



# CASE REPORT

## **Crohn's Disease with Pyoderma Gangrenosum: A Marker of Severity of Disease**

Sadaf Farooqi, M.D.

William J. Salyers, M.D., M.P.H.

University of Kansas

School of Medicine-Wichita

Department of Internal Medicine

Wichita, KS

### **Introduction**

Crohn's disease is a chronic inflammatory disorder which is distinct from other inflammatory bowel conditions, such as ulcerative colitis, in its ability to involve the GI tract anywhere from mouth to perianal area.<sup>1</sup> It was long thought as a disease limited to the gastrointestinal tract usually presenting with chronic diarrhea, abdominal pain, weight loss, rectal bleeding, and fever. Intestinal complications include obstruction, fistulas, abscesses, toxic megacolon, malabsorption, and colorectal cancers. Other extra-intestinal modes of presentation, such as upper respiratory tract involvement, retinal detachment, arthritis, hepatobiliary involvement, erythema nodosum, pyoderma gangrenosum, spondylitis, and delayed growth, sometimes are the key to binding multi-system-associated symptoms into the diagnosis of Crohn's disease.<sup>2</sup> These may sometimes pre-date bowel symptoms by several weeks or even years or develop during the course of active bowel disease. Presentation with extra-intestinal symptoms may result in delayed or missed diagnosis.

Pyoderma gangrenosum is a rare neutrophilic noninfectious dermatosis. Etiology remains unclear, however, inflammatory bowel disease is the most common underlying disorder associated with it. The presence of pyoderma gangrenosum usually is a predictor of severity of gastrointestinal disease even without apparent manifestations.<sup>3</sup>

### **Case Report**

A 52-year-old male with Crohn's disease presented with multiple bilateral leg ulcers below the knee (Figure 1). His Crohn's disease was diagnosed 15 years prior and he was taking sulfasalazine. He presented with bleeding from right leg ulcers and bilateral moderate to severe pain. He had episodes of diarrhea seven days before presentation with watery stools 3-4 times daily, which resolved on its own. He had chronic soft stools and not had formed bowel movement for many years. He denied any blood in his stools. He complained of decreased appetite and episodes of intermittent nausea but no vomiting.

On examination, the patient was afebrile and tachycardic with mildly elevated blood pressure. The oropharynx was free of ulcers and erosions. Abdominal examination revealed an obese, nontender abdomen with bowel sounds. Rectal examination was negative for any ulcers or bleeding. The lower extremities were characterized by multiple, irregular, purulent bleeding ulcers below the knee covering both legs circumferentially.

The laboratory evaluation was significant for leukocytosis with 23% bands. The fecal occult blood test was positive for blood. His C-reactive protein and erythrocyte sedimentation rate (ESR) were elevated. Hepatitis serologies and blood cultures were negative. Wound cultures were positive for staphylococcus aureus and



Figure 1. Bilateral pyoderma gangrenosum ulcers with circumferential involvement in both legs.

pseudomonas. The Crohn's Disease Activity Index (CDAI) was 232, indicative of disease activity to be in moderate to severe range.

In light of the leukocytosis, the patient was started on intravenous vancomycin and piperacillin/tazobactam along with debridement of wounds with daily dressing changes. Colonoscopy revealed mucosal changes with ulceration and severe congestion as well as pseudopolyp formation within the mid to distal transverse colon, ascending colon, and cecum. The terminal ileum was spared. Biopsies showed evidence of chronic active inflammation, focal acute cryptitis, crypt abscess, aphthous ulcers, and basal lymphoid aggregate with no evidence of dysplasia or granuloma. Rectum and terminal ileum generally were spared.

The patient was switched to cephalexin, ciprofloxacin, and prednisone after completion of seven days of intravenous antibiotics. His leg ulcers improved with prednisone and he was to be started on infliximab after the bacterial infection was resolved. QuantiFERON® testing for latent tuberculosis was indeterminate twice and he was started on antituberculous therapy

before infliximab could be initiated. However, his leg ulcers healed and follow-up laboratory evaluation reflected this clinical improvement as evidenced by improvement in anemia, leucocytosis, and erythrocyte sedimentation rate.

### Discussion

Crohn's disease is part of the group of inflammatory bowel diseases associated with the NOD2 gene contributing to an inappropriate hyperactive response to intestinal microbes.<sup>4</sup> The disease course has relapsing and remitting episodes of multiple gastrointestinal manifestations from oropharynx to anus, with the ileum and colon more commonly involved. Crohn's disease is associated with multiple systemic symptoms such as arthritis, anemia, malnutrition, and skin manifestations like pyoderma gangrenosum.

First described in 1930, pyoderma gangrenosum is a non-infectious neutrophilic dermatosis.<sup>5</sup> The condition has an idiopathic form as well as one associated with an underlying disease such as inflammatory bowel disease, arthritis, hemato-

logical disease, human immunodeficiency syndromes, and solid tumors.<sup>5,6</sup> Pyoderma gangrenosum is associated with ulcerative colitis, but is rare in Crohn's disease. Pyoderma gangrenosum adds 20 points to the CDAI which includes signs and symptoms, such as the number of bowel movements, abdominal pain, and anemia, and complications, such as arthritis, anal fissure, uveitis, and pyoderma gangrenosum.

Erythema nodosum, on the other hand, occurs more commonly in Crohn's disease.<sup>6</sup> Pyoderma gangrenosum usually begins with fluctuant nodules and an inflammatory halo which expands peripherally to form an ulcer. The ulcer may progress with irregular or sharply circumscribed violaceous raised edges to any of the four prototypic forms: ulcerative, pustular, bullous, or vegetative. The lower extremities and the trunk are most affected sites.<sup>7</sup> Each form may develop into another type or become ulcerative.<sup>8</sup> The diagnosis does not depend on histological biopsy and a clinical-histological approach

is required to make the diagnosis and to exclude other ulcerative processes.<sup>9</sup>

The first line of treatment for pyoderma gangrenosum is the use of systemic corticosteroids like methylprednisolone, together with treatment of any underlying cause.<sup>10</sup> Many therapeutic approaches like cyclosporine, mycophenolate mofetil, azathioprine, and tumor necrosis factor-alpha (TNF-alpha) inhibitors are used, however, they have inconsistent results. A common problem is repeated flare-ups in patients with Crohn's disease who become resistant to once stable therapy or become refractory to first line agents (e.g., glucocorticoids, 5-ASAs, and antibiotics). They have relapsing events, such as pyoderma gangrenosum, with repeated episodes of gastrointestinal symptoms.<sup>11</sup> Treatment options like infliximab, azathioprine, and 6-mercaptopurine show increased efficacy, with maintenance of remission, and improvement in quality of life in moderate to severe Crohn's disease refractory to conventional treatment.<sup>12</sup>

## References

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