

ORAL MANIFESTATIONS OF PEDIATRIC INFLAMMATORY BOWEL DISEASE

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ABSTRACT

The aim of this review was to analyse and discuss the key mucosal, dental, and skin-related symptoms in the oral region linked to pediatric inflammatory bowel disease (IBD). The goal was to increase awareness among healthcare professionals and caregivers regarding the unique oral health issues encountered by this group, while underscoring the need for timely intervention. Their early identification and possible relationship with the disease are important for an early diagnosis and an adequate treatment plan. **Materials and methods:** We performed a systematic search on PubMed and Google Scholar using the keywords 'oral manifestations', 'pediatric patients', and 'inflammatory bowel disease'. Only studies published in English and within the last 10 years were included, and only studies published in peer-reviewed journals were considered. **Results:** Pediatric patients with IBD often present with extra-intestinal manifestations affecting the skin, eyes, joints, and mouth. The oral lesions associated with IBD include recurrent mouth sores, erosions, crater-like ulcers, cheilitis, enlarged warts, atrophic mucositis, and oral mycoses. In many cases, these oral lesions may appear before the onset of gastrointestinal symptoms. **Conclusions:** The early identification of oral manifestations and their potential link to IBD is crucial for timely diagnosis and the development of an appropriate treatment plan. Interdisciplinary collaboration between dentists, pediatricians, and gastroenterologists is essential for both diagnosis and treatment, helping to improve the patient's quality of life.

Key words: inflammatory bowel disease, pediatric patients, oral manifestations

INTRODUCTION

Inflammatory bowel disease (IBD) comprises chronic heterogeneous disorders including two main phenotypes, Crohn's disease (CD) and ulcerative colitis (UC), characterized by inflammation of the intestinal mucosa. While UC affects the rectum and a variable extent of the colon, CD can involve any location of the gastrointestinal tract, from the oral cavity to the anus (1). The incidence of IBD in general and of Crohn disease in particular has increased dramatically, both among adults and among children (2).

CD and UC are considered as systemic

diseases due to their extensive extraintestinal manifestations (EIMs). These signs and symptoms can be presented even before the diagnosis of IBD (3).

Up to 50% of pediatric IBD cases present with manifestations in the oral cavity. These may develop in nearly every oral tissue, including the soft tissues, tongue, lips, teeth, and lymph nodes (4). Changes in the oral mucosa often precede the appearance of gastrointestinal symptoms (5).

This review aims to analyze and discuss the key mucosal, dental, and skin-

related symptoms in the oral region linked to pediatric IBD. The goal was to increase awareness among healthcare professionals and caregivers regarding the unique oral health issues encountered by this group, while

underscoring the need for timely intervention. Their early identification and possible relationship with the disease are important for an early diagnosis and an adequate treatment plan.

MATERIALS AND METHODS

The literature search was conducted on PubMed and Google Scholar using the keywords 'oral manifestations', 'pediatric patients', and 'inflammatory bowel disease'.

Only studies published in English and within the last 10 years were included, and only studies published in peer-reviewed journals were considered.

RESULTS

Oral IBD manifestations can be divided into specific and not-specific lesions, according to the presence of granulomas noted on the histopathology examinations (6). It is important to note that some of these lesions may represent an oral manifestation of IBD, while others result from nutritional deficiencies caused by intestinal

malabsorption (1).

Oral EIMs can be classified based on their location, with examples of these lesions presented in Fig. 1 (4). or can be divided into specific and non-specific lesions, according to the presence of granulomas noted on the histopathology examinations (Fig. 2 and Fig. 3) (1).

