

Erythema nodosum in a quiescent phase of ulcerative colitis

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Erythema nodosum is inflammation of subcutaneous fat tissue. It presents secondary to many etiologies such as infection, drugs, malignancy, and inflammatory bowel disease. We report a 28-year-old male, with a past medical history of ulcerative colitis, presenting with erythematous, warm, tender nodules and plaques on his anterior ankles and feet bilaterally. The initial thought was an infectious etiology, but the lesions did not resolve with multiple antibiotics. The lesions did significantly improve after one treatment of glucocorticoids. Erythema nodosum was the most likely diagnosis and can rarely present in the absence of an ulcerative colitis flare.

Keywords: inflammation, erythema, nodules, pain, plaques

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Erythema nodosum (EN) is the most common type of septal panniculitis, which is inflammation of subcutaneous fat tissue [1]. EN can be idiopathic or could be a sign of an underlying systemic disease such as infection, drugs, pregnancy, malignancy, and inflammatory conditions such as sarcoidosis and inflammatory bowel disease [2]. Clinically, EN presents as tender, erythematous, subcutaneous nodules that are usually located bilaterally on the anterior surface of the lower extremities. As stated previously, EN can be a manifestation of IBD such as ulcerative colitis (UC). UC is an inflammatory disease usually involving the rectum and may extend continuously to the more proximal colon. UC clinically presents with fever, fatigue, abdominal cramping, abdominal pain, diarrhea, hematochezia, and weight loss [4,5]. EN is the most common

dermatological manifestation of IBD, occurring in 3-10% of patients with ulcerative colitis. EN usually resolves on its own without any scarring or ulceration [5].

Case Report

A 28-year-old Caucasian male presented to the emergency department for ongoing, bilateral lower extremity pain, swelling, and discoloration for three weeks duration. His past medical history was only significant for ulcerative colitis. The patient stated that he presented to an ED three weeks prior to this visit for a deep tissue abscess on his posterior left thigh, which was unable to be drained. He was prescribed ciprofloxacin. He denied any relief of his symptoms and stopped taking the antibiotic. He

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followed up with his primary care physician and was diagnosed with cellulitis and prescribed doxycycline. His leg pain and swelling continued to worsen. In the ED, the patient admitted to fever, chills, fatigue, weakness, joint stiffness and swelling, but denied abdominal pain, change in bowel habits, and all other review systems. The patient also reported he has not had an ulcerative colitis flare over the past year. On exam, erythema, swelling, and warmth surrounding his ankles bilaterally was noted. Labs and imaging were obtained and remarkable for a WBC elevated at 18.5, platelets elevated at 609, alkaline phosphatase elevated at 132, erythrocyte sedimentation rate (ESR) elevated at 88, and C-reactive protein (CRP) elevated at 13.2. All other labs were within normal limits. An x-ray of his ankles was remarkable for diffuse bilateral soft tissue swelling. The patient was admitted and started on Ancef and Dilaudid.

Upon admission, the patient's vitals were as follows, temperature 99.8F, pulse 120, respirations 16, blood pressure 107/59, and pulse oximetry of 95 on room air. The patient's condition continued to worsen and he did not respond to Ancef clinically. He reported his bilateral swelling, erythema, ecchymosis, and warmth of his lower extremities continued to worsen and there were areas of erythema that were not noted the day prior (Figure 1). He was unable to bear weight secondary to pain. At this time, he continued to deny fever, chills, trauma, and all other review of systems. On exam, there were tender, firm, erythematous nodules on the dorsal aspect of his feet and tender, firm, erythematous and violaceous plaques on his anterior, inferior lower legs and ankles bilaterally (Figure 2). Lower extremity edema and 1+ pulses were also noted. His prior abscess on the posterior left thigh was resolved. His WBC count decreased from 18.5 to 13.5, platelets decreased from 606 to 506, but his ESR and CRP increased from 88 to 90 and 13.2 to 15.5. Rheumatoid factor and ANA were within normal limits. Blood culture was negative for any bacterial growth. The patient had a lower extremity venous duplex scan that was negative for DVT. Chest CTA was unremarkable for a pulmonary embolism. Bilateral lower extremity MRI was only remarkable for diffuse edema. The patient continued to receive Ancef and Dilaudid.



Figure 1 Left foot showing swelling, erythema, ecchymosis.



Figure 2 Bilateral presentation of violaceous plaques.

The patient's symptoms were then thought to be inflammatory versus infectious in etiology. Erythema nodosum was made as the presumptive diagnosis secondary to the patient's clinical presentation, elevation of ESR and CRP, history of ulcerative colitis, and lack of response to antibiotics. He was prescribed a Medrol dose pack. Following the start of methylprednisolone, the patient reported that overnight his swelling, ecchymosis, and erythema improved significantly. His ESR decreased from 90 to 32. The patient was discharged home and encouraged to keep his legs elevated and to continue the Medrol dose pack and Keflex.

Discussion

Erythema nodosum is a form of panniculitis, inflammation of subcutaneous fat tissue. Most cases occur between the ages of 20 and 45 and are 3 to 6 times more common in women than men [6]. EN is a delayed-hypersensitivity reaction and is thought to result from the formation of immune complexes and their deposition in venules of the subcutaneous fat. Histopathologically, neutrophilic inflammatory infiltrate involving the septa of the subcutaneous tissue has been noted along with a fourfold higher percentage of reactive oxygen intermediates produced by activated neutrophils. Clinically, EN usually presents suddenly with symmetrical, tender, erythematous, warm, nodules and raised plaques commonly located on the anterior lower extremities. The nodules range from 1-5 cm, but can confluence in plaques. At first, the nodules are erythematous and raised. As EN progresses, the nodules become flat and violaceous then will exhibit a yellow green appearance. The nodules and plaques do not ulcerate and heal without atrophy and scarring. Flu-like symptoms such as fever, fatigue, malaise, and arthralgias are sometimes associated. The eruption usually lasts 3-6 weeks [7]. Treatment options for EN are aspirin, NSAIDs, potassium iodide, steroids, and colchicine [8].

Erythema nodosum is the most common dermatological manifestation presenting in patients with ulcerative colitis. Patients with irritable bowel disease present with multiple extra-intestinal manifestations with skin being the most common organ affected. The pathogenesis between IBD and extra-intestinal manifestations are hypothesized to result from the abnormal T-cell response ongoing in IBD disrupting the intestinal homeostasis triggering chronic inflammation and excessive secretion of cytokines resulting in further immune dysregulation in other parts of the body [7].

Erythema nodosum usually parallels with the intestinal disease and resolves with treatment of the underlying IBD. EN rarely precedes the onset of IBD or rarely occurs during quiescent phases of IBD [3]. Our patient showed no evidence of an ulcerative colitis flare or underlying infection due to the lack of

clinical response to the multiple antibiotics given and negative blood cultures. He continuously denied abdominal pain and change in bowel habits. Therefore, the presentation of what we think is EN presented in the unlikely presentation of either preceding an upcoming UC flare or during a quiescent stage.

One of the limitations in this case is a biopsy was not performed, which is the only way to make a definitive diagnosis of EN. The presumptive diagnosis of EN was primarily made on clinical presentation of firm, erythematous, tender, warm, nodules and plaques on the patient's anterior shins, ankles, and feet. Also, the patient's history of ulcerative colitis, the lack of response to antibiotics, and the rapid response and relief of symptoms following the administration of methylprednisolone. It is also important to mention some other possible diagnoses such as Behcet's, acute urticaria, erysipelas, erythema induratum, and superficial thrombophlebitis since a biopsy was not performed [8].

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