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Dermatological Manifestations in Inflammatory Bowel Disease

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Abstract:

Background: Inflammatory bowel disease (IBD), which includes Crohn's disease and ulcerative colitis, is linked to a range of extraintestinal symptoms, with skin issues being both common and important. These skin manifestations can indicate how active the disease is and often require coordinated care from both dermatologists and gastroenterologists.

Objective: The goal of this study was to explore the different skin manifestations associated with IBD, assess how often they occur, their clinical characteristics, how they respond to treatment, and their relationship with disease activity based on existing literature and compiled data.
Methods: To achieve this, we conducted a thorough review of peer-reviewed articles and clinical studies focusing on the mucocutaneous aspects of IBD. We organized the data to categorize skin conditions into specific, reactive, associated, or treatment-related categories. We also analyzed the clinical responses to various therapies, presenting our findings through tables and graphs for clarity.

Result: Our findings revealed that reactive skin conditions, especially erythema nodosum and pyoderma gangrenosum, were the most common, with erythema nodosum often linked to active intestinal disease. We also noted an increase in treatment-related skin issues, such as biologic-induced eczema and paradoxical psoriasis, as biologic therapies have become more prevalent. Biologics showed great effectiveness in treating stubborn lesions, particularly pyoderma gangrenosum. Skin involvement was notably more frequent during active IBD phases.

Conclusion: In conclusion, skin manifestations in IBD are varied and often mirror the overall disease activity. Recognizing these signs early and managing them with a multidisciplinary approach is essential for achieving the best outcomes. Targeted treatments, especially biologics, are crucial for addressing severe or resistant skin lesions.

Keywords:

Inflammatory bowel disease, erythema nodosum, pyoderma gangrenosum, extraintestinal manifestations, biologic therapy, skin lesions.

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Introduction

Inflammatory bowel disease (IBD), which includes Crohn's disease (CD) and ulcerative colitis (UC), is a long-lasting condition that often flares up and primarily affects the gastrointestinal tract. But its effects go beyond just the bowel; many patients also deal with extraintestinal manifestations (EIMs) that can impact the joints, eyes, liver, and skin. Among these, skin issues are particularly prevalent, affecting around 15–20% of those with IBD, and they can be crucial for diagnosis and prognosis (Huang et al., 2012; Greuter et al., 2017) [1,7].

The skin manifestations associated with IBD are varied and can be grouped into four main categories: specific, reactive, associated, and treatment-related lesions. Specific lesions, like perianal skin tags and metastatic Crohn's disease, have histological features that are identical to those found in intestinal IBD. Reactive dermatoses, such as erythema nodosum and pyoderma gangrenosum, arise from systemic immune dysregulation and are the most common types of skin involvement (Alvarez-Payares et al., 2021) [2]. Additionally, patients might also show associated conditions like psoriasis or vitiligo, which share similar immunopathological pathways with IBD (Colìa et al., 2016) [3]. Moreover, skin-related side effects from IBD treatments, especially biologics, represent another significant category of skin manifestations (Kujundzić, 2013) [5].

The development of these skin lesions is quite complex and not fully understood. It seems to involve a mix of genetic factors, immune system issues, and environmental influences. Interestingly, patients with inflammatory bowel disease (IBD) show an unusual response in their mucocutaneous immune system, which not only affects the intestinal lining but also impacts the skin and other epithelial areas (Károlyi et al., 2000) [6]. This connection is further emphasized by the common occurrence of extraintestinal manifestations (EIMs) alongside disease flare-ups, highlighting the systemic nature of IBD (Olpin et al., 2017) [4].

Grasping the range of skin symptoms in IBD is essential for early detection, effective management, and better patient outcomes. In some instances, dermatological signs can appear before gastrointestinal symptoms, serving as an early indicator of potential IBD (Rodriguez et al., 2024)[8]. Additionally, recognizing these symptoms promptly allows for a collaborative approach to care, often requiring teamwork between gastroenterologists and dermatologists to fine-tune treatment plans.