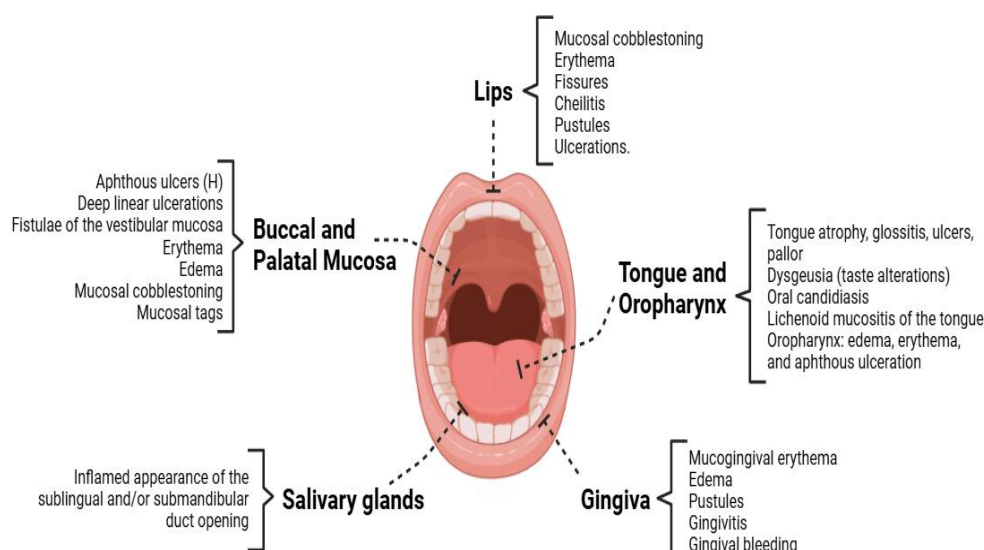


Fig. 1 - Oral lesions in pediatric IBD

1. Specific Oral Lesions are less prevalent than non-specific ones and encompass indurated, tag-like lesions, a cobblestone appearance, mucogingivitis, lip swelling with

vertical fissures, deep linear ulcerations, macrocheilia, and palatal ulcers. The hallmark of specific lesions is the presence of non-caseous granulomas, a feature found

exclusively in patients with Crohn's disease (CD) (7). Oral lesions may precede, coincide with, or develop after the onset of intestinal

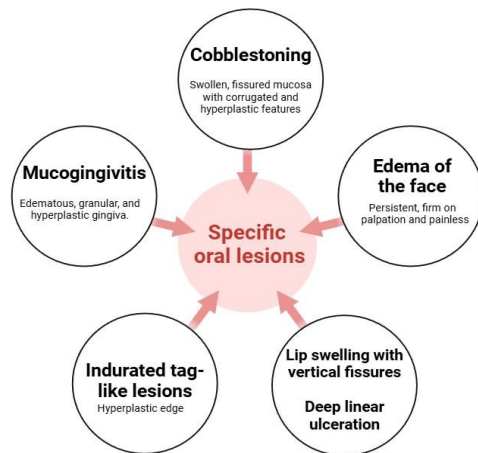


Fig. 2 – Specific oral lesions

manifestations. These lesions are diagnostically significant, as the condition can be confirmed through histopathological examination of accessible oral lesions (8).

Cobblestoning results from deep, transverse, and longitudinal ulcerations that create divisions in the unaffected mucosa. These lesions typically consist of papules that match the mucosal color, forming firm plaques on the buccal mucosa and palate. Oral cobblestoning is considered a distinctive feature of Crohn's disease (CD) (9). Additionally, indurated, polypoid, fringe-like lesions may appear in the vestibule and retromolar area. These lesions can be painful and may interfere with speaking and eating (1).

Mucogingivitis may be present, with the gingiva appearing edematous, granular, and hyperplastic in Crohn's disease, with or without ulcerations. The entire gingiva, extending up to the mucogingival line, may be affected (1). As with other specific lesions

2.Non-specific oral manifestations occur more frequently than specific lesions, making differential diagnosis challenging. These lesions may result from chronic

of the oral cavity, this lesion has no association with intestinal CD activity (10).

