Red painful nodules in a hospitalized patient

Was the patient's treatment, or his underlying condition, to blame?

Kylene MacKillop, MD;
James deKay, MD;
Jonathan Karnes, MD
Maine Dartmouth Family Medicine Residency (Drs. MacKillop and Karnes); Maine General Pathology Services (Dr. deKay), Augusta

Jonathan.Karnes@mainegeneral.org

DEPARTMENT EDITOR
Richard P. Usatine, MD
University of Texas Health at San Antonio

The authors reported no potential conflict of interest relevant to this article.

A 58-YEAR-OLD WHITE MAN with a history of alcoholism presented to the emergency department with epigastric and right upper quadrant pain radiating to the back, as well as emesis and anorexia. An elevated lipase of 16,609 U/L (reference range, 31–186 U/L) and pathognomonic abdominal computed tomography (CT) findings (**FIGURE 1**) led to the diagnosis of acute pancreatitis, for which he was admitted.

Fluid resuscitation and pain management were implemented, and over 3 days his diet was advanced from NPO to clear fluids to a full diet. On the sixth day of hospitalization, the patient developed increasing abdominal pain and worsening leukocytosis (white blood cell count, 16.6–22 K/mcL [reference range, 4.5–11 K/mcL]). Repeat CT and blood cultures were obtained, and the patient was started on intravenous meropenem 1 g every 8 hours for presumed necrotizing pancreatitis. The next day he developed acutely tender red to pink patches and nodules on his shins and medial lower legs (**FIGURE 2**).

- WHAT IS YOUR DIAGNOSIS?
- HOW WOULD YOU TREAT THIS PATIENT?

FIGURE 1
CT points to pancreatitis

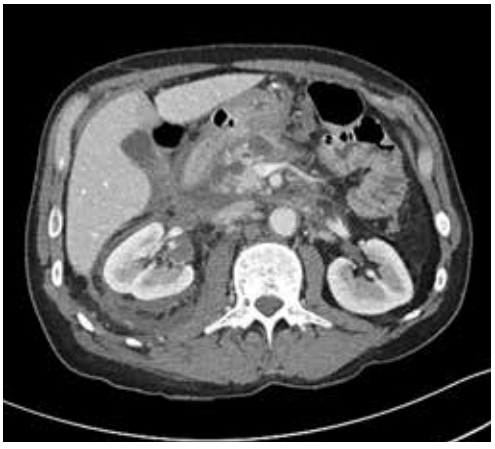
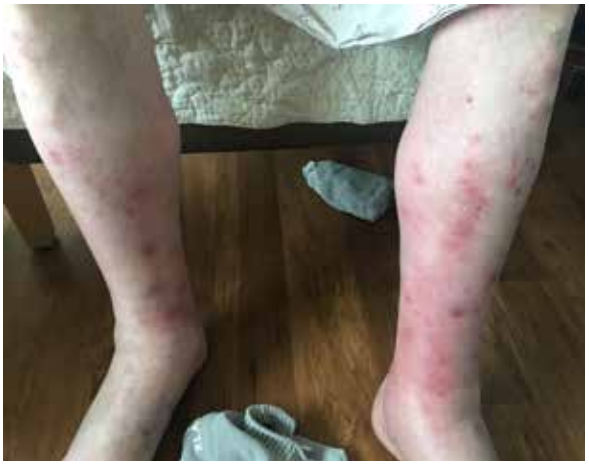


IMAGE COURTESY OF KYLENE MacKILLOP, MD

The computed tomography (CT) scan showed inflammatory stranding and fluid around the head and body of the pancreas, as well as dilatation of the ventral pancreatic duct (16 mm) and cystic changes in the neck of the pancreas. A low attenuation lesion was noted in the tail of the pancreas along with some fluid tracked along the right anterior psoas muscle, suggestive of a cyst, abscess, or hematoma.

FIGURE 2
Erythematous patches and nodules



A week into the patient's hospitalization, he developed acutely tender red to pink patches and nodules on his shins and medial lower legs.

Diagnosis: Pancreatic panniculitis

Pancreatic panniculitis, or enzymatic panniculitis, is a rare necrotizing subcutaneous inflammatory process that occurs in 2% to 3% of cases of pancreatic disease.[1] It is associated with acute and chronic pancreatitis, pancreatic carcinoma (typically pancreatic acinar type), and less commonly, with pancreatic anomalies such as pancreatic divisum.[1,2]

It's theorized that the systemic release of trypsin from pancreatic cell destruction causes increased capillary permeability and subsequent escape of lipase from the circulation into the subcutaneous fat. This causes fat necrosis, saponification, and inflammation.[3,4] Pancreatic panniculitis is demonstrated histologically as hollowed-out adipocytes with granular basophilic cytoplasm and displaced or absent nuclei—aptly named "ghostlike" adipocytes.[3-6]

Painful, erythematous nodules most commonly present on the distal lower extremities. Nodules may be found over the shins, posterior calves, and periarticular skin. Rarely, nodules may occur on the buttocks, abdomen, or intramedullary bone.[7] In severe cases, nodules spontaneously may ulcerate and drain an oily brown, viscous material formed from necrotic adipocytes.[1]