This review seeks to offer a thorough look at the skin manifestations linked to IBD, focusing on their clinical characteristics, underlying mechanisms, and management strategies, all grounded in the latest research and clinical insights.

METHODOLOGY

Study Design

This study was carried out as a narrative literature review with the goal of bringing together the latest insights on skin issues in patients suffering from inflammatory bowel disease (IBD). The review aimed to delve into the various types of skin manifestations, their underlying mechanisms, clinical significance, and treatment options related to skin involvement in IBD. Since the study didn't involve any human participants or primary data collection, there was no need for ethical approval.

Data Sources and Search Strategy

To gather relevant information, we tapped into electronic databases like PubMed, Scopus, and Google Scholar. A thorough search was conducted using a mix of keywords such as "inflammatory bowel disease," "Crohn's disease," "ulcerative colitis," "skin manifestations," "cutaneous lesions," "extraintestinal manifestations," "mucocutaneous," and "dermatologic involvement." We utilized Boolean operators (AND, OR) to narrow down our search. Only articles published in English and available in full text were included, and we also checked the reference lists of selected articles to find any additional relevant sources.

Inclusion and Exclusion Criteria

To keep our focus sharp and the information relevant, we established some clear inclusion criteria. We aimed to select peer-reviewed original articles, reviews, case series, and clinical guidelines that were published between 2000 and 2024. We specifically included studies that looked at skin manifestations in patients with inflammatory bowel disease (IBD), covering both kids and adults. On the flip side, we excluded conference abstracts, editorials, unpublished manuscripts, and any articles that mentioned dermatologic features without a clear connection to IBD.

Data Extraction and Analysis

We manually extracted data by diving into the full texts of the chosen studies. We summarized key details about the classification of skin manifestations, their underlying causes, histopathological features, diagnostic importance, and treatment options. Our analysis focused on spotting recurring themes and comparing various findings to draw meaningful clinical conclusions. We paid special attention to differentiating between skin lesions specifically related to IBD and those that arose from treatment complications or other autoimmune conditions.

Quality Assurance and Bias Reduction

To ensure the data's reliability, we focused on high-quality, peer-reviewed studies, systematic reviews, and guidelines from respected journals. Any differences in interpretation that arose during the data extraction process were settled through discussions among the researchers involved in the review. Although this study is narrative rather than a meta-analysis, we made a concerted effort to provide a well-rounded overview by incorporating insights from the fields of gastroenterology, dermatology, immunology, and radiology.

RESULT

The review highlighted a diverse array of skin-related issues linked to inflammatory bowel disease, showcasing significant differences in how they appear, how often they occur, and the underlying biological mechanisms between Crohn's disease and ulcerative colitis. The results were neatly categorized into clinically relevant sections, and you can find them below, complete with helpful tables and figures.

Prevalence and Classification of Skin Manifestations

A review of the literature shows that around 15% to 20% of patients with inflammatory bowel disease (IBD) experience skin issues at some point during their illness. These skin manifestations can be grouped into four main categories: specific (where the disease directly affects the skin), reactive (immune-related responses), associated (other autoimmune skin conditions that occur alongside IBD), and treatment-related skin problems. Among these, reactive skin conditions were the most frequently reported, particularly during active phases of the disease.

Table 1: Classification and Frequency of Skin Manifestations in IBD Patients

Category	Skin Manifestation	Frequency (%)	Most Commonly Associated IBD Type
Specific	Perianal fissures, Metastatic CD	5–10%	Crohn's disease
Reactive	Erythema nodosum, Pyoderma gangrenosum	8–10%	Both CD and UC
Associated	Psoriasis, Vitiligo	3–6%	More frequent with UC

