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Review Article

Oral Manifestations and Implications of Inflammatory Bowel Disease: An Overview for Dental Clinicians

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Abstract: Inflammatory bowel disease encompasses chronic inflammatory conditions that affect the gastrointestinal tract, including the oral cavity. Oral manifestations occur in a variable proportion of patients and can be categorized as specific or non-specific lesions. These manifestations may precede, coincide with, or follow intestinal symptoms, emphasizing the importance of early recognition by dental professionals. Patients with inflammatory bowel disease demonstrate increased susceptibility to dental caries and periodontal disease compared to healthy individuals. Understanding these oral-systemic connections enables dentists to contribute to early diagnosis, facilitate multidisciplinary management, and improve patient outcomes through appropriate preventive and therapeutic strategies.

Keywords: Inflammatory Bowel Disease, Crohn Disease, Ulcerative Colitis, Oral Manifestations.

INTRODUCTION

Inflammatory bowel disease (IBD) is a group of chronic inflammatory disorders, primarily comprising Crohn disease (CD) and ulcerative colitis (UC), characterized by relapsing-remitting inflammation of the gastrointestinal tract. The pathophysiology of IBD involves complex interactions between genetic predisposition, environmental factors, gut microbiota dysbiosis, and aberrant immune responses mediated by pro-inflammatory cytokines [1]. Beyond intestinal involvement, inflammatory bowel disease frequently presents with extraintestinal manifestations, with the oral cavity being a clinically significant site that dental practitioners may encounter [2]. Oral lesions occur in approximately 5-50 percent of patients with inflammatory bowel disease, with a prevalence ranging from less than one percent to thirty-seven percent in adults and seven to twenty-three percent in pediatric populations [2, 3]. Recognition of these manifestations is essential for dental clinicians, as oral findings may precede gastrointestinal symptoms or serve as indicators of the disease activity. Therefore, this narrative review provides a concise summary of the oral manifestations and dental implications of Crohn disease and ulcerative colitis for dental clinicians.

Classification of Oral Manifestations

Oral manifestations of inflammatory bowel disease can be systematically classified into specific and non-specific categories based on their pathophysiological relationship with the underlying bowel disease [4]. Specific manifestations, although relatively uncommon, are highly indicative of inflammatory bowel disease and include cobblestoning of the oral mucosa, mucosal tags, mucogingivitis, labial swelling with vertical fissures, and deep linear ulcerations [5, 6]. These features are more prevalent in Crohn disease, particularly in patients with proximal gastrointestinal tract or perianal involvement, with prevalence estimates between 20% and 50% in adult patients [6]. Cobblestoning, indurated tag-like lesions, and mucogingivitis are the most common findings in patients with CD [4].

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Pyostomatitis vegetans is a rare but pathognomonic oral manifestation strongly associated with inflammatory bowel disease, particularly ulcerative colitis [7, 8]. This condition is characterized by multiple pustules on an erythematous base that coalesce and undergo necrosis, creating a distinctive appearance resembling snail tracks [9, 10]. Pyostomatitis vegetans may manifest before, concurrently with, or after intestinal symptoms, and its recognition by dentists can facilitate the diagnosis of previously undetected inflammatory bowel disease [9].

Non-specific oral manifestations occur more frequently and include recurrent aphthous stomatitis, angular cheilitis, glossitis, halitosis, xerostomia, oral lichen planus, and candidiasis [2-4]. Recurrent aphthous stomatitis is the most common non-specific manifestation, affecting patients with both Crohn disease and ulcerative colitis [11]. Although these lesions lack diagnostic specificity for inflammatory bowel disease, their presence in combination with gastrointestinal symptoms should prompt consideration of underlying bowel pathology.

