, endocrinopathies and other);
- ❖ intestinal dysbacteriosis development deficiency of Vit. B1, B2, B12;
- ❖ condition after transplantation of organs and tissues;
- ❖ age older than 40 years;
- ❖ surgical intervention, injury;
- ❖ endocrinopathy (diabetes mellitus, thyroid gland diseases, obesity etc);
- ❖ infringement of processes of exchange, especially carbohydrate.

The leading factor in the pathogenesis of candidal lesions is the state of the organism. Age also has some value: candidiasis more often registered among children and the elderly, as they often marked by reduced reactivity. Дмитриева Л.А. (2003) focuses on the possible development of candidiasis of the oral cavity in the local use of preparations containing corticosteroids that tend to reduce immunity, come in contact with, provoking the growth of *Candida*. A role in the development of candidiasis directs the use of oral contraceptives [4].

Analysis of morbidity of the fungal infection, carried out by WHO in industrialized countries, proved continuation of the distribution of both surface and deeper forms of candidiasis. This is facilitated by stress, metabolic disorders, exposure to ionizing radiation, endocrine disorders, the widespread use of drugs, immunosuppressants [26].

Continuously interacting with the environment, are «open systems» of the microorganism, and therefore candidiasis quite common in people whose work is connected by the nature of their professional activity with infected fruit and vegetables (for

example, collectors and sorting of vegetables and fruits), of employees of the confectionery factories, plants for production of antibiotics, the workers of the coal industry. At this decisive in the development of candidiasis remains the overall condition of the body, immune status.

Thus, the influence of internal and external factors leads to a violation of the dynamic equilibrium of microbial associations in the body, in particular by increasing the number of *Candida* ($>10^3$ CFU/ml) in biotope bowel and reduce competitive organisms, in particular stabilizing species of bacteria that support normal *eubiosis*.

A considerable amount of work indicates that the gastro-intestinal tract, and in particular the oral cavity, and should be considered as a balanced system, which is caused in the process of evolution mechanisms of specific and non specific factors of protection. Disequilibrium between the reactivity of the organism and microbial symbiosis often leads to the development of various pathologies.

A comprehensive study of the role of the microecology of the human body Kremenchuk G.M. and co-authors (2003) suggests that skin mycosis, mucous membranes, and internal organs can occur as a result of breeding fungal infection, first of all, *Candida albicans* in the intestine, especially when there are favorable conditions for this. Such conditions include changes in the immune system and hormonal changes.

Assessment of the severity of manifestations of dysbiotic changes of the oropharynx, proposed by Khazanova and co-authors (1996), provides for the allocation of 4 degrees of severity. So dysbacteriosis of the I and II degrees (compensated) is characterized by identifying 1-3 pathogenic species of bacteria on the background of normal composition or the slight decrease in the level of stabilizing species of bacteria. Definition of pathogenic monoculture in significant numbers on the background of sharp decrease of the concentration or total absence of physiological microflora is considered as a dysbacteriosis of the III degree (subcompensated). The presence of associations of pathogenic species of bacteria and yeast fungi is estimated as dysbacteriosis of the IV degree (decompensated). The most unfavorable considered Association of fungi pathogenic species of staphylococci. These features greatly affect the clinical course of disease, complicate diagnostics, require a change of tactics of treatment (Savichuk N.A., Savichuk A.V., 2002).

It is established that dysbiosis of the intestine leads to the intense production of tumor necrosis factor – α (TNF- α) phagocytes liver that causes intoxication syndrome and metabolic immunosuppression, which influence not only on local, but also on the immunity system.

In this regard, a fungal infection in the gastrointestinal tract, including the mucous membranes of the mouth, should be considered in conjunction with the state of the immune status [5,17].

Studying the state of protective mechanisms for candidiasis, Sergeev, A. (1999), a dominant role in the pathogenesis of the disease binds with deficiency of cellular immunity, the disruption of the function of T-lymphocytes, interaction of T – and b – lymphocytes, and violations of the phagocytic activity of neutrophils, monocytes, eosinophils.

The performed analysis of the immune status of patients with chronic candidiasis RBSU Kremenchuk G.N. et al. (2003) also confirms versatile dysfunction of the immune system, above all, changes in the system of immunity and cellular link.

Reliable data were obtained reducing the absolute measure of the number and percentage of circulating LED3-fractions of lymphocytes.

Patients with *Candida* defeat marked a significant reduction in the level of T-helpers and as a result – reduction of phagocytic activity of leukocytes. Draws the attention of the inferiority of the phagocytic function of leukocytes in chronic mycotic process in the oral cavity. Significant reduction of phagocytic number indicates decrease of anti-infective, including antifungicide, resistance in this contingent.

Failure suppressor function of lymphocytes, which occurs in *Candida* infection-patients, points to the imbalance in the composition of the T-lymphocytes. For such a state of immune deficiency is characterized by a tendency to chronic and recurrent pathological process. In addition, studies show a decrease in the complement fixation titers in patients with chronic candidiasis of the oral cavity, which is evidence of violations of the binding process, or the immediate elimination of bacterial agent, as well as inhibition of processes of phagocytosis.