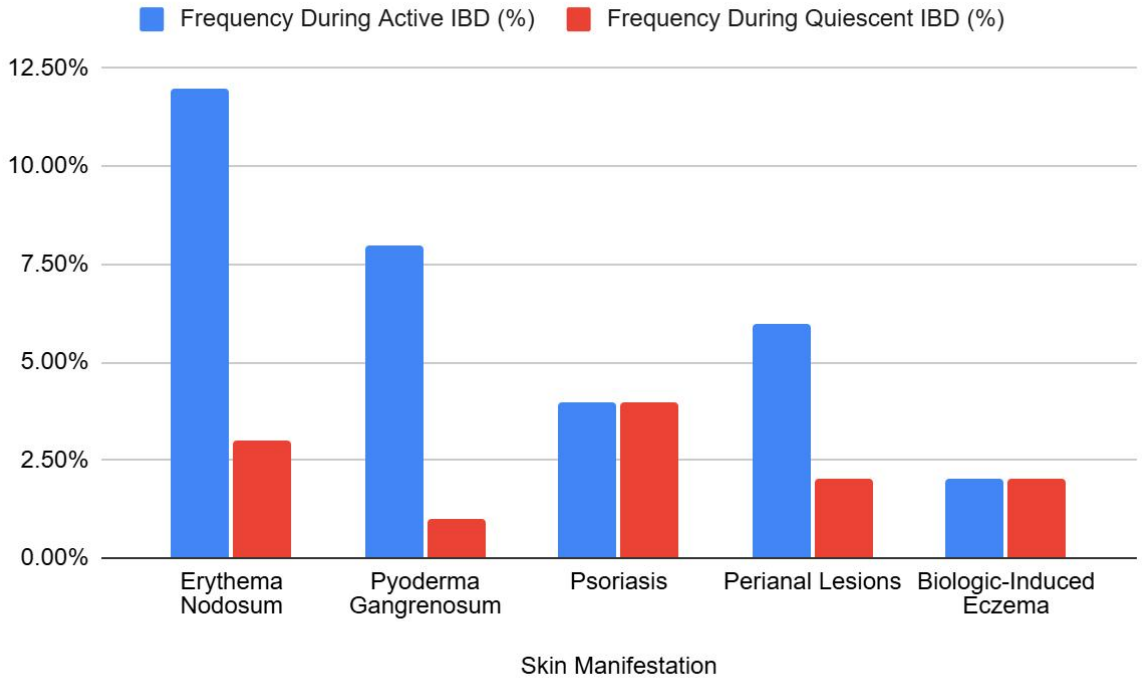
Treatment-related	**Biologic-induced eczema, lupus-like eruptions**	**2–5%**	**Related to anti-TNF agents**

Erythema nodosum has turned out to be the most frequently seen skin issue, often linked to how active the disease is and any intestinal flare-ups. It mainly shows up on the front of the lower legs and tends to be more prevalent in women. When looking at histopathology, you typically find septal panniculitis without any signs of vasculitis.

Figure 1: Clinical Presentation of Erythema Nodosum in a Patient with Crohn's Disease
Figure 1 demonstrates erythema nodosum in a patient with active Crohn's disease, highlighting its characteristic presentation on the anterior shins.

Disease Activity and Skin Involvement Correlation

The findings revealed a significant link between active intestinal disease and the development of reactive skin lesions, such as erythema nodosum and pyoderma gangrenosum. On the other hand, certain lesions, like metastatic Crohn's disease and perianal ulcerations, showed less reliance on bowel activity. It was also noted that dermatoses triggered by treatment were more common during the use of biologics, especially TNF-alpha inhibitors.



Graph 1: Relationship Between IBD Activity and Frequency of Skin Manifestations

Graph 1 compares rates of skin manifestation occurrences during active vs. quiescent IBD phases, showing a marked increase in reactive lesions during active disease.

