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Tender Nodules on the Lower Legs

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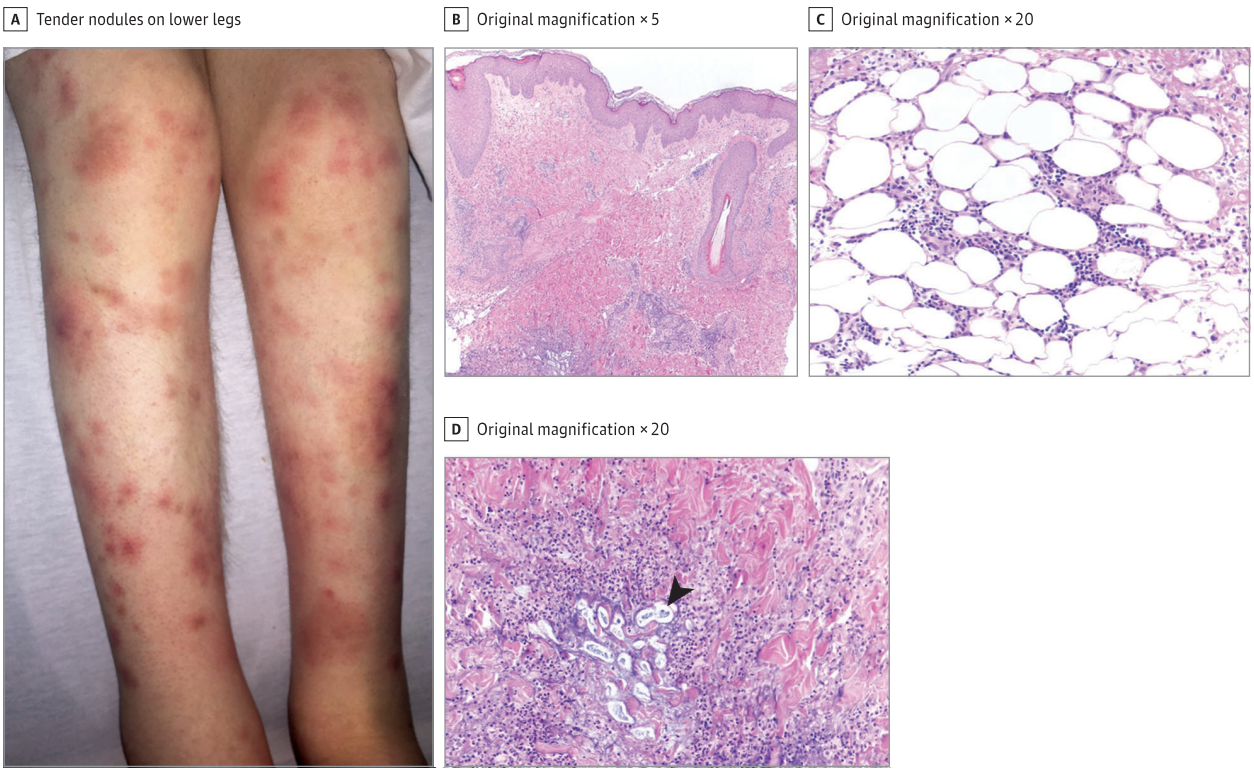

Figure. A, Clinical photograph shows scattered pink to purple nodules and plaques on the bilateral lower extremities. B, C, and D, Histopathologic images of a biopsy specimen (hematoxylin-eosin). B, Subcutaneous tissue with superficial and deep, dermal