Diffuse swelling is one of the most obvious and common presentations of oral CD. This swelling is usually persistent, firm on palpation, painless and tends to involve the lips, buccal mucosa, and facial soft tissues (1). In numerous patients with lip swelling, painful vertical fissures may develop, often harboring various microorganisms (11).

Orofacial granulomatosis (OFG), also known as cheilitis granulomatosa, is a rare chronic inflammatory disease characterized by granulomatous inflammation in the orofacial region. Some consider OFG a distinct entity, a condition without an identified systemic cause (12), while it may also present as an oral manifestation of a systemic disease, such as inflammatory bowel disease (IBD). OFG typically manifests as diffuse, symmetrical or asymmetrical swelling of one or both lips, with a slight tendency to affect the lower lip, lasting from weeks to months. Intraoral features of OFG include mucosal edema, ulceration, cobblestoning, gingival erythema, and hypertrophic changes in the floor of the mouth, known as staghorn (13). Children with Crohn's disease (CD) and concomitant OFG often display a more extensive disease phenotype and proximal gastrointestinal tract involvement compared to CD patients with only intestinal inflammation (8). The link between OFG and CD remains uncertain, with concurrent intestinal CD reported in 20-50% of adult patients with OFG. However, many individuals with OFG show no signs of intestinal disease, while others may exhibit asymptomatic intestinal involvement (14).

inflammation, malnutrition and malabsorption syndrome, or as a side effect of pharmacological treatment (1). Non-specific oral lesions may include conditions

such as aphthous stomatitis, angular cheilitis, pyostomatitis vegetans (PV), glossitis, periodontitis, dental caries, perioral

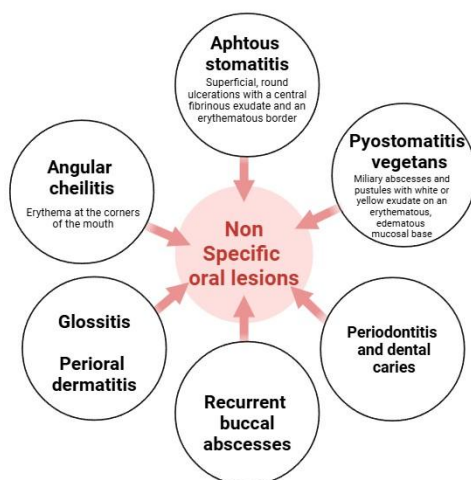


Fig. 3 - Non-specific oral lesions

dermatitis, and recurrent buccal abscesses (1,5). The most common non-specific manifestations, such as aphthous stomatitis and angular cheilitis, occur in both diseases, while PV is more pronounced in patients with UC (7).

Aphthous stomatitis is not exclusive to IBD and can be observed in various other conditions. Aphthae are shallow, round ulcers with a central fibrinous exudate, surrounded by an erythematous "halo" border. They are often painful and can negatively impact daily activities (1,15). Aphthous stomatitis is similar to the stomatitis observed in the general population, but tends to recur over time (16). Aphthae and mucosal tags are frequently seen when the oral cavity is carefully evaluated in patients with newly diagnosed CD (11). However, when aphthous ulcerations are present, inflammatory bowel disease should be considered, even if gastrointestinal symptoms have not yet appeared (7).

Angular cheilitis is one of the most frequent oral manifestations in patients with CD, often resulting from deficiencies in vitamin B6, B12, folic acid, and iron (4,17). It can also be a consequence of fungal and

bacterial infections (5). Angular cheilitis is characterized by erythema, scaling, fissures, ulcerations, and crusting at the corners of the lips and surrounding skin (18).

