



## CONDITION OF HARD TOOTH TISSUES OF PATIENTS WITH INFLAMMATORY INTESTINAL DISEASES

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### Abstract

This article describes the prevalence and intensity of caries, the prevalence of non-carious dental lesions, and the results of a study of oral hygiene in patients with inflammatory bowel diseases (Crohn's disease, ulcerative colitis) in different age groups.

**Keywords:** caries, non-carious lesions of hard tissues of teeth, Crohn's disease, ulcerative process.

### Introduction:

Crohn's disease (CD) and ulcerative colitis (UC) occupy leading positions in the structure of diseases of the digestive system in terms of severity and frequency of complications. According to the classification of the European Consensus on the Diagnosis and Treatment of Crohn's Disease and Ulcerative Colitis, adopted by the European Organization for the Control of Crohn's Disease and Colitis (ESSO) in 2010 and 2012, these forms of pathology belong to chronic inflammatory bowel diseases (IBD). The lack of a unified view of IBD among practitioners, slow diagnosis and inadequate treatment lead to the development of life-threatening complications and death [Baranovsky, 2010]. The relevance of IBD problems is undeniable and is confirmed by the increase in morbidity among people of working age, a recurrent course, the need for long-term and expensive treatment, and an unfavorable medical and social prognosis [Soko et al., 2009; Khurtsilava et al., 2012]. The constant interest in inflammatory bowel diseases is due to the fact that, despite the long history of studying these diseases, there is no clear understanding of their etiology and pathogenesis [Belousova, 2006]. As a rule, there are signs of disorders in the body's immune system, especially in the intestine, as well as various extra-intestinal lesions of various organs and systems, including the maxillofacial region [Landers et al. 2009]. An analysis of foreign and domestic literature shows that the problem of oral symptoms in IBD has not been studied in sufficient detail to date. Given the severity of IBD and the close relationship between different levels of the digestive system, it is clear that there is a high incidence of concomitant dental pathology [Diaz, 2000; Larsen et al., 2002b]. The data on the 30% prevalence of dental pathology presented





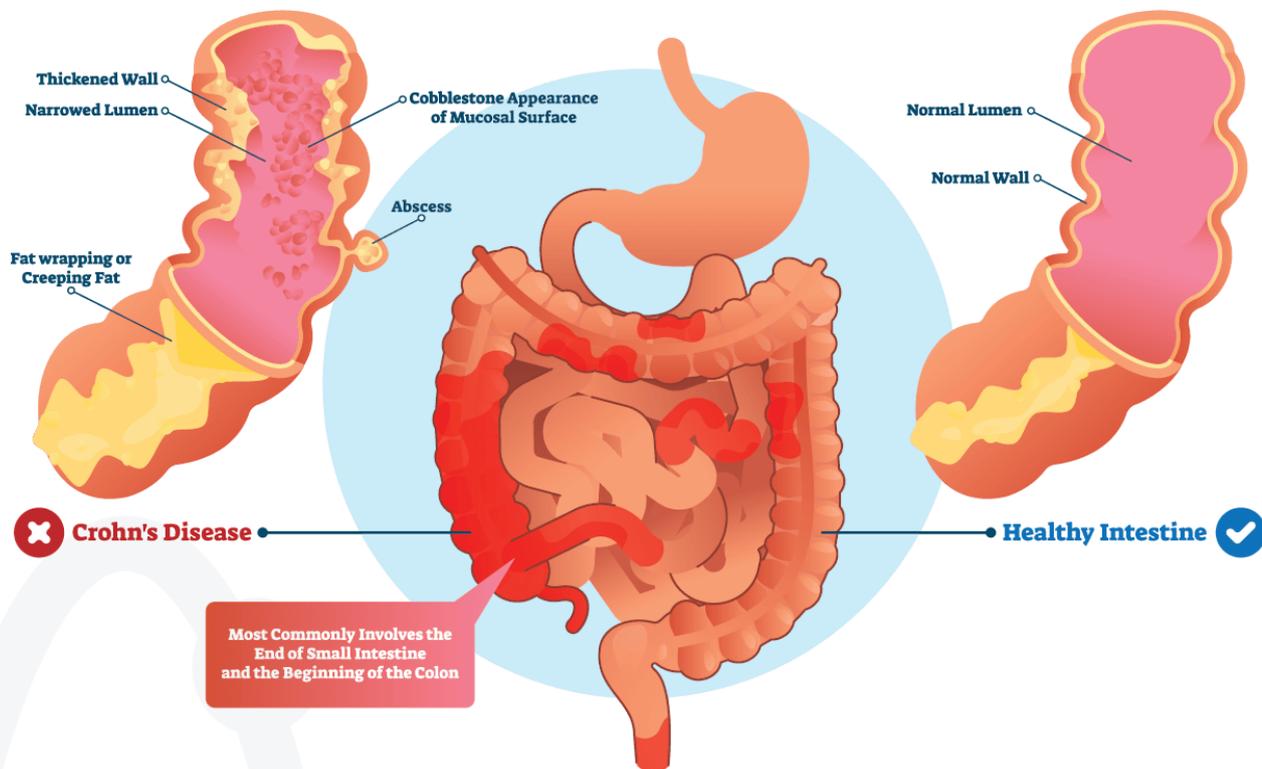
by ECCO is limited to chronic recurrent aphthous stomatitis, which is considered an extra-intestinal symptom of IBD in the oral cavity. Many studies have shown a much wider range of symptoms of oral cavity damage in IBD than only aphthous insufficiency of the oral mucosa [Su, 2002; Karabushina, 2004; Kvetnoy et al., 2009]. Taking into account the close connection of the proximal and distal gastrointestinal tract (GI tract), dental changes occur against the background of metabolic disorders due to intestinal damage [Hellberg et al., 1982], it is interesting to study the prevalence of major dental diseases in patients with IBD. The current state of the problem has determined the purpose of our study: to study the condition of hard dental tissues in patients with inflammatory bowel diseases of different age groups.

