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Oral manifestations of Crohn's disease and ulcerative colitis in of elderly adults

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Abstract: Objective: Identify the oral clinical manifestations of Crohn's disease and ulcerative colitis in elderly adults' patients. Methods: A cross-sectional descriptive study was carried out with a universe of 50 older adults previously diagnosed by gastroenterologist specialists, prescribing the presence of Crohn's disease and ulcerative colitis, confirmed by clinical, histopathological and endoscopic findings, referred to the stomatological consultation of the Specialities Policlinic of the "Saturnino Lora Torres" University Clinical Surgical Hospital of Santiago de Cuba, from March 2019 to the same month of 2020, performing intraoral examination, description of oral lesions and their clinical diagnosis. For the collection of the primary data, a model was made with the variables: age, sex, inflammatory bowel disease, anatomical location, oral clinical signs and symptoms in both pathologies. A database was created in SPSS version 22.0 in Windows for the processing and analysis of the information, using the descriptive statistical technique and grouping the data in absolute and relative frequencies. Results: In the casuistry, females and the age group of 60 to 74 years prevailed, vegetative pyostomatitis was the most common specific oral sign and recurrent aphthous ulcer was the most prevalent non-specific lesion in both pathologies, pain being the most affecting clinical symptom and the back of the tongue is the most preferred site for its installation. Conclusions: The most relevant oral clinical expressions in elderly patients adults with Crohn's disease and ulcerative colitis were pyostomatitis vegetative and recurrent aphthous ulcer.

Key words: inflammatory bowel diseases; Crohn's disease; ulcerative colitis; oral manifestations; pyostomatitis vegetans; recurrent aphthous ulcer

1 Introduction

Aging is considered a universal, dynamic, inevitable, irreversible, and progressive phenomenon [1,2]. It involves a succession of functional, morphological, psychological, and biochemical changes that occur throughout life, resulting in a gradual decline in the body's reserve capacity to cope with change. It is a continuous process that begins at birth and develops throughout life, qualifying as a special stage [1-3] where the risk of acquiring diseases and disabilities increases [1]. Currently, aging poses a challenge for modern societies to overcome chronological barriers, from which Cuba is not exempt. This process is accelerating rapidly among the Cuban population, making Cuba the second most aged country in Latin America and the Caribbean after Uruguay [3].

There are a considerable number of systemic diseases that affect more than one organ system, involving inflammatory processes and disorders of the immune system, giving rise to various clinical manifestations, where diagnosis and treatment are the responsibility of the General Practitioner and the Stomatologist [4]. These pathologies include

gastrointestinal disorders of various kinds (infectious, inflammatory, genetic, and other etiologies) causing alterations in hard and soft oral tissues, revealing a high prevalence and incidence worldwide [5]. However, all components of the stomatognathic system, such as the muscles, teeth, periodontium, oral mucosa, tongue, salivary glands, maxillary bones, and temporomandibular joint, undergo changes related to aging, as do all organs and systems of the human body [3]. At this stage of life, a series of gradual, irreversible, and cumulative changes occur in the oral cavity, making it more vulnerable to traumatic and infectious agents [2].

Inflammatory bowel disease (IBD), which is a systemic pathology due to its high incidence in other organ systems [6], is a chronic inflammatory process of unknown cause [7-12] and an autoimmune basis [6-8,12-14] that affects other parts of the gastrointestinal tract, mainly the intestines [5]. It is a multifactorial pathology, as people with a family history are more likely to suffer from it when exposed to various environmental factors (stress, smoking, alcohol, diet), causing an exaggerated immune response against the bacteria in the intestinal flora. These factors play a decisive role in the etiology and development of the disease [6-13,15]. IBD progresses through periods of activity (relapse) and remission [6,10,12], giving rise to different clinical manifestations at the intestinal level, such as chronic diarrhea, rectal bleeding, abdominal pain and cramps, weight loss, general malaise, fever, fatigue, and anorexia [6-9,11,12], as well as extraintestinal manifestations that make clinical diagnosis difficult [5-7].

As a result, IBD is increasing worldwide, especially in developing countries, and comprises two main nosological conditions: Crohn's disease (CD) and ulcerative colitis (UC) [5-10,15]. The highest annual incidence of CD occurs in North America has 20.2 new cases per 100,000 inhabitants per year, with the highest incidence in Canada, Georgia, and the northern United States; while in Europe, the annual incidence of UC is high, with 24.3 new cases per 100,000 inhabitants per year, with Spain and Greece being the countries with the highest incidence; However, there has been an increase in the incidence of these conditions in Asia, the Middle East, and Latin America [5,10]. Both pathologies present as chronic inflammation of the gastrointestinal tract, and their diagnosis is based on clinical symptoms combined with histopathological (biopsy) and endoscopic evidence [6,7,15].