Pyostomatitis vegetans, a rare chronic mucocutaneous inflammatory disorder associated with IBD, is recognized as a specific marker of disease activity in UC (5,19). The distinct clinical features of PV include miliary abscesses and pustular lesions filled with white or yellow exudate, occurring on an erythematous, edematous mucosal surface. These pustular lesions are prone to rupture, leading to erosions and characteristic ulcerations that resemble the morphology of a "snail track" (20). Oral lesions primarily affect the lips, gingiva, and buccal mucosa, though pustules can develop throughout the entire oral cavity. Patients may present with fever, localized pain, and enlarged, tender submandibular lymph nodes (19). The histologic features of these lesions are dominated by eosinophilic micro abscesses. The intestinal symptoms usually precede oral PV by several months or years (15).

Dental caries has been found to be more prevalent in IBD patients than in controls, as reported in several studies (15). However, eating habits, including the consumption of soft drinks, cakes, sweets, and sugars between meals, do not appear to have any influence. Patients with the active form of the disease and a longer duration exhibit higher levels of *Streptococcus mutans*, likely reflecting dysbiosis associated with IBD (21)

DISCUSSIONS

IBD are distinguished in two main phenotypes, CD and UC, characterized by inflammation of the intestinal mucosa. While UC affects the rectum and a variable extent of the colon, CD can involve any location of the gastrointestinal tract, from the oral cavity to the anus (22). IBD is acknowledged as a

multifactorial disorder, shaped by the interaction of immune dysregulation, genetic factors, and environmental influences. It significantly impacts the quality of life in children and adolescents (23).

Beyond the characteristic gastrointestinal symptoms, patients with IBD may develop a broad spectrum of EIMs, which can affect almost any organ of the body (eyes, joints, liver, pancreas, skin, blood, and mouth) (22). Oral involvement is commonly seen in IBD, manifesting through a variety of clinical features. Furthermore, oral lesions in IBD patients may result from other causes, such as adverse drug reactions, infections, or unrelated systemic conditions (6).

Deficiencies in diet and in the absorption of essential vitamins and nutrients like zinc, for example, may also trigger mucocutaneous manifestations such as periorofacial dermatitis including erythematous, dry, and desquamating plaques that may evolve into erosive or vesicular and blister-like lesions, apart from glossitis. Iron deficiency can cause angular stomatitis and painful depapillation of the tongue. (11)

Orofacial manifestations of IBD are frequently overlooked in non-specialized healthcare settings, which may hinder optimal disease management. These symptoms can contribute to considerable physical discomfort and psychological distress. Therefore, recognizing their clinical relevance early is essential for gastroenterologists to ensure accurate diagnosis and effective disease control (17).

Oral manifestations are more commonly seen in pediatric patients. The higher incidence of upper gastrointestinal tract involvement in children with Crohn's disease, compared to adults, may explain the increased prevalence of oral lesions in pediatric cases (1, 11).

Oral manifestations of IBD vary widely.

While they are generally more prevalent in patients with CD, certain specific manifestations, such as PV, are more commonly observed in UC and are typically associated with disease activity (7). In contrast, most other oral manifestations do not correlate with the activity of the disease (4). When diagnosing these oral symptoms, it is important to consider factors such as drug side effects, nutritional deficiencies, infections, and other granulomatous diseases that may also affect the oral cavity. (4,7, 11)

A multidisciplinary approach involving healthcare professionals, such as dentists, nutritionists, and mental health specialists, is crucial for delivering comprehensive care in adolescents with IBD. Raising awareness and educating patients about the oral health implications of IBD play a key role in facilitating early intervention and enhancing overall well-being.

CONCLUSIONS

The presence of oral manifestations and symptoms in inflammatory bowel disease (IBD) should be given significant attention. Orofacial manifestations are frequently overlooked and underestimated, potentially leading to suboptimal disease management. Since oral lesions are more prevalent in children and may precede the onset of IBD, early collaboration between an oral medicine specialist and a gastroenterologist is essential for timely diagnosis and intervention. Dental professionals must be aware of these issues in order to offer personalized care, with a particular focus on prevention. In more complex cases, it is essential to consult specialized teams comprising dedicated dental clinicians and gastroenterologists.

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