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CASE REPORT

Progressive Evolution of Ulcerative Colitis Toward Axial Spondyloarthritis and Pyoderma Gangrenosum: Case Report and Critical Literature Review

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Introduction

Inflammatory bowel disease (IBD) is a chronic inflammatory condition of multifactorial etiology that primarily includes ulcerative colitis (UC) and Crohn's disease (CD).[1] UC affects the colonic mucosa in a continuous pattern, whereas CD is characterized by a patchy, transmural involvement that can affect any segment of the gastrointestinal tract.[1] Both entities typically follow a relapsing–remitting course and are associated with extraintestinal manifestations in up to 36% of cases, musculoskeletal involvement being the most frequent.[2,3]

The association between IBD and arthropathies has been recognized since the late 19th century. It is now understood that peripheral arthritis and IBD-related spondyloarthritis are part of the spectrum of seronegative spondyloarthritides, although HLA-positive variants have also been described.[4,5] Peripheral arthritis is usually oligoarticular, asymmetric, and predominantly affects the lower limbs, while ankylosing spondylitis and sacroiliitis associated with IBD may progress independently of intestinal activity.[6,7] Genetic factors such as HLA-B27 and CARD15 polymorphisms, as well as mucosal immune mechanisms, have been implicated in the shared pathophysiology.[8,9]

In parallel, IBD is associated with several dermatological manifestations. Among these, pyoderma gangrenosum (PG) is an ulcerative neutrophilic dermatosis—rare but clinically significant—reported in up to 12% of IBD patients, most commonly in those with UC.[10,11] PG presents as painful ulcers with violaceous borders and a chronic, relapsing course, whose pathogenesis involves innate immune dysfunction,

abnormal neutrophilic recruitment, and overexpression of proinflammatory cytokines.[12,13]

The management of extraintestinal manifestations in IBD remains a clinical challenge. Corticosteroids and immunomodulators are first-line therapies; however, anti-TNF biologics such as infliximab have demonstrated efficacy in simultaneously controlling intestinal inflammation, associated arthritis, and PG.[14–17] Clinical reports have even documented complete remission of refractory cutaneous lesions and significant improvement in IBD-associated spondyloarthritis following infliximab initiation.[18,19]

Given the complexity of these patients, a multidisciplinary approach involving gastroenterology, rheumatology, and dermatology—with close monitoring of both intestinal and extraintestinal disease activity—is strongly recommended.[20,21]

In this context, we present the case of a patient with ulcerative colitis, axial and peripheral spondyloarthritis, and pyoderma gangrenosum treated with infliximab, illustrating the clinicopathogenic interaction between IBD and its extraintestinal manifestations, as well as the importance of biologic therapy in comprehensive management.

Case Description

A 54-year-old woman with no significant medical history presented to the emergency department in July 2023 with recurrent episodes of hematochezia. After gastroenterological evaluation and colonoscopy, ulcerative colitis was diagnosed, and oral mesalazine therapy was initiated at 3 g/day.

In October 2023, she developed inflammatory joint pain involving the cervical region, right hand, and both ankles, accompanied by left Achilles tendon enthesitis and tibiotalar synovitis. On physical examination, gluteal tenderness was elicited on palpation, although Patrick's and sacroiliac stress tests were negative. Laboratory investigations revealed elevated acute-phase reactants (CRP and ESR), negative rheumatoid factor, and MRI of the sacroiliac joints showing bilateral sacroiliitis. Based on her prior IBD history and clinical–radiological findings, a diagnosis of IBD-associated spondyloarthritis was established. Following multidisciplinary discussion, infliximab therapy was initiated.

Throughout 2024, the patient received mesalazine, oral prednisolone, and anti-TNF therapy, achieving partial improvement in both joint and intestinal symptoms. In January 2025, after a temporary discontinuation of treatment, she experienced exacerbation of hematochezia and developed a painful ulcer on the lateral aspect of the right thigh, with violaceous, irregular borders, an inflammatory halo, and a necrotic–granulating base with abundant exudate, consistent with ulcerative pyoderma gangrenosum. Figures 1 and 2

On June 10, 2025, a skin biopsy was performed, revealing chronic spongiotic dermatitis with a plasmacytic inflammatory infiltrate, supporting the clinical diagnosis of PG. High-dose prednisolone (50 mg/day) was initiated, followed by gradual tapering to 20 mg/day, and infliximab dosing was optimized to 300 mg every 8 weeks.

Follow-up evaluations demonstrated significant clinical improvement, with resolution of left Achilles enthesitis, decreased right ankle edema, and progressive closure of the ulcerative lesion. Objective improvement in disease activity was confirmed with BASDAI and BASFI scores of 2.2 and 0.6, respectively. Figure 3

Case Discussion

Extraintestinal manifestations of IBD are common and may precede, coincide with, or follow intestinal activity.[1,2] Musculoskeletal involvement is the most frequent, affecting an estimated 20–30% of patients with UC or CD.[3,4] In this case, the patient presented inflammatory joint pain, enthesitis, and bilateral sacroiliitis confirmed by MRI—findings consistent with IBD-associated spondyloarthritis, which belongs to the spectrum of seronegative spondyloarthritides.[5,6]

The link between IBD and arthritis was recognized in the early 20th century, and subsequent studies have identified shared inflammatory pathways.[7,8] Genetic factors such as HLA-B27 positivity and polymorphisms in NOD2/CARD15 genes promote dysregulated activation of proinflammatory pathways and lymphocyte trafficking between the intestinal mucosa and synovium.[9,10] Peripheral arthritis in IBD tends to parallel intestinal activity, whereas axial spondyloarthritis may evolve independently,[11,12] explaining persistent axial pain despite adequate control of intestinal inflammation.