FIGURE 3

Histopathology confirms Dx

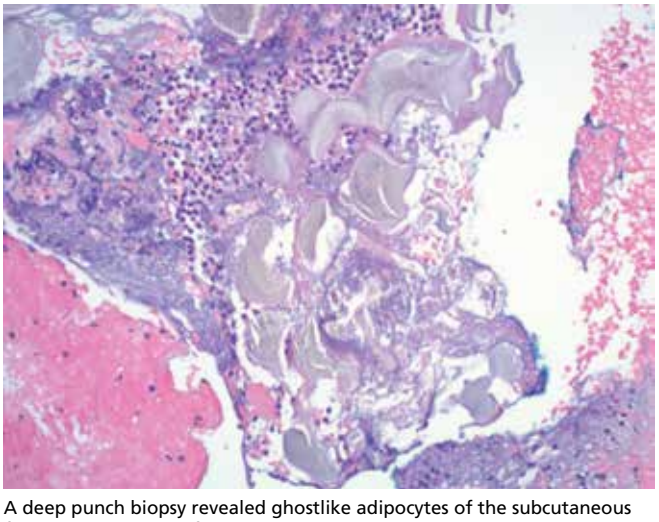


IMAGE COURTESY OF JAMES deKAY, MD

A deep punch biopsy revealed ghostlike adipocytes of the subcutaneous fat in a background of neutrophils and basophilic debris. This is characteristic of enzymatic fat necrosis found in pancreatic panniculitis (H&E, original magnification ×40).

Timing of the eruption of skin lesions is varied and may even precede abdominal pain. Lesions can involute and regress several weeks after the underlying etiology improves. With pancreatic carcinoma, there is a greater likelihood of persistence, atypical locations of involvement, ulcerations, and recurrences.[7]

The histologic features of pancreatic panniculitis and the assessment of the subcutaneous fat are paramount in diagnosis. A deep punch biopsy or incisional biopsy is necessary to reliably reach the depth of the subcutaneous tissue. In our patient, a deep punch biopsy from the lateral calf was performed at the suggestion of Dermatology, and histopathology revealed necrosis of fat lobules with calcium soap around necrotic lipocytes, consistent with pancreatic panniculitis (**FIGURE 3**).

Differential was complicated by antibiotic use

The differential diagnosis was broad due to the confounding factors of recent antibiotic use and worsening pancreatitis.

Cellulitis may present as a red patch and is common on the lower legs; it often is associated with skin pathogens including *Staphylococcus* and *Streptococcus*. Usually, symptoms are unilateral and associated with warmth to the touch, expanding borders, leukocytosis, and systemic symptoms.

Vasculitis, which is an inflammation of various sized vessels through immunologic or infectious processes, often manifests on the lower legs. The characteristic sign of small vessel vasculitis is nonblanching purpura or petechiae. There often is a preceding illness or medication that triggers immunoglobulin proliferation and off-target inflammation of the vessels. Associated symptoms include pain and pruritus.

Drug eruptions may present as red patches on the skin. Often the patches are scaly and red and have more widespread distribution than the lower legs. A history of exposure is important, but common inciting drugs include nonsteroidal anti-inflammatory drugs that may be used only occasionally and are challenging to elicit in the history. Our patient did have known drug changes (ie, the introduction of meropenem) while hospitalized,

but the morphology was not consistent with this diagnosis.

Treatment is directed to underlying disease

Treatment of pancreatic panniculitis primarily is supportive and directed toward treating the underlying pancreatic disease. Depending upon the underlying pancreatic diagnosis, surgical correction of anatomic or ductal anomalies or pseudocysts may lead to resolution of panniculitis.[3,7,8]

In this case, our patient had already received fluid resuscitation and pain management, and his diet had been advanced. In addition, his antibiotics were changed to exclude drug eruption as a cause. Over the course of a week, our patient saw a reduction in his pain level and an improvement in the appearance of his legs (**FIGURE 4**).

His pancreatitis, however, continued to persist and resist increases in his diet. He ultimately required transfer to a tertiary care center for consideration of interventional options including stenting. The patient ultimately recovered, after stenting of the main pancreatic duct, and was discharged home. JFP

CORRESPONDENCE
Jonathan Karnes, MD, 6 East Chestnut Street, Augusta, ME 04330; Jonathan.Karnes@mainegeneral.org

FIGURE 4
Gradual clearing of lesions was noted at 1 week

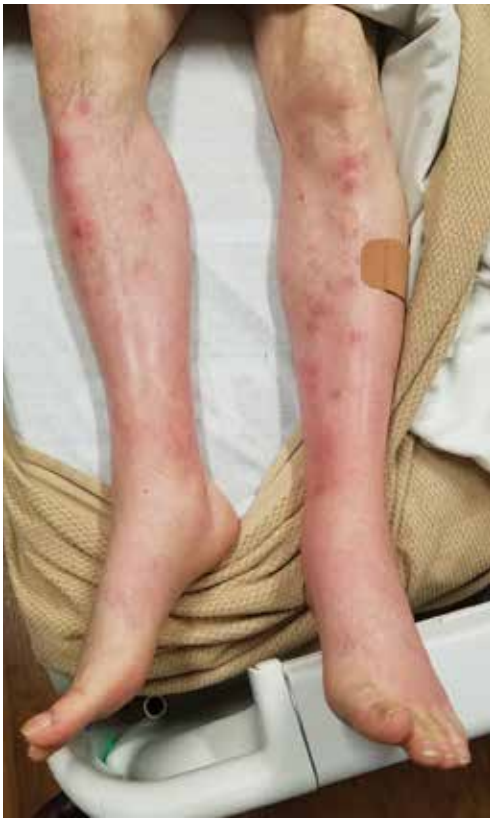


IMAGE COURTESY OF KYLENE MacKILLOP, MD

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