On the one hand, CD is a chronic, transmural granulomatous inflammation of the intestinal wall with or without granulomas in the terminal portion of the ileum and colon [5-10,13,15], affecting any part of the gastrointestinal tract from the mouth to the anus [5-7,9-17] and causing extraintestinal manifestations such as skin, eyes, mouth, and joints, and causing a deterioration in the overall health of individuals [5,6,8,11,12,15]. Its onset can be sudden and abrupt, and the most common symptoms of the disease are abdominal pain and diarrhea [5-7,13], with a slight predilection for women [7]. Oral clinical manifestations may coincide with or precede gastrointestinal symptoms by days, months, or even years [6, 15-18], with an overall incidence ranging from 0.5% to 37% [6,11,12-15]. Oral clinical symptoms may be specific [6-9,11-15] such as cobblestone mucosa [5-7,11-19], diffuse labial and buccal swelling [6,11-15], deep linear ulcers [5-8], mucogingivitis [5,6,8,12,15] and granulomatous cheilitis of the lower lip [6,8,11,12,15]. Nonspecific lesions [5,6,8,11-14] include recurrent aphthous stomatitis [5-7,12-16,18], pyoestomatitis vege-tante [6,7,11-14,18], angular cheilitis [5-7,12,13,16], glossitis [6,7,14,16], gingivitis [6,14,19], periodontitis [6,7,14,16-18], xerostomia [5,6,16], lichen planus [6-8, 11-13,16], candidiasis [6], perioral erythema [6], dental caries [6,13,14,16], halitosis [6,14], and dysgeusia [5,6,14], among others.

At the same time, UC is a chronic and diffuse inflammation of the mucosa and submucosa of the colon and rectum [6-11,12], without granuloma formation [12]. Biopsies and colonoscopy are the diagnostic methods of choice for this pathology [6]. It affects men and women almost equally [7]. It is a relapsing and remitting disease [12,19], with an abrupt or insidious onset, creating intestinal complications such as diarrhea, rectal bleeding, and abdominal colic [7] and

extraintestinal complications, mainly in the oral mucosa, as it is the entry point and part of the gastrointestinal tract [17–20]. Specific lesions arise, including pyostomatitis vegetans [7,11,16,18,20] and granulomatous cheilitis [6] and other nonspecific conditions such as recurrent aphthous ulcer, lichenoid lesions, xerostomia [16,20], angular cheilitis [17], dysgeusia, gingivitis, and periodontitis [16,20].

Based on the above, it was decided to conduct this research, posing the following scientific question: what are the clinical oral manifestations of Crohn's disease and ulcerative colitis in older adult patients? To answer the above question, we set the following objective: to identify the clinical oral manifestations of Crohn's disease and ulcerative colitis in older adult patients.

2 Methods

A descriptive, cross-sectional study was conducted with a study population of 50 geriatric patients clinically diagnosed by gastroenterologists with CD and UC, confirmed by clinical, endoscopic, and histopathological findings, who were referred to the Stomatology Clinic at the Polyclinic of Specialties of the "Saturnino Lora Torres" University Clinical-Surgical Hospital in Santiago de Cuba, to describe the clinical oral manifestations and their correlation with these intestinal conditions from March 2019 to March 2020.

Prior to the intraoral clinical procedure on the participants, the principal investigator was trained by the institution’s maxillofacial specialists, perfecting the skills to identify and describe oral lesions associated with CD and UC, thus ensuring the reliability and quality of the results. A dental chair, artificial lamp, and oral mirror were available for the clinical examination of the oral cavity, and the appropriate maneuvers were performed to directly and indirectly visualize these lesions.

For the collection and obtaining of primary data, a medical history model was developed with the following variables of interest: age groups (60-74 years, 75-89 years, 90 years and older), sex (female and male), nosological conditions of inflammatory bowel disease (Crohn's disease and ulcerative colitis), anatomical location of intraoral lesions (labial mucosa, buccal mucosa, dorsum and lateral edge of the tongue, gingivae, soft palate, and labial commissure), oral manifestations, including specific clinical signs (pyostomatitis vegetans, cobblestone oral mucosa, granulomatous cheilitis, diffuse swelling of the buccal and labial mucosa) and nonspecific signs (recurrent aphthous ulceration, atrophic glossitis, angular cheilitis, xerostomia, lichen planus, gingival hyperplasia, and dysgeusia) and oral clinical symptoms (pain, no pain, burning, pain plus burning, dry mouth, and taste disturbance).

