



ORIGINAL ARTICLE

Selected Cutaneous and Mucocutaneous Manifestations Associated with Inflammatory Bowel Disease: Diagnostic and Therapeutic Implications

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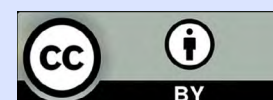
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ABSTRAKT

Inflammatory bowel disease, including Crohn's disease and ulcerative colitis, comprises chronic inflammatory disorders of the gastrointestinal tract. In addition to intestinal symptoms, IBD may be accompanied by numerous extraintestinal manifestations, including cutaneous and mucocutaneous lesions. The most commonly reported dermatological manifestations include erythema nodosum, pyoderma gangrenosum, and oral lesions associated with Crohn's disease. Cutaneous manifestations may precede the diagnosis of IBD, therefore, their recognition is important not only for dermatologists, but also for specialists in internal medicine and gastroenterology. Early identification of these manifestations may contribute to earlier diagnosis of the underlying disease and implementation of appropriate treatment. This review discusses selected, clinically relevant cutaneous and mucocutaneous manifestations in the course of IBD, with particular emphasis on their epidemiology, diagnostic criteria, clinical presentation, and therapeutic options.

KEYWORDS

Inflammatory Bowel Diseases, Crohn Disease, Colitis, Ulcerative, Skin Diseases, Erythema Nodosum, Pyoderma Gangrenosum

Introduction

Inflammatory bowel disease (IBD), including Crohn's disease (CD) and ulcerative colitis (UC), comprise chronic, relapsing inflammatory disorders of the gastrointestinal tract. The clinical course is characterized by periods of exacerbation and remission. Although the main symptoms involve the gastrointestinal tract and include diarrhea, abdominal pain, rectal bleeding, weight loss, and fatigue, IBD is a systemic disease that may also affect extraintestinal organs and tissues [2,3].

Extraintestinal manifestations represent an important component of the clinical spectrum of IBD. They may involve the skin, joints, eyes, liver, and biliary tract. Cutaneous and mucocutaneous manifestations are of particular clinical relevance because they may occur in both CD and UC, impair patients' quality of life, and require interdisciplinary management, especially cooperation between gastroenterologists and dermatologists [1-4].

Cutaneous manifestations associated with IBD are heterogeneous in terms of pathogenesis, clinical presentation, and relationship with intestinal disease activity. They include specific manifestations, reactive inflammatory dermatoses, inflammatory skin disorders associated with IBD, treatment-related mucocutaneous adverse events, and lesions secondary to nutritional malabsorption. The most frequently discussed manifestations include erythema nodosum, pyoderma gangrenosum, oral lesions, Sweet's syndrome, perianal lesions in CD, and associated inflammatory skin disorders such as psoriasis and hidradenitis suppurativa [1,4].

Erythema nodosum is one of the most common cutaneous manifestations observed in patients with IBD. It usually presents as painful erythematous nodules, most often located on the anterior surfaces of the lower legs. In many cases, it correlates with intestinal disease activity and may therefore be useful in the clinical assessment of IBD exacerbation. Pyoderma gangrenosum is less common but represents a more severe cutaneous manifestation. It is characterized by painful skin ulcerations that may rapidly enlarge and require careful differential diagnosis and systemic treatment [1,4].

Oral lesions also represent an important group of mucocutaneous manifestations in IBD. They may cause pain, difficulty with food intake, and reduced quality of life. In Crohn's disease, perianal lesions, including fistulae, abscesses, fissures, and ulcerations, are of particular clinical importance because they may be difficult to treat and may significantly affect the course

of the disease. Increasing attention is also being paid to the association between IBD and other inflammatory skin diseases, including hidradenitis suppurativa and psoriasis [1,4].

The mechanisms responsible for the development of cutaneous manifestations in IBD remain incompletely understood. Chronic inflammation, immune dysregulation, genetic susceptibility, alterations in the intestinal microbiota, and shared inflammatory pathways linking the gut and the skin are thought to play an important role. Treatment-related adverse events are also clinically relevant, particularly those associated with biological therapy, which may induce paradoxical skin reactions, including psoriasisform lesions [1-4].

Recognition of cutaneous and mucocutaneous manifestations in patients with IBD has significant clinical value. These lesions may precede the diagnosis of intestinal disease, appear during disease flares, or follow a course independent of gastrointestinal inflammatory activity. Their proper identification may facilitate earlier diagnosis, assessment of disease activity, and selection of appropriate treatment. For this reason, cutaneous manifestations of IBD represent an important clinical problem requiring an interdisciplinary approach [1-4].