Table: Key Oral Manifestations of Inflammatory Bowel Disease

Category	Manifestations	Clinical Characteristics	Subtype Association
Specific	Cobblestoning, Mucosal tags, Mucogingivitis	Granulomatous lesions, pathognomonic	More common in CD
Specific	Pyostomatitis vegetans	Pustules with "snail track" appearance	Strongly associated with UC
Nonspecific	Recurrent aphthous stomatitis	Most frequent nonspecific finding	Both CD and UC
Dental	Increased caries, Periodontitis	Elevated DMFT index, probing depths	Both CD and UC

Dental Caries and Periodontal Implications

Patients with inflammatory bowel disease have a significantly higher susceptibility to dental caries than healthy controls [12, 13]. Meta-analytic evidence indicates that the weighted mean difference in the decayed, missing, and filled teeth index between inflammatory bowel disease patients with IBD and healthy individuals is approximately three units higher in affected patients [13]. Patients with Crohn disease and ulcerative colitis patients show an elevated risk of dental caries, with Chinese populations demonstrating odds ratios of approximately four-fold and two-fold increased risk for Crohn disease and ulcerative, respectively [14]. This elevated caries experience extends to pediatric populations, where children and adolescents with inflammatory bowel disease exhibit higher frequencies of dental caries and gingival inflammation despite comparable oral hygiene statuses [15].

The relationship between inflammatory bowel disease and periodontal disease has been extensively investigated, with accumulating evidence demonstrating bidirectional associations [16, 17]. Meta-analyses reveal that inflammatory bowel disease patients exhibit approximately two-fold increased risk of periodontitis compared to controls [16-18]. Subgroup analyses indicate that patients with ulcerative colitis may face a higher periodontal risk than those with Crohn disease [16]. Mendelian randomization studies provide genetic evidence supporting causal relationships, with Crohn disease increasing the risk of periodontitis and periodontitis potentially exacerbating ulcerative colitis, reinforcing the concept of an oral-gut axis [19, 20].

Proposed mechanisms linking inflammatory bowel disease to oral diseases include shared immunopathogenic pathways, dysbiotic shifts in oral microbiota composition, cytokine-mediated inflammatory responses, nutritional deficiencies, medication effects, and altered salivary function [21]. Both periodontitis and inflammatory bowel disease involve dysregulated host immune responses to microbial challenges, with overlapping cytokine expression patterns and barrier dysfunctions.

Clinical Management Considerations for Dental Practitioners

Dental clinicians should maintain heightened awareness when examining patients with known inflammatory bowel disease or when encountering characteristic oral lesions [2]. A systematic oral examination should be performed to assess for specific granulomatous lesions, mucosal changes, and pustular eruptions that may indicate active disease [6]. The temporal relationship between oral lesions and intestinal disease activity makes oral findings potentially useful markers for monitoring systemic disease status [11].

Management of oral manifestations primarily involves treatment of the underlying inflammatory bowel disease, with local or systemic corticosteroids and immunosuppressive agents reserved for severe cases that cause significant functional impairment [4-6]. Dental practitioners should coordinate with gastroenterologists to ensure comprehensive disease management. For patients on immunosuppressive therapies, dental professionals must consider potential complications including delayed wound healing, increased infection susceptibility, and medication-related adverse effects [1].

Preventive strategies are of paramount importance in this patient population, given the elevated caries and periodontal disease risk [22]. Dental clinicians should emphasize rigorous oral hygiene protocols, recommend more frequent professional prophylaxis intervals, provide topical fluoride applications, and implement individualized caries risk management programs [12]. Periodontal screening should be routine, with aggressive management of periodontal

inflammation to potentially mitigate the systemic inflammatory burden [19].

CONCLUSION

Oral manifestations of inflammatory bowel disease represent important clinical findings that dental professionals may encounter in routine practice. Recognition of specific lesions, such as cobblestoning, mucosal tags, and pyostomatitis vegetans, can facilitate the early diagnosis of undetected inflammatory bowel disease or indicate disease exacerbation in known patients. The significantly elevated prevalence of dental caries and periodontal disease in this population necessitates intensified preventive approaches and collaborative, multidisciplinary management. By maintaining awareness of these oral-systemic connections, dental clinicians can contribute meaningfully to patient care through early detection, appropriate referral, and implementation of tailored preventive strategies that address the unique oral health challenges faced by inflammatory bowel disease patients.

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