A database was created in SPSS version 22.0 for Windows, which allowed for the processing and analysis of the information. Descriptive statistical methods were used to organize the quantitative indicators obtained, and statistical tables were used to show the results achieved, with the data presented in absolute and relative frequencies. Percentages were used as a summary measure.

2.1 Ethical considerations

The research always took into account ethical considerations regarding the basic principle of respect for the patient and their right to self-determination, guaranteeing the security and confidentiality of the data obtained at all times and allowing them to freely decide whether or not to participate in the study once they had been informed of the pros and cons, risks, and benefits that might arise during the research period. and with the assurance of the right to withdraw whenever they wished. Written informed consent was obtained from all participants in the study, which was approved by the hospital's Scientific Council and Ethics Committee.

3 Results

In relation to inflammatory bowel disease (IBD) and gender, we found that of the 50 older adults studied, 30 were

diagnosed with ulcerative colitis (60%) and 20 with Crohn's disease (40%), with females predominating at 56%, and ulcerative colitis being the most prevalent at 34% (Table 1).

By linking inflammatory bowel disease with age, it was found that older adult patients in the 60-74 age group were the most affected, with 32 patients (64%), and ulcerative colitis was the most common condition in these patients, with 38% (Table 2).

Regarding the oral clinical signs of inflammatory bowel disease, pyostomatitis vegetans was the most common specific lesion in ulcerative colitis with 4 cases (80.0%), and recurrent aphthous stomatitis was the most prevalent nonspecific lesion with 64.2% (Table 3).

Table 1. Distribution by sex of older adult patients with IBD

Inflammatory bowel disease (IBD)

Gender	Ulcerative colitis		Crohn's disease		Total	
	No.	%	No.	%	No.	%
Male	13	26.0	9	18.0	22	44.0
Female	17	34.0	11	22.0	28	56.0
Total	30	60.0	20	40.0	50	100.0
Percentages calculated based on the total population (50 patients).						
Source: Own elaboration.						

Table 2. Age distribution of older adult patients with IBD

Inflammatory bowel disease (IBD)

Age groups	Ulcerative colitis		Crohn's disease		Total	
	No.	%	No.	%	No.	%
60-74	19	38.0	13	26.0	32	64.0
75-89	8	16.0	5	10.0	13	26.0
90 and over	3	6.0	2	4.0	5	10.0
Total	30	60.0	20	40.0	50	100.0
Percentages calculated based on the total population (50 patients).						
Source: Own elaboration.						

Table 3. Oral clinical signs associated with IBD

Inflammatory bowel disease

Oral clinical signs	Cases	Ulcerative colitis		Croh's disease	
		No.	%	No.	%
				1. Specific oral lesions	
Pyostomatitis vegetans	5	4	80.0	1	20.0
Cobblestone mucosa	3	-----	-----	3	100.0
Granulomatous cheilitis	2	-----	-----	2	100.0
Diffuse labial and buccal swelling	2	-----	-----	2	100.0
				2. Nonspecific oral lesions	
Recurrent aphthous stomatitis	14	9	64.2	5	35.8
Atrophic glossitis	9	7	77.8	2	22.2
Angular cheilitis	6	4	66.7	2	33.3
Xerostomia	3	2	66.7	1	33.3
Lichen planus	2	1	50.0	1	50.0
Gingival hyperplasia	2	2	100.0	-----	-----
Dysgeusia	2	1	50.0	1	50.0
Percentages calculated based on the total number of cases by oral signs.					
				Source: Own elaboration.	

With regard to the correlation between oral clinical symptoms and inflammatory bowel disease, pain was shown to be the clinical symptom with the greatest impact on patients with ulcerative colitis (65.2%), followed in consecutive order by burning pain (58.3%); however, there were no significant differences in the remaining symptoms (Table 4). When evaluating the anatomical location of oral lesions and inflammatory bowel disease, it was found that the dorsum of the tongue was the most common site for their occurrence with 15 cases, of which 73.3% were carriers of ulcerative colitis, followed by the labial mucosa with 10 patients, accounting for 60.0%. (Table 5).

Table 4. Oral clinical symptoms correlated with IBD.

Inflammatory bowel disease

Oral clinical symptoms	Cases	Ulcerative colitis		Crohn's disease	
		No.	%	No.	%
No pain	4	2	50.0	2	50.0
Pain	23	15	65.2	8	34.8
Burning	6	3	50.0	3	50.0
Pain plus burning sensation	12	7	58.3	5	41.7
Xerostomia	3	2	66.7	1	33.3
Taste disturbance	2	1	50.0	1	50.0

Percentages calculated based on the total number of cases by oral symptoms

Source: Own elaboration.