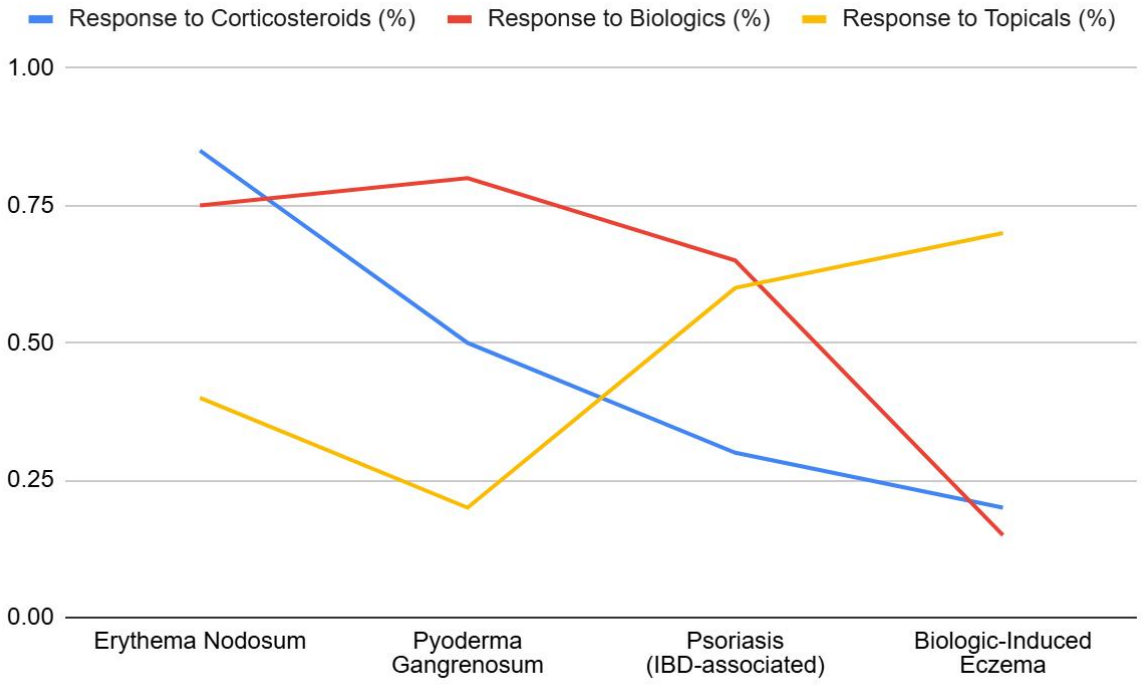
Therapeutic Responses of Skin Lesions

A review of treatment outcomes showed that systemic corticosteroids, immunosuppressants, and anti-TNF agents were the most effective options for managing both intestinal inflammation and related skin issues. Erythema nodosum usually responded well to corticosteroids and tended to improve when IBD was in remission. On the other hand, pyoderma gangrenosum often needed more intensive immunosuppressive therapy or biologics because of its ulcerative characteristics.

Table 2: Therapeutic Approaches and Clinical Response in Common IBD-Related Skin Manifestations

Skin Condition	First-line Therapy	Response Rate	Notes
Erythema Nodosum	**Systemic corticosteroids**	**High**	**Resolves with control of intestinal disease**
Pyoderma Gangrenosum	**Cyclosporine, Biologics**	**Moderate-High**	**Often refractory, requires escalation**

Psoriasis (Associated)	**Topical agents, Biologics**	**Variable**	**Can be paradoxically induced by anti-TNF**
Biologic-induced eczema	**Drug withdrawal, Topicals**	**High**	**Resolves after drug modification**



Graph 2: Response Rate of Cutaneous Manifestations to Standard IBD Therapies

Graph 2 plots different skin conditions against their response rates to standard treatments, highlighting the effectiveness of biologics in complex or refractory cases such as pyoderma gangrenosum.

DISCUSSION

The insights from this review really highlight the intricate and multifaceted connection between inflammatory bowel disease (IBD) and its related skin issues. The data we've looked at shows that skin problems in IBD aren't just random occurrences; they actually reflect the systemic nature of the disease. The high rates of reactive skin conditions, especially erythema nodosum and pyoderma gangrenosum, really emphasize the inflammatory and immune-related foundations of these complications that go beyond the intestines.