### **Materials and Methods**

Of the study 178 patients with inflammatory bowel diseases aged from 19 to 67 years (95 women and 83 men) were examined. In accordance with the main diagnosis, 2 groups of subjects were formed: a group with Crohn's disease – 19-62 people aged 91 years and a group with nonspecific ulcerative colitis ~ 25-67 people aged 87 years. The control group of practically healthy people consisted of 18 people aged 74 to 90 years. All the examined patients were divided into three age groups: I – young (18-39 years old), II –middle (40-59 years old) and III – elderly (60-74 years old). Clinical dental examinations included patient interview, external examination and oral cavity examination. The prevalence and intensity of caries, the prevalence of non-carious dental lesions and oral hygiene were assessed. The data obtained during the study were processed on a personal computer using the Statistica software package for Windows 6.0. The results and reasoning of the results of patient surveys indicate a high prevalence of caries in patients with inflammatory bowel diseases (Table. This is consistent with the literature data [Rooney, 1984; Mdinaradze, 2006; Kuzmina, Smirnova, 2007; Pihur et al., 2007]. The prevalence of caries increases with age and reaches a maximum in the older age group: in patients suffering from ulcerative colitis - 97%, Crohn's disease - 99%. According to the CPI index (its components: "K" – caries, "P" – filling, "Y" – removed teeth), the intensity of caries in each age group of patients with inflammatory bowel diseases is significantly higher than in the control group



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In addition, the results of the study of the intensity of caries in the examined patients show that people of different ages had different degrees of activity of the carious process. As a result, the first degree of caries activity was revealed (KPU16, decompensated type). Analyzing the individual components of the CPI index, it is known that already at a young age these patients have their teeth removed due to complications of caries, and then oral hygiene, in which the "Y" component has significantly increased, especially in old age, is an important point in appearance and the development of carious processes. Given this, we can conclude that the oral hygiene level of the examined patients was assessed using the Vermillion Hygiene Index (OHI-S). From the data obtained (Table. 3) There was no significant difference in the level of hygiene between patients with IBD and control groups. In the study of non-carious lesions of the hard tissues of the teeth, including those that occurred in the form of enamel hypoplasia, fluorosis, as well as pathology that occurs after teething in the form of enamel erosion, wedge-shaped defects and increased tooth wear, the following results were obtained (Table 4). In most cases, tooth wear, wedge-shaped defects and erosion increased both in patients with IBD and in the control group. However, the prevalence of these pathologies is higher in patients with Crohn's



disease or ulcerative colitis. The data obtained made it possible to analyze the relationship between non-carious lesions of hard dental tissues and some somatic features of patients suffering from Crohn's disease and ulcerative colitis (Table 5). There was a significant difference in the prevalence of non-carious dental lesions in the study group, depending on the duration and frequency of exacerbations of IBD, gastritis, duodenal ulcer, pancreatitis, diseases of the cardiovascular system, nervous system, gynecological diseases, diseases of the musculoskeletal system, the presence of pathologies of the gastrointestinal tract. otolaryngology. A direct correlation was found between the presence of non-carious lesions and mutations in the TNF238 gene in CD ( $rs=0.28$ ;  $p=0.05$ ), and no such dependence was found in UC. Thus, the general somatic condition of patients with IBD has a significant impact on the development of pathology of hard dental tissues. All groups were examined. Diseases of the digestive system affect the functional activity of the salivary glands, the composition and physical properties of saliva, which leads to a violation of the dynamic balance in the oral cavity of the processes of de- and remineralization, which leads to the appearance and active course of carious processes, which is consistent with the literature data [Denisov et al., 2004; Gergel et al., 2004]. Also, changes in the composition and physical properties of saliva in diseases of the gastrointestinal tract can be a direct and indirect cause of non-carious lesions of the teeth. Inflammatory processes in the digestive tract make it difficult for the body to absorb the nutrients it needs. Depending on the severity of the damage to the gastrointestinal tract and the treatment (for example, intestinal resection), the patient may experience a serious nutritional deficiency. Malabsorption of various vitamins, micronutrients and macronutrients occurs in both UC and CD, but when the jejunum and ileum are involved in the process or removal of the latter [1982, Sandstead, Howard, 1982]. Unlike ulcerative colitis, Crohn's disease is a chronic inflammatory disease affecting the entire digestive tract, so oral complications of this disease are more pronounced. In the oral cavity, impaired absorption of nutrients in IBD leads to a decrease in the mineralizing ability of saliva, which leads to demineralization of hard tooth tissues and pathologies of carious and non-carious origin.

**Conclusion** The prevalence of caries was higher in patients with inflammatory bowel diseases than in the control group. The prevalence of caries increases with age and reaches a maximum in the older age group: in patients suffering from ulcerative colitis - 97%, Crohn's disease - 99%. The intensity of caries, based on the CPI index, was significantly higher in each age group of patients with inflammatory bowel diseases compared with the control group. Among non-carious lesions of hard dental tissues in patients suffering from Crohn's disease and ulcerative colitis, as in the control





group, lesions that develop after teething include increased tooth wear (22.2 and 23.1%, respectively), wedge-shaped defects (21.6 and 20.9%, respectively) and erosion (20.2 and 19, respectively). 7%). However, in patients with inflammatory bowel diseases, the prevalence of these conditions is higher than in the control group. There was a significant difference in the prevalence of non-carious lesions in patients with inflammatory bowel diseases, depending on the somatic condition.

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