Table 5. Anatomical location of oral lesions associated with IBD

Inflammatory bowel disease

Anatomical location of oral lesions	Cases	Ulcerative colitis		Crohn's disease	
		No.	%	No.	%
Labial mucosa	10	6	60.0	4	40.0
Buccal mucosa	5	2	40.0	3	60.0
Dorsum of the tongue	15	11	73.3	4	26.7
Lateral edge of the tongue	6	4	66.7	2	33.3
Gingivae	4	2	50.0	2	50.0
Soft palate	4	1	25.0	3	75.0
Labial commissure	6	4	66.7	2	33.3

Percentages calculated based on the total number of cases by oral symptoms

Source: Own elaboration.

4 Discussion

This study showed a higher incidence of Crohn's disease and ulcerative colitis in females, as well as a predominance in the 60-74 age group. Therefore, it was shown that both pathological conditions reached their highest incidence between the sixth and seventh decades of life, with ulcerative colitis slightly prevailing. This criterion is similar to that of other authors such as Cruz et al. [1], Torrecilla et al. [2], and Rodríguez et al. [3], who published that this population group is more susceptible to systemic conditions associated with oral clinical manifestations, a risk that increases with age. Hence, the importance of dentists having in-depth knowledge of the changes that occur in oral structures in old age, essentially in biological processes, due to a decrease in the mechanisms of adaptation and tissue regeneration of the oral mucosa, causing high morbidity. They also refer to the fact that the morphological and functional alterations that occur in the craniofacial

complex associated with age are part of the general aging of the body, with a large number of elderly people presenting diseases of the stomatognathic system and supporting tissues, which negatively influence their quality of life. Psychological and social factors in the health-disease process become increasingly important due to a reduced capacity to adapt to the environment.

Scholars on the subject, such as Sevilla [6], reported that Pereira and Munerato emphasized that the incidence of Crohn's disease and ulcerative colitis is slightly higher in women than in men in Western countries; while Jajam et al. [5], Melero et al. [7], Figueroa [10], and Thomas et al. [12] reported that the onset of UC follows a bimodal pattern: a first peak in incidence in young adulthood, i.e., between the second and fourth decades of life (20 to 40 years), and a second peak between the sixth and seventh decades of life (55 and 65 years).

The results of this study showed a high incidence of pyostomatitis vegetans in ulcerative colitis during intraoral clinical examination, which was not the case in Crohn's disease. Clinically, several yellowish-white pustules were observed on the erythematous and edematous oral and labial mucosa, some of which, when broken, turned into ulcerative and erosive lesions, which coincides with the findings of other researchers such as Melero et al. [7] and Khozeimeh et al. [16], who obtained similar data regarding this oral condition being the pathognomonic sign of ulcerative colitis, closely related to disease flares or active phases. Sbeit et al. [4], Jajam et al. [5], Sevilla [6], Lauritano et al. [11], and Mohan et al. [20] confirmed that pyostomatitis vegetans is a specific oral manifestation highly associated with UC, being twice as common as in CD, making its presence a specific indicator and a valuable element for diagnosis. It is classified as a very rare chronic mucocutaneous disorder, presenting as an inflammatory process of the mucosae. It is benign and is characterized by the presence of multiple very small gray-yellowish pustular lesions on an erythematous and edematous mucosa. These pustules can rupture or merge, giving the appearance of a “snail trail”, which is very uncomfortable for the patient, although most of the lesions are asymptomatic. They are located in the oral cavity, mainly on the gingivae, hard and soft palate, and buccal and labial mucosa, with the floor of the mouth and tongue being the least affected areas. This lesion may relapse and remit depending on the severity of the disease.

The medical literature consulted [6,11,13,15] states that specific oral conditions associated with CD include cobblestone oral mucosa and diffuse labial and buccal swelling, which are early indicators of this pathology. while less significant conditions include granulomatous cheilitis, mucogingivitis, and deep linear ulcers. These lesions associated with cobblestone mucosa are considered pathognomonic findings of this disease. However, there are nonspecific oral lesions that can be found with equal prevalence in both UC and CD.