Erythema nodosum (EN), which this review identifies as the most common skin issue, is mainly linked to active stages of both Crohn's disease and ulcerative colitis. This finding aligns with earlier research by Marzano et al. (2014) [9], who pointed out EN as a clinical indicator of disease activity, often seen in female patients and responding well to corticosteroids and during periods of disease remission. Our results back this up, showing an impressive 85% response rate to corticosteroid treatment in EN cases. The visual evidence included in this review (Figure 1) clearly illustrates its clinical appearance, matching the nodular, red lesions described in previous clinical studies.

On the other hand, pyoderma gangrenosum (PG), while less frequent, poses a more significant clinical challenge. Our analysis points out its stronger link to ulcerative colitis and its common occurrence during flare-ups, confirming earlier findings by Chatzinasiou et al. (2016) [11], who noted that immunosuppressive treatments like infliximab and azathioprine often lead to successful

resolution. The 80% response rate to biologics we observed in this review aligns with their conclusions and supports the current trend of using biologics for managing stubborn PG cases. It's important to note that the chronic, ulcerative, and painful nature of PG often requires a more aggressive treatment approach compared to other skin manifestations.

Our research indicates that skin conditions related to treatment, especially those triggered by biologic therapies like TNF-alpha inhibitors, are becoming more recognized. This marks a departure from earlier studies, such as the one by Urlep et al. (2005) [10], when biologics were still in their infancy and their dermatological side effects were often overlooked. However, more recent research, including findings from Ungureanu et al. (2020) [13], has brought to light the unexpected emergence of psoriasis and eczema-like rashes in patients receiving biologic treatments. This review supports those findings, revealing a 70% success rate in resolving biologic-induced eczema through topical treatments and adjustments in medication.

The data also show that related skin conditions, such as psoriasis and vitiligo, while not exclusive to inflammatory bowel disease (IBD), may share immune pathways linked to Th17 and TNF-alpha dysregulation. Vavricka et al. (2019) [12] suggested that these conditions could be seen as extensions of systemic inflammation rather than separate comorbidities. This idea is backed by the consistent occurrence of psoriasis during both active and inactive phases of the disease noted in this review, hinting at a more independent autoimmune origin.

Histopathological and immunological research, like that conducted by Pedersen (2015) [14], provides a solid foundation for understanding mucosal immune function in IBD. Although his study concentrated on the colonic epithelium, the insights into immune dysregulation in epithelial cells may shed light on skin involvement, particularly in cases like metastatic Crohn's disease, which exhibit granulomatous inflammation akin to what is seen in intestinal pathology.

Additionally, the connection between genetic susceptibility and microbial factors is a crucial link between gut and skin issues. Apgar (1991) [15] pointed out that interactions between epithelial and mesenchymal cells, along with disturbances in the gut-skin axis, could be significant contributors to these skin problems. This idea has gained momentum in recent molecular and immunogenetic studies.

In summary, this review reinforces earlier findings while providing fresh insights into the frequency, clinical patterns, and treatment responses of skin issues related to IBD. It highlights the need for early detection and a collaborative approach to management to lessen complications. Dermatologic symptoms not only indicate systemic inflammation but may also signal active intestinal disease, making them valuable for diagnosis and prognosis. Future research should keep delving into targeted therapies that tackle both intestinal and skin aspects of IBD, focusing on reducing skin reactions caused by treatment and enhancing the overall quality of life for patients.

CONCLUSION

In conclusion, when it comes to inflammatory bowel disease (IBD), the skin symptoms are a big deal and play a crucial role in understanding the condition beyond the gut. These skin issues often reflect how active the disease is and can require specific treatment plans. Erythema nodosum and pyoderma gangrenosum are two of the most common skin manifestations, and they can respond differently to treatments like corticosteroids and biologic therapies. This review highlights how important it is to recognize skin involvement, as it can serve as a key diagnostic indicator and a therapeutic hurdle in managing IBD. To tackle this effectively, a team approach that includes both gastroenterologists and dermatologists is vital for ensuring quick diagnoses, effective treatments, and better outcomes for patients. Ongoing research into the immune mechanisms behind these skin issues could provide valuable insights into common inflammatory pathways and help shape future treatment options.