The aim of this review is to discuss selected cutaneous and mucocutaneous manifestations occurring in patients with IBD, with particular emphasis on their clinical presentation, possible pathogenetic mechanisms, diagnostic relevance, and therapeutic implications [1,4].

Methods and Materials

This study was designed as a narrative literature review. The review focused on selected cutaneous and mucocutaneous manifestations associated with inflammatory bowel disease. The literature search was performed using the PubMed/MEDLINE and Google Scholar databases, primarily including publications from 2016 to 2026.

The search strategy included terms related to inflammatory bowel disease and its cutaneous, mucocutaneous, and extraintestinal manifestations, such as: "inflammatory bowel disease", "Crohn's disease", "ulcerative colitis", "cutaneous manifestations", "dermatological manifestations", "mucocutaneous manifestations", "extraintestinal manifestations", "erythema nodosum", "pyoderma gangrenosum", "metastatic Crohn's disease", "oral Crohn's disease", "psoriasis", "hidradenitis suppurativa", "anti-TNF therapy",

“paradoxical psoriasis”, “cutaneous adverse events”, “nutritional malabsorption”, and “nutritional deficiencies”. Publications written in English were included if their content was relevant to the topic of this review and addressed the clinical presentation, diagnostic significance, pathophysiological mechanisms, therapeutic implications, or treatment-related adverse events of cutaneous and mucocutaneous manifestations in the course of IBD. In addition, the reference lists of selected articles were reviewed to supplement the discussed issues.

Due to the narrative nature of this review, no formal meta-analysis or systematic risk-of-bias assessment was performed.

Results

1.1. IBD as a systemic immune-mediated disorder and the gut–skin relationship

The underlying pathogenetic mechanisms of extraintestinal manifestations in IBD remain incompletely understood due to their complex and multifactorial nature. Genetic, environmental, epithelial, microbial, and immunological factors are considered to contribute to their development^[2,5]. The skin is one of the organs most commonly involved in IBD, and cutaneous manifestations occur in more than 10% of patients, although higher rates have also been reported^[1]. Both innate and adaptive immune responses play an important role in the initiation and maintenance of inflammation^[2].

One potential mechanism involved in the development of EIMs is the ectopic expression of chemokines and adhesion molecules in extraintestinal organs and tissues^[3]. Dysregulated T-cell homing, dependent on the $\alpha 4\beta 7$ –MAdCAM-1 and CCR9–CCL25 axes, may enable inflammatory cells to migrate beyond the gastrointestinal tract and contribute to inflammation in extraintestinal tissues^[2,3]. However, this mechanism appears to have limited relevance for cutaneous lesions, as ectopic MAdCAM-1 expression has mainly been demonstrated in the liver rather than in most organs affected by EIMs^[2,3].

The involvement of the intestinal microbiota and immune cross-reactivity is also considered in the pathogenesis of cutaneous manifestations of IBD. Molecular similarity between gut microbiota antigens and non-microbial epitopes present in extraintestinal tissues may lead to the activation of cross-reactive T-cell clones^[2,3]. Similar peptide sequences have

also been described between intestinal bacteria and host major histocompatibility complex molecules, which may represent one of the mechanisms linking intestinal inflammation with extraintestinal manifestations^[3]. However, the significance of this process in the development of cutaneous EIMs has not been conclusively confirmed^[3].

In addition, increased intestinal barrier permeability may facilitate the translocation of microbiota-derived components, such as lipopolysaccharides, bacterial antigens, and metabolites, from the gut into the systemic circulation or extraintestinal tissues^[3]. This may lead to systemic activation of inflammatory responses and intensify immune-mediated processes in distant organs, including the skin^[3]. Intestinal dysbiosis may also activate immune cell populations within the gut, which may subsequently migrate to other organs and sustain local inflammation^[3].

Overall, cutaneous extraintestinal manifestations of IBD may result from the interaction of several mechanisms, including dysregulated lymphocyte homing, systemic cytokine-driven inflammation, immune cross-reactivity, intestinal microbial dysbiosis, and increased intestinal barrier permeability. These mechanisms indicate that cutaneous lesions in IBD are not merely local dermatological conditions, but rather reflect the systemic inflammatory nature of the disease.