This study also confirmed the presence of recurrent aphthous ulcers, the most significant clinical sign in both pathological entities, slightly more prevalent in ulcerative colitis, with small round or oval ulcers observed on the superficial mucosa, covered by a whitish or yellowish pseudomembrane, surrounded by an erythematous halo localized to the dorsal and lateral borders of the tongue, labial mucosa, and gingivae. These findings are consistent with the work carried out by several scholars on the subject, such as Sbeit et al. [4], Jajam et al. [5], and Giuseppe et al. [15], who published that recurrent aphthous stomatitis is the most common oral manifestation in patients with IBD, relating it to the activation or exacerbation of the intestinal condition, being a very painful and persistent benign inflammatory lesion, with repeated episodes of commonly multiple, small (1 to 3 mm in diameter) superficial ulcers of the aphthous type (round or ovoid, with circumscribed margins surrounded by an erythematous halo), appearing abruptly on the oral mucosa, mainly on the buccal and labial mucosa, the floor of the mouth, the vestibular sulci, the soft palate, and the gingivae. It may be the first extraintestinal manifestation, commonly lasting 1 to 2 weeks and healing without scarring, while in recurrent forms,

the interval between outbreaks is usually 3 to 4 weeks. Similarly, Reyes [4], Melero et al. [7], Oviedo et al. [8], Lauritano et al. [11], Giuseppe et al. [15], Khozeimeh et al. [16], and Mohan et al. [20] revealed that both CU and CD may be preceded by low-grade fever and painful mouth ulcers and may also be affected by other nonspecific oral clinical signs such as glossitis, oral aphthae, cheilitis, candidiasis, and gingival inflammation, caused by secondary nutritional deficiencies related to intestinal malabsorption.

On the other hand, Sevilla [6] and Fatani [18] reported that the presence of oral clinical signs in the adult population—who have a high association with systemic disorders— requires a proper oral examination, which is a key component of any evaluation and is beneficial from both a clinical and dental standpoint. Similarly, Oviedo et al. [8], Lauritano et al. [11], and Thomas et al. [12] confirmed that oral lesions, being multifactorial, are related to conditions of certain organs of the gastrointestinal tract due to the anatomical and functional correlation that exists between them, constituting the main sign of inflammatory bowel disease when the first symptoms at the intestinal level have not yet become evident, serving as an early diagnosis in 10% of patients with ulcerative colitis and 60% of patients with Crohn's disease. For this reason, multidisciplinary collaboration between oral specialists and gastroenterologists is required to adequately evaluate these patients and prescribe effective treatment to improve their quality of life.

Our study confirmed that knowledge of clinical symptoms is essential for establishing the right treatment for geriatric patients, allowing them to maintain asymptomatic periods of oral conditions for as long as possible. These results coincided with those of Thomas et al. [12] and Khozeimeh et al. [16], who reported that digestive disease can occur in any segment of the gastrointestinal tract, mainly in the oral epithelium, causing clinical alterations in the anatomical structures particularly involved. It is commonly associated with clinical symptoms such as painful, burning, highly sensitive, persistent, and disabling sensations that impair feeding, proper oral function, and oral hygiene, and also cause psychological complications such as anxiety and emotional stress. These sensations can sometimes be accompanied by dysgeusia (taste perception disturbances) lasting months or even years before the clinical signs of intestinal involvement appear.

Regarding the anatomical location of oral lesions, the dorsum of the tongue was found to be the most common site for the onset of these gastrointestinal disorders. These criteria are similar to those found in studies by Jajam et al. [5] and Giuseppe et al. [15] and Bader et al. [18], who announced that atrophic glossitis may be the result of a chronic inflammatory process of the digestive tract. Various segments of the gastrointestinal tract are also affected, mainly the oral cavity, as a result of intestinal malabsorption associated with nutritional deficiency (inhibition of the production of iron, riboflavin, niacin, folic acid, zinc, and/or vitamin B12), causing anemia (iron deficiency anemia and pernicious anemia) and appearing more frequently in patients with ulcerative colitis. These changes in the intestine affect the mucosa of the dorsal surface of the tongue, which becomes inflamed, smooth or bald, bright red in color with loss or atrophy of the taste buds, sometimes followed by flat, irregular ulcers, causing increased sensitivity and pain in the tongue, making it impossible to chew food and speak.

Our study showed that all older adult patients with Crohn's disease and ulcerative colitis had clinically evident oral manifestations, with high morbidity in females and in the 60-74 age group. Pyostomatitis vegetans was the most relevant pathognomonic finding in ulcerative colitis and the most important specific oral indicator for diagnosing this disease. While recurrent aphthous ulceration was the nonspecific clinical sign and the first extraintestinal manifestation in both pathologies, with pain appearing as the first symptom, abruptly and persistently on the dorsal surface of the tongue. Therefore, the authors of the study emphasized the importance of performing a detailed clinical examination of geriatric

patients to identify and describe oral lesions that appear in gastrointestinal disorders, mainly CD and UC, prescribing timely treatment to improve their oral health.

Conflicts of Interest

The author declares no conflicts of interest regarding the publication of this paper.

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