

Peristomal Pyoderma Gangrenosum at an Ileostomy Site

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PRACTICE POINTS

- A pyoderma gangrenosum subtype occurs in close proximity to an abdominal stoma.
- Peristomal pyoderma gangrenosum is a diagnosis of exclusion.
- Peristomal pyoderma gangrenosum typically responds best to tumor necrosis factor α blockers and corticosteroid therapy (intralesional and systemic).

To the Editor:

Peristomal pyoderma gangrenosum (PPG) is a rare entity first described in 1984.¹ Lesions usually begin as pustules that coalesce into an erythematous skin ulceration that contains purulent material. The lesion appears on the skin that surrounds an abdominal stoma. Peristomal pyoderma gangrenosum typically is associated with Crohn disease and ulcerative colitis, cancer, blood dyscrasia, diabetes mellitus, and hepatitis.² We describe a case of PPG following an ileostomy in a patient with colon cancer and a related history of Crohn disease.

A 32-year-old woman presented to a dermatology office with a spontaneously painful, 3.2-cm ulceration that was extremely tender to palpation, located immediately adjacent to the site of an ileostomy (Figure). The patient had a history of refractory constipation that failed to respond to standard conservative measures 4 years prior. She underwent a colonoscopy, which revealed a 6.5-cm, irregularly shaped, exophytic mass in the rectosigmoid

portion of the colon. Histopathologic examination of several biopsies confirmed the diagnosis of moderately well-differentiated adenocarcinoma, and additional evaluation determined the cancer to be stage IIB. She had a medical history of pancolonic Crohn disease since high school that was treated with periodic infusions of infliximab at the standard dose of 5 mg/kg. Colon cancer treatment consisted of preoperative radiotherapy, complete colectomy with ileoanal anastomosis, and creation of a J-pouch and formation of a temporary ileostomy, along with postoperative capecitabine chemotherapy.



Peristomal pyoderma gangrenosum immediately adjacent to an ileostomy site.

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The ileostomy eventually was reversed, and the patient did well for 3 years. When the patient developed severe abdominal pain, the J-pouch was examined and found to be remarkably involved with Crohn disease. However, during the colonoscopy, the J-pouch was inadvertently punctured, leading to the formation of a large pelvic abscess. The latter necessitated diversion of stool, and the patient had the original ileostomy recreated.

Prior to presentation to dermatology, various consultants suspected the ulceration was possibly a deep fungal infection, cutaneous Crohn disease, a factitious ulceration, or acute allergic contact dermatitis related to some element of ostomy care. However, dermatologic consultation suggested that the troublesome lesion was classic PPG and recommended administration of a tumor necrosis factor (TNF) α -blocking agent and concomitant intralesional injections of dilute triamcinolone acetonide.

The patient was treated with subcutaneous adalimumab 40 mg once weekly, and received near weekly subcutaneous injections of triamcinolone acetonide 10 mg/mL. After 2 months, the discomfort subsided, and the ulceration gradually resolved into a depressed scar. Eighteen months later, the scar was barely perceptible as a minimally erythematous depression. Adalimumab ultimately was discontinued, as the residual J-pouch was removed, and the biologic drug was associated with extensive alopecia areata-like hair loss. There has been no recurrence of PPG in the 40 months since clinical resolution.

Peristomal pyoderma gangrenosum is an uncommon subtype of pyoderma gangrenosum, which is characterized by chronic, persistent, or recurrent painful ulceration(s) close to an abdominal stoma. In total, fewer than 100 cases of PPG have been reported thus far in the readily available medical literature.³ Inflammatory bowel disease (IBD) is the most frequently diagnosed systemic condition associated with PPG, though other associated conditions include diverticular disease, abdominal malignancy, and neurologic dysfunction. Approximately 2% to 4.3% of all patients who have stoma creation surgery related to underlying IBD develop PPG. It is estimated that the yearly incidence rate of PPG in all abdominal stomas is quite low (approximately 0.6%).⁴

Peristomal pyoderma gangrenosum can occur at any age, but it tends to predominate in young to middle-aged adults, with a slight female predilection. The etiology and pathogenesis of PPG are largely unknown, though studies have shown that an abnormal immune response may be critical to its development. Risk factors for PPG are not well defined but potentially include autoimmune disorders, a high body mass index, and females or African Americans with IBD.⁴ Because PPG does not have characteristic histopathologic features, it is a diagnosis of exclusion that is based on the clinical examination and histologic findings that rule out other potential disorders.

There are 4 types of PPG based on the clinical and histopathologic characteristics: ulcerative, pustular, bullous,

and vegetative. Peristomal pyoderma gangrenosum tends to be either ulcerative or vegetative, with ulcerative being by far the predominant type. The onset of PPG is quite variable, occurring a few weeks to several years after stoma formation.⁵ Ulcer size can range from less than 3 cm to 30 cm.⁴ Lesions begin as deep painful nodules or as superficial hemorrhagic pustules, either idiopathic or following ostensibly minimal trauma. Subsequently, they become necrotic and form an ulceration. The ulcers can be single or multiple lesions, typically with erythematous raised borders and purulent discharge. The ulcers are extremely painful and rapidly progressive. After the ulcers heal, they often leave a characteristic weblike atrophic scar that can break down further following any form of irritation or trauma.⁵