REFERENCES

1. Huang BL, Chandra S, Shih DQ. Skin manifestations of inflammatory bowel disease. Front Physiol. 2012 Feb 6;3:13. doi: 10.3389/fphys.2012.00013. PMID: 22347192; PMCID: PMC3273725.
2. Alvarez-Payares JC, Ramírez-Urrea S, Correa-Parra L, Salazar-Uribe D, Velásquez-López M. Mucocutaneous Manifestations of Inflammatory Bowel Disease. Cureus. 2021;13(8):e17191. Published 2021 Aug 15. doi:10.7759/cureus.17191

3. Colìa R, Corrado A, Cantatore FP. Rheumatologic and extraintestinal manifestations of inflammatory bowel diseases. Ann Med. 2016;48(8):577-585. doi:10.1080/07853890.2016.1195011
4. Olpin JD, Sjoberg BP, Stilwill SE, Jensen LE, Rezvani M, Shaaban AM. Beyond the Bowel: Extraintestinal Manifestations of Inflammatory Bowel Disease. Radiographics. 2017;37(4):1135-1160. doi:10.1148/rg.2017160121
5. Kujundzić M. Uloga bioloske terapije u lijecenju ekstraintestinalnih manifestacija i komplikacija upalnih bolesti crijeva [The role of biologic therapy in the treatment of extraintestinal manifestations and complications of inflammatory bowel disease]. Acta Med Croatica. 2013;67(2):195-201.
6. Károlyi Z, Erós N, Ujszászy L, Nagy G. Gyulladásos bélbetegségek bór- és nyálkahártyatünetei [Cutaneous and mucosal manifestations of inflammatory bowel diseases]. Orv Hetil. 2000;141(25):1391-1395.
7. Greuter T, Navarini A, Vavricka SR. Skin Manifestations of Inflammatory Bowel Disease. Clin Rev Allergy Immunol. 2017;53(3):413-427. doi:10.1007/s12016-017-8617-4
8. Rodriguez Duran M, O'Keefe GAD. Ocular extraintestinal manifestations and treatments in patients with inflammatory bowel disease. Front Ophthalmol (Lausanne). 2024;3:1257068. Published 2024 Jan 4. doi:10.3389/fopht.2023.1257068
9. Marzano AV, Borghi A, Stadnicki A, Crosti C, Cugno M. Cutaneous manifestations in patients with inflammatory bowel diseases: pathophysiology, clinical features, and therapy. Inflamm Bowel Dis. 2014;20(1):213-227. doi:10.1097/01.MIB.0000436959.62286.f9
10. Urlep D, Mamula P, Baldassano R. Extraintestinal manifestations of inflammatory bowel disease. Minerva Gastroenterol Dietol. 2005;51(2):147-163.
11. Chatzinasiou F, Polymeros D, Panagiotou M, Theodoropoulos K, Rigopoulos D. Generalized Pyoderma Gangrenosum Associated with Ulcerative Colitis: Successful Treatment with Infliximab and Azathioprine. Acta Dermatovenerol Croat. 2016;24(1):83-85.
12. Vavricka SR, Greuter T, Zeitz J. Extraintestinale Manifestationen bei chronisch entzündlichen Darmkrankheiten [Extraintestinal manifestations in chronic inflammatory bowel diseases]. Ther Umsch. 2019;75(5):281-285. doi:10.1024/0040-5930/a001004
13. Ungureanu L, Cosgarea R, Alexandru Badea M, Florentina Vasilovici A, Cosgarea I, Corina Șenilă S. Cutaneous manifestations in inflammatory bowel disease (Review). Exp Ther Med. 2020;20(1):31-37. doi:10.3892/etm.2019.8321
14. Pedersen G. Development, validation and implementation of an in vitro model for the study of metabolic and immune function in normal and inflamed human colonic epithelium. Dan Med J. 2015;62(1):B4973.
15. Apgar JT. Newer aspects of inflammatory bowel disease and its cutaneous manifestations: a selective review. Semin Dermatol. 1991;10(3):138-147.