1.2. Classification of cutaneous manifestations in inflammatory bowel disease

Cutaneous and mucocutaneous disorders associated with inflammatory bowel disease can be classified into five main groups according to their pathological relationship with the underlying disease: specific manifestations of IBD, reactive manifestations, associated inflammatory skin disorders, treatment-related mucocutaneous adverse events, and cutaneous manifestations secondary to malabsorption and nutritional deficiencies (Table 1).

1.3. Relationship between cutaneous manifestations and intestinal disease activity

Cutaneous manifestations occur in approximately 15–20% of patients with IBD [1,6,7,9]. The most common cutaneous manifestations associated with IBD include erythema nodosum, pyoderma gangrenosum, oral aphthous ulcers, and Sweet's syndrome [1–3].

Erythema nodosum is one of the cutaneous manifestations most frequently associated with active

Table 1. Classification of cutaneous and mucocutaneous manifestations associated with inflammatory bowel disease

Group	Category of manifestations	Representative manifestations	Clinical relevance
1	Specific manifestations of IBD	Continuous or contiguous Crohn's disease; metastatic Crohn's disease; perianal lesions, including fissures, fistulae, and abscesses; oral Crohn's disease	These lesions are directly related to the underlying intestinal disease, particularly Crohn's disease. They may show granulomatous inflammation and may provide an important diagnostic clue, especially when they precede the diagnosis of intestinal disease.
2	Reactive manifestations	Erythema nodosum; pyoderma gangrenosum; Sweet's syndrome; pyostomatitis vegetans; bowel-associated dermatosis–arthritis syndrome	These lesions are considered to result from systemic immune activation rather than direct extension of intestinal inflammation. Some, particularly erythema nodosum, may correlate with intestinal disease activity.
3	Associated immune-mediated or inflammatory disorders	Aphthous stomatitis; psoriasis; epidermolysis bullosa acquisita	These immune-mediated or inflammatory disorders may occur more frequently in patients with IBD. Their presence may reflect shared immunological pathways, influence the choice of biological therapy, and require collaboration between gastroenterologists and dermatologists.
4	Treatment-related mucocutaneous adverse events	Injection-site reactions; infusion reactions; paradoxical reactions, including psoriasisform lesions; eczematous eruptions; cutaneous infections; cutaneous malignancies	These are complications of immunosuppressive or biological therapy. Their recognition is therapeutically important, as they may require dermatological treatment, dose adjustment, temporary drug discontinuation, or switching to another therapeutic class.
5	Cutaneous manifestations secondary to malabsorption and nutritional deficiencies	Stomatitis; glossitis; angular cheilitis; pellagra; scurvy; purpura; acrodermatitis enteropathica; phrynoderma; seborrheic-like dermatitis; hair and nail abnormalities	These lesions reflect malabsorption, chronic inflammation, or deficiencies of nutrients such as iron, zinc, niacin, vitamin C, B vitamins, and essential fatty acids. They may indicate malnutrition or active intestinal disease.

Note: Authors' own elaboration based on selected studies from the reviewed literature ^[1,6,7]. The table presents selected representative manifestations and does not include all reported cutaneous and mucocutaneous disorders associated with IBD

intestinal inflammation. It usually occurs during disease exacerbations and may resolve after effective control of intestinal inflammation^[1–3].

Oral aphthous ulcers may also accompany active intestinal disease and occur during IBD flares. However, their clinical interpretation requires differential diagnosis, including nutritional deficiencies, infections, and drug-related mucosal injury^[1,2].

In contrast to erythema nodosum, pyoderma gangrenosum may develop independently of intestinal disease activity. Its severity does not always reflect the degree of gastrointestinal inflammation and may require separate dermatological and systemic treatment, even when intestinal symptoms are controlled^[1–3].

The temporal relationship between the onset of cutaneous lesions and the diagnosis of IBD is also of clinical importance. Some dermatological manifestations may precede the diagnosis of intestinal disease, occur concomitantly with gastrointestinal symptoms, or appear later during the course of established di-

sease. The observed increased risk of selected skin diseases before the diagnosis of IBD suggests that an abnormal immune response may involve the skin at an early stage of the disease, sometimes in the presence of nonspecific or unclear intestinal symptoms^[7,8].

Therefore, recognition of cutaneous manifestations may contribute to earlier diagnosis of IBD, assessment of disease activity, and identification of patients requiring multidisciplinary management^[1,7,8].

Treatment-related mucocutaneous adverse events should be distinguished from disease-related manifestations, as their occurrence may be more closely associated with immunosuppressive or biological therapy than with intestinal inflammatory activity^[1].