The patient also developed pyoderma gangrenosum, an uncommon but clinically relevant cutaneous complication observed in 1–12% of IBD cases, particularly UC.[13,14] PG is characterized by painful ulcers with violaceous borders and a chronic–relapsing course. Its pathophysiology involves neutrophil dysfunction, cytokine overexpression, and autoinflammatory mechanisms.[15,16]

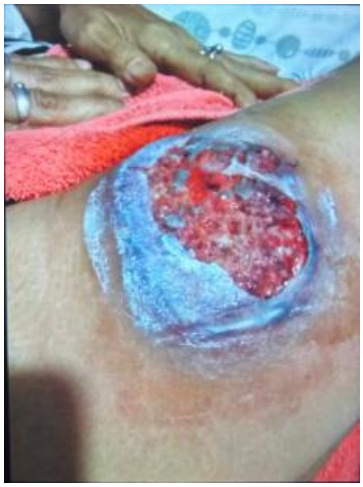

Figure 1. Lesion on the lateral aspect of the right thigh.

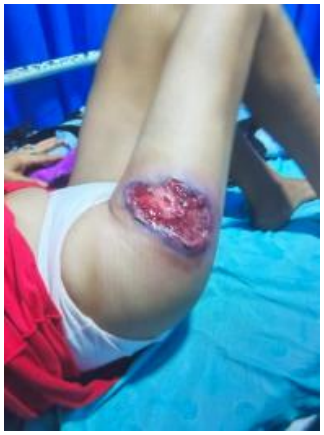

Figure 2. Lesion on the lateral aspect of the right thigh.

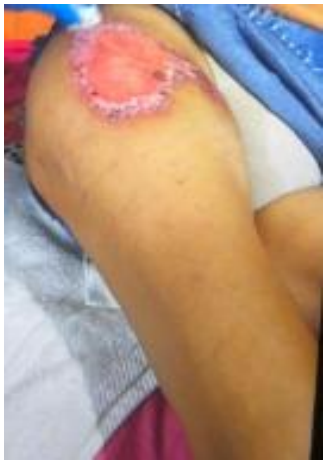

Figure 3. Follow-up of the lesion on the lateral aspect of the right thigh after initiation of biological therapy with infliximab and oral corticosteroids.

The coexistence of PG and spondyloarthritis in a UC patient, as in this case, underscores the complex immunological spectrum of IBD.

Management of PG and IBD-associated spondyloarthritis poses a significant therapeutic challenge. Conventional treatment with systemic corticosteroids and immunomodulators often provides limited efficacy and is associated with frequent relapses.[17] In this setting, anti-TNF biologics, particularly infliximab, have demonstrated substantial benefits. Clinical trials and case reports have documented remission of PG lesions and improvement in both peripheral and axial arthritis associated with UC, even in refractory cases.[18,19] In our patient, infliximab optimization led to improvement in hematochezia and spondyloarthritis control, although the skin lesion persisted partially—consistent with literature describing heterogeneous therapeutic responses.[20]

The literature emphasizes that therapeutic success in these complex patients relies on a multidisciplinary approach. Gastroenterology, rheumatology, and dermatology teams must coordinate clinical evaluation and therapeutic adjustments. Follow-up using validated indices such as BASDAI and BASFI for spondyloarthritis, along with periodic monitoring of inflammatory markers and colonoscopic assessment in UC, is essential for evaluating treatment response and prognosis.[21]

In summary, this case illustrates the complexity of IBD with extraintestinal manifestations. The coexistence of UC, spondyloarthritis, and PG highlights the need to understand the immunological interplay of these processes and the role of biologic agents such as infliximab in simultaneously modulating multiple systemic manifestations.

Conclusion

Inflammatory bowel disease may present with extraintestinal manifestations that significantly affect patients' quality of life and prognosis.[1–3] Among these, associated spondyloarthritis and pyoderma gangrenosum represent diagnostic and therapeutic challenges, as they may progress parallel to or independently from intestinal disease activity. [4–6,13]

This case underscores the importance of an interdisciplinary approach, with coordinated participation of gastroenterology, rheumatology, and dermatology, to achieve an integrated diagnosis and optimized management.[20,21] Introduction of infliximab resulted in control of colitis and improvement of spondyloarthritis, although partial persistence of the cutaneous lesion reflects the heterogeneity of therapeutic responses reported in the literatura.[18,19]

This case reinforces the need to view IBD as a systemic disease extending beyond the gastrointestinal tract, and to proactively evaluate patients for arthritis, enthesitis, and dermatologic manifestations. Furthermore, it highlights the pivotal role of anti-TNF biologic agents in refractory scenarios, while emphasizing that follow-up should incorporate validated assessment tools and close monitoring of both intestinal and extraintestinal inflammatory activity.

In conclusion, the coexistence of ulcerative colitis, spondyloarthritis, and pyoderma gangrenosum exemplifies the immunological complexity of IBD and the necessity of personalized, multidisciplinary management, in which biologic therapy serves as a cornerstone for achieving remission and improving patient quality of life.

Disclaimer (Artificial Intelligence)

None.

Consent

It is not applicable.

Ethical Approval

None.

Competing Interests

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