Fundamental research carried out Kazmirchuk V.E. Kovalchuk L.V., (2006) indicates that the fungal defeat marked the synthesis of specific immunoglobulins of all classes. The secretion of specific Ig M indicates the acute period of the fungal infection. In the experiment proved interaction S IgA fungal proteinases, mananas surface structures, heat shock proteins, yeast killer toxin. Thus, these antibodies can prevent pathogen – mediated lysis of proteins microorganism, to prevent the adhesion of fungal agents and violate the competitive relationship of fungi with the normal flora of the mucous. In addition, revealed immunoglobulins, resembling the structure of the receptor for yeast клерного toxin, that is, have a direct fungicidal activity. The role of specific IgG is опсонизации fungal cells, and complement activation by the classical route. Often goes to mananas and protein antigens mushrooms. Since the enhanced production reflects the degree of activity of Th2 (T-helper cells of the second type), which suppress the anti-fungal cell-mediated immunity, identification of intensive growth titra Is can serve as a predictor of adverse current infection. It is connected with the activity of Th2 lymphocytes (T-helper cells of the second type) and leads to inhibition of the activity of Th1 lymphocytes (T-helper cells of the first type), and thus causes weakening of phagocytosis: will not occur reinforcement (re-activate) the immune system of macrophages and neutrophils. The role of T-helper cells of the second type by a fungal infection is not an unambiguous, as the synthesis of specific antibodies ensures the effective recognition of antigens fungi cells of natural resistance.

In chronic and severe forms of oral candidiasis the substantial reduction of the concentration of secretory immunoglobulin A and increase the level of immunoglobulin G [10].

Based on the study of the titer of antibodies Tsentylo E., Bychkova N. (2002) suggest that in patients with chronic fungal infection increase of this index is an important part of immunological disorders of the body.

Fungicidal effect of blood determined by the state of neutrophils, monocytes, eosinophils, which have chemotaxis against fungi of *Candida* and have in their granules proteins and myeloperoxidase. Deficit of myeloperoxidase saves the effect of the absorption of mushrooms neutrophils, but it is not in their functional activity. This provokes an incomplete phagocytosis and intracellular propagation of fungi and when you break the cells leads to the spread of fungi in the human body [24].

In-depth immunological research done by Kulygina V.N., Dymnich L.A., (2004) suggest that this change in the cellular link of the immune system during this disease is reflected in the reduction of formed elements in pharyngo-oral secret. So, there is reduction of the number of lymphocytes and neutrophils in ротоглотковому secret and increase its eosinophils content, which indicates the reduction of resistance of mucosal immunity and high degree of allergization fungal antigens.

Against the background of violations of the immune system, lowering the protective functions, the dysfunction of internal organs and systems, and also thanks to perforative body, and the existence of other properties of fungi of *Candida*, which provide pathogenic activity, damage and invasion propriatunica mucosa oris and gastrointestinal tract.

The unquestionable role in the emergence of candidiasis plays injury to the mucous membranes of various factors, unhygienic content of the oral cavity, infringement of rules of use of removable dentures, несанована oral cavity, chronic disease resistance (catarrhal disease, lichen planus, leukoplakia, etc). For example, studies conducting by Lukyanova N.S. (2005) indicate that in 67% of cases with chronic apical periodontitis in the teeth root canals were found *Candida* fungi. Of them *Candida albicans* registered in 73,8% of cases, *Candida tropicalis* – 10,7%. *Candida pseudotropicalis*-9,5%, *Candida crusei* – 6% of the surveyed root canals. These and other factors contribute to the increase of permeability for bacteria and their toxic products and antigenic substances [3,13] and contribute to the prevalence of microbial agent hematogenous route that leads to systemic candidiasis.

However, you should pay attention to the basic mechanisms depends on the rise and fall of the pathogenic potential of the mushrooms, and the influence of factors on the protection of *Candida* infection. These include a number of components: healthy intact skin and mucous membrane sufficient level of immunoglobulins and cellular immunity, antagonistic bacterial flora.

The main role in the elimination of *Candida* play phagocytic mononuclear cells, visible and digest disputes and white blood cells, destroying disputes and pseudomicella.

Based on the study of the immune response by a fungal infection is set to [5], that the largest fungicidal effect have macrophages, neutrophils, natural stakes and cytotoxic T-lymphocytes, and the last destroy not the pathogen, and infected cells. In addition neutrophils and phagocytes, participation in neutralized of *Candida* infection take eosinophils. In limiting the proliferation of *Candida* have a value of specific antibodies, complement system, secretory IgA. In most cases, when the pathogen into the fabric when interacting with T-effectors GUT (delayed-type hypersensitivity) are formed granulomas with епітеліодними and multi-core giant cells. The number of

fungi in гранульомах decreases, and the process may not complete readjustment of the body [14].

Difficulties antifungal immunity is associated with two problems:

1. Problem phagocytosis pathogenic fungi mycelium which is presented by a long threads.
2. Combating fungal cells that implement a lot of mechanisms to reduce the effectiveness of the immune response.

Thus, CANDIDIASIS should be considered as an infectious disease of the mucous membranes, skin and internal organs, the causative agent of which is conditionally – pathogenic yeast fungi – compels of *Candida* normal microflora of oral cavity mucous membrane of the gastrointestinal path that occurs on a background of decrease in protective reactions of the organism.

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