A prompt diagnosis of PPG is important. A diagnosis of PPG should be considered when dealing with a non-infectious ulcer surrounding a stoma in patients with IBD or other autoimmune conditions.⁶ Because PPG is a rare skin disorder, it is likely to be missed and lead to unnecessary diagnostic workup and a delay in proper therapy. In our patient, a diagnosis of PPG was overlooked for other infectious and autoimmune causes. The diagnostic evaluation of a patient with PPG is based on 3 principles: (1) ruling out other causes of a peristomal ulcer, such as an abscess, contact dermatitis, or wound infection; (2) determining whether there is an underlying intestinal bowel disease in the stoma; and (3) identifying associated systemic disorders such as vasculitis, erythema nodosum, or similar processes.⁴ The differential diagnosis depends on the type and stage of PPG and can include malignancy, vasculitis, extraintestinal IBD, infectious disease, and insect bites. A review of the history of the ulcer is helpful in ruling out other diseases, and a colonoscopy or ileoscopy can identify if patients have an underlying active IBD. Swabs for smear and both bacterial and fungal cultures should be taken from the exudate and directly from the ulcer base. Biopsy of the ulcer also helps to exclude alternative diagnoses.⁶

The primary goals of treating PPG include to reduce pain and the risk for secondary infection, increase pouch adherence, and decrease purulent exudate.⁷ Although there is not one well-defined optimal therapeutic intervention, there are a variety of effective approaches that may be considered and used. In mild cases, management methods such as dressings, topical agents, or intralesional steroids may be capable of controlling the disease. Daily wound care is important. Moisture-retentive dressings can control pain, induce collagen formation, promote angiogenesis, and prevent contamination. Cleaning the wound with sterile saline and applying an anti-infective agent also may be effective. Application of ultrapotent topical steroids and tacrolimus ointment 0.3% can be used in patients without concomitant secondary infection. In patients who are in remission, human platelet-derived growth factor may be used. Intralesional injections of dilute triamcinolone acetonide or cyclosporine solution also can be helpful.

Cyclosporin A was used as a systemic monotherapy to treat a 48-year-old man and 50-year-old woman with the idiopathic form of PPG. After 3 months of treatment, PPG had completely resolved and there were no major side effects.⁸ Other potential topical therapies that control inflammation and promote wound healing include benzoyl peroxide, chlormethine (topical alkylating agent and nitrogen mustard that has anti-inflammatory properties), nicotine, and 5-aminosalicylic acid. If an ulcer becomes infected, empiric antibiotic therapy should be given immediately and adjusted based on culture and sensitivity results.⁴

Systemic therapy should be considered in patients who do not respond to topical or local interventions, have a rapid and severe course, or have an active underlying bowel disease. Oral prednisone (1 mg/kg/d) has proved to be one of the most successful drugs used to treat PPG. Treatment should be continued until complete lesion healing, and low-dose maintenance therapy should be administered in recurrent cases. Intravenous corticosteroid therapy—hydrocortisone 100 mg 4 times daily or pulse therapy with intravenous methylprednisolone 1 g/d—can be used for up to 5 days and may be effective. Oral minocycline 100 mg twice daily may be helpful as an adjunctive therapy to corticosteroids. When corticosteroids fail, oral cyclosporine 3 to 5 mg/kg/d often is prescribed. Studies have shown that patients demonstrate clinical improvement within 3 weeks of cyclosporine initiation, and it has been shown further to be more effective than either azathioprine or methotrexate.^{4,8}

Infliximab, a chimeric antibody that binds both circulating and tissue-bound TNF- α , has been shown to effectively treat PPG. A clinical trial conducted by Brooklyn et al⁹ found that 46% of patients (6/13) treated with infliximab responded compared with only 6% in a placebo control group (1/17). Although infliximab may result in sepsis, the benefits far outweigh the risks, especially for patients with steroid-refractory PPG.⁴ Adalimumab is a human monoclonal IgG1 antibody to TNF- α that neutralizes its function by blocking the interaction between the molecule and its receptor. Many clinical studies have shown that adalimumab induces and maintains a clinical response in patients with active Crohn disease. The biologic proved to be effective in our patient, but it is associated with potential side effects that should be monitored including injection-site reactions, pruritus, leukopenia, urticaria, and rare instances of alopecia.¹⁰ Etanercept is another potentially effective biologic agent.⁷ Plasma exchange, immunoglobulin infusion, and interferon- α

therapy also can be used in refractory PPG cases, though data on these treatments are very limited.⁴

Unlike routine pyoderma gangrenosum—for which surgical intervention is contraindicated—surgical intervention may be appropriate for the peristomal variant. Surgical treatment options include stoma revision and/or relocation; however, both of these procedures are accompanied by failure rates ranging from 40% to 100%.⁵ Removal of a diseased intestinal segment, especially one with active IBD, may result in healing of the skin lesion. In our patient, removal of the residual and diseased J-pouch was part of the management plan. However, it generally is recommended that any surgical intervention be accompanied by medical therapy including oral metronidazole 500 mg/d and concomitant administration of an immunosuppressant.^{1,3}

Because PPG tends to recur, long-term maintenance therapy should always be considered. Pain reduction, anemia correction, proper nutrition, and management of associated and underlying diseases should be performed. Meticulous care of the stoma and prevention of leaks also should be emphasized. Overall, if PPG is detected and diagnosed early as well as treated appropriately and aggressively, the patient likely will have a good prognosis.⁴

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