In summary, the relationship between cutaneous lesions and IBD activity is variable. Erythema nodosum and oral aphthous ulcers more commonly reflect active intestinal inflammation, whereas pyoderma gangrenosum and some drug-related lesions may follow a course independent of disease

activity or be associated with the therapy used^[1-3,7,8].

2.1. Specific cutaneous manifestations

These manifestations result from disruption of the continuity of the skin or external mucous membranes due to a progressive inflammatory process and include continuous or contiguous lesions as well as metastatic lesions. They are considered specific because of histopathological findings similar to those observed in IBD, namely the presence of non-caseating granulomas. Specific lesions are observed only in Crohn's disease (CD), because ulcerative colitis (UC) does not extend to the external mucous membranes and is limited to the internal gastrointestinal tract^[1,7].

2.1.1. Continuous/contiguous lesions, fissures, and fistulae

Perianal disease occurs in up to approximately 50% of patients with CD, and lesions may range from perianal erythema to complex perianal fistulae^[1,11]. However, there is no consensus as to whether continuous or contiguous lesions should be considered cutaneous EIMs or rather a separate manifestation of gastrointestinal disease. Cases of enterocutaneous fistulae located within laparotomy scars, as well as in the umbilical region, have also been reported. Chronic edema and inflammation associated with fissures and fistulae may lead to the development of perianal abscesses, acrochordons, and skin pseudotags^[1,6]. These lesions may require surgical treatment^[1].

2.1.2. Oral Crohn's disease

Oral manifestations in Crohn's disease occur in approximately 5–20% of adult patients^[6,11]. They may also represent the initial manifestation of the disease. Specific oral lesions may present as deep linear ulcers, a cobblestone appearance of the mucosa, swelling and erythema of the lips and buccal mucosa, as well as fissures of the lips and tongue^[6,11]. To relieve symptoms, antiseptic mouth rinses and topical steroid therapy may be used^[6].

2.1.3. Metastatic Crohn's disease (MCD)

Metastatic Crohn's disease is defined as the presence of cutaneous lesions non-contiguous with the gastrointestinal tract. These lesions vary in morphology and may occur at any skin site, although they most commonly appear on the lower extremities and in intertriginous areas^[1]. They may precede gastrointestinal symptoms, occur concomitantly with them, or develop after their onset in the course

of CD^[1,10]. The clinical presentation of MCD includes erythematous plaques, nodules, abscesses, fistulae, and ulcerations^[1,6]. MCD occurs more frequently in patients with colonic or rectal involvement^[1]. Skin biopsy is required to establish the final diagnosis, as the polymorphic presentation of the lesions often leads to misdiagnosis^[1,10]. However, surgical treatment does not guarantee resolution of the cutaneous lesions^[6].

3.1. Reactive cutaneous manifestations

Reactive cutaneous manifestations occur in both Crohn's disease and ulcerative colitis. They do not show histopathological features analogous to those observed in the gastrointestinal tract; however, they may be associated with shared pathogenetic mechanisms, including disturbances of the innate immune response^[1,6,12].

3.1.1. Erythema nodosum (EN)

Erythema nodosum is the most common cutaneous manifestation of IBD, affecting 2–10% of patients with ulcerative colitis (UC) and 4–15% of patients with Crohn's disease (CD)^[1,4,13]. It presents as tender, erythematous to violaceous subcutaneous nodules, usually 1–5 cm in diameter, located predominantly on the anterior aspects of the lower limbs and distributed over the extensor surfaces^[1,4,13,14]. Systemic symptoms, such as fever, malaise, and arthralgia, are also frequently observed^[1,13].

Histopathological examination typically shows a mixed inflammatory cell infiltrate composed of lymphocytes, histiocytes, eosinophils, and numerous neutrophils^[1,4,14]. Erythema nodosum usually reflects colonic IBD activity, and appropriate treatment of the underlying disease often leads to resolution of the lesions. In cases associated with pain, non-steroidal anti-inflammatory drugs are considered first-line symptomatic treatment^[1,13,14].

3.1.2. Pyoderma gangrenosum (PG)

Pyoderma gangrenosum is the second most common cutaneous manifestation of IBD and occurs in approximately 0.5–3% of patients. It is observed more frequently in patients with ulcerative colitis than in those with Crohn's disease, and it is also more common in women^[1,4,14]. In approximately 50% of cases, the diagnosis of IBD precedes the onset of PG^[1,4,15].

Skin lesions initially present as papules, pustules, or nodules that gradually progress into painful ulcers, often with characteristic undermined borders and surrounding erythema. They are most commonly located on the anterior surfaces of the lower limbs and

in areas adjacent to postoperative stoma sites. Their extent may range from a few centimeters to involvement of a large part of the limb^[1,4,14,15].

Tumor necrosis factor- α inhibitors are considered first-line therapy in severe or refractory cases of IBD-associated PG, with infliximab showing the most rapid clinical response^[1,4,15].

3.1.3. Other reactive manifestations

Less common reactive cutaneous manifestations associated with IBD include Sweet's syndrome and pyodermatitis-pyostomatitis vegetans. Sweet's syndrome is a cutaneous manifestation characterized by neutrophilic dermatosis. It occurs more frequently in women and shows a stronger association with Crohn's disease. Cases of azathioprine-induced Sweet's syndrome have also been reported^[6,16,17].

Sweet's syndrome is characterized by an acute onset of erythematous papules and plaques ranging in color from red to violaceous, predominantly involving the face, neck, and upper extremities. Skin lesions are usually associated with fever, while other symptoms may include arthralgia, headache, and fatigue^[1,6]. Glucocorticoids are used as first-line treatment^[1,6].

Pyostomatitis vegetans (PV) is a rare mucocutaneous manifestation associated with IBD, more commonly with ulcerative colitis. It mainly affects the oral cavity and occurs more frequently in men^[1,6]. Typical lesions described in PV include multiple small pustules and erosions, forming the characteristic appearance known as "snail-track ulcers"^[1,18].

The occurrence of PV is strongly correlated with IBD, and the lesions may be accompanied by lymphadenopathy, leukocytosis, and/or eosinophilia^[1,6,18]. Treatment is based, among others, on systemic corticosteroids and TNF- α inhibitors^[1,6]. As in PG, relapses are common^[6].

4.1. Associated inflammatory and mucocutaneous disorders

These disorders are more frequently observed in patients with IBD; however, they do not show direct histopathological similarity to lesions typical of the underlying intestinal disease. Their coexistence may be associated with the expression of specific human leukocyte antigen (HLA) genes, genetic susceptibility, and the chronic inflammatory nature of IBD.

4.1.1. Psoriasis

Psoriasis is a chronic inflammatory disease associated with immune system dysregulation. In

the context of IBD, it is observed more frequently in patients with Crohn's disease than in those with ulcerative colitis. A significant bidirectional association has been observed between these two conditions, indicating both an increased risk of IBD in patients with psoriasis and a higher prevalence of psoriasis among patients with IBD^[1,6,19].

Psoriasis affects approximately 0.5–11% of adults, whereas among patients with IBD it occurs in approximately 7–11.4% of cases^[1,20]. Phenotypically, it most commonly presents as well-demarcated erythematous psoriatic plaques covered with silvery scales, mainly located on the extensor surfaces of the knees and elbows^[1,19].

A genetic correlation between psoriasis and IBD has been identified, including the chromosomal locus 6p21 and the IL23R and IL12B genes. Shared immunological features include increased activity of the IL-23/Th17 axis and elevated IL-17 levels, observed in both IBD and psoriasis^[1,20]. Moreover, increased concentrations of cytokines in serum and tissues, including tumor necrosis factor (TNF), interleukin 12 (IL-12), and interleukin 23 (IL-23), are present in both psoriasis and IBD. Agents inhibiting these inflammatory mediators may improve the course of both diseases^[1,19,21].

4.1.2. Hidradenitis suppurativa (HS)

Hidradenitis suppurativa (HS), also referred to as acne inversa, is a chronic, inflammatory, recurrent, and debilitating follicular skin disease. It usually develops after puberty and presents with painful, deep-seated inflammatory lesions in areas rich in apocrine glands, most commonly the axillary, inguinal, and anogenital regions^[22,23].

The pathophysiology of HS is associated with genetic susceptibility, dysregulation of innate immunity, abnormal inflammatory responses, and alterations in the microbiota. IBD and HS may show clinical similarities, as both conditions can present with painful nodules, sterile abscesses in the perineal and inguinal areas, scarring, and sinus tract formation^[23,24]. HS occurs more frequently in association with IBD, particularly Crohn's disease^[23–25].

Current treatment strategies for HS usually include a combination of pharmacological and surgical interventions, tailored to disease severity and extent. In patients with mild disease, topical or systemic antibiotics are most commonly used, followed by antiandrogen therapies. However, these approaches are often off-label and generally show only modest efficacy in patients with moderate-to-severe disease^[26].

5.1. Mucocutaneous conditions secondary to IBD treatment

In recent years, an increasing number of reports have indicated that anti-TNF- α agents used in the treatment of IBD may induce mucocutaneous adverse events. Skin lesions induced by TNF- α antagonists include adverse mucocutaneous reactions, infectious complications, and skin malignancies^[1,27]. The frequency of drug-induced cutaneous reactions caused by TNF- α antagonists among patients with IBD ranges from 5 to 10%.

6.1. Cutaneous manifestations secondary to nutritional malabsorption

In patients with IBD, dermatological manifestations may also result from nutritional deficiencies secondary to malabsorption. Cutaneous and mucosal manifestations associated with nutritional deficiencies include exfoliative erythroderma in the course of protein-energy malnutrition, glossitis related to deficiencies of B vitamins, zinc, or iron, angular cheilitis associated with B vitamin deficiencies, pellagra resulting from niacin deficiency, scurvy caused by vitamin C deficiency, and purpura observed in vitamin C and vitamin K deficiencies^[1,28].

Cases of phrynodema have also been reported and may be associated with deficiencies of vitamin A, B vitamins, vitamin C, and essential fatty acids. In addition, patients with nutritional deficiencies may develop seborrheic dermatitis-like lesions, mainly related to B vitamin deficiencies, as well as hair and nail abnormalities, which may accompany deficiencies of protein, iron, B vitamins, including niacin, and vitamin C^[1,28].

Conclusions

Cutaneous and mucocutaneous manifestations represent an important component of the systemic clinical spectrum of inflammatory bowel disease. Their heterogeneous clinical and pathogenetic nature reflects the multidimensional immune processes involved in IBD, including disturbances of innate and adaptive immune responses, dysregulation of cytokine pathways, gut-skin interactions, and the consequences of chronic inflammation.

The clinical relevance of these manifestations results not only from their impact on patients' quality of life, but also from their potential diagnostic and prognostic value. Some lesions, particularly erythema nodosum, may be associated with intestinal inflammatory activity, whereas others, such as pyoderma gangrenosum, metastatic Crohn's disease, or selected drug-induced reactions, may follow a course independent of the activity of the underlying disease. Therefore, assessment of cutaneous lesions should be considered an integral part of the comprehensive clinical evaluation of patients with IBD.

Particular attention should be paid to distinguishing lesions directly related to the underlying disease from reactive manifestations, associated inflammatory skin disorders, treatment-related adverse events, and lesions secondary to malabsorption and nutritional deficiencies. Correct classification of these manifestations has important therapeutic implications, as it may influence the choice of systemic therapy, decisions regarding modification of biological or immunosuppressive treatment, the

Table 2. Skin-related adverse events associated with anti-TNF- α therapy in patients with IBD

Type of adverse event	Clinical manifestations	Management
Injection-site reactions	Erythema, edema, pruritus, pain, urticaria	Cold compresses; analgesics; topical glucocorticoids; oral antihistamines
Eczematous lesions	Xerosis, pruritus, erythema, bacterial superinfection, psoriasiform features	Emollients; topical glucocorticoids; treatment of superinfection; dermatological assessment in severe cases
Paradoxical psoriatic reactions	Plaque psoriasis, palmoplantar pustulosis, scalp lesions	Topical treatment in mild cases; differentiation from classical psoriasis and psoriasiform dermatitis; consideration of biological therapy modification in severe cases
Cutaneous infections	Herpes zoster, erysipelas, HSV, CMV	Prompt diagnosis; antimicrobial treatment; assessment of the need for temporary interruption of immunosuppression; vaccination prophylaxis according to current recommendations
Skin malignancies	Melanoma and non-melanoma skin cancers, including basal cell carcinoma and squamous cell carcinoma	Photoprotection; patient education; periodic dermatological examination and skin cancer screening

Note: Author's own elaboration based on selected studies^[1,27].

need for dermatological intervention, and correction of nutritional deficiencies.

In conclusion, cutaneous and mucocutaneous manifestations in IBD should be regarded as clinically relevant indicators of systemic disease rather than isolated dermatological conditions. Their early recognition requires cooperation between gastroenterologists, dermatologists, and other specialists, and may contribute to earlier diagnosis, improved assessment of disease activity, optimization of treatment, and better comprehensive care of patients with inflammatory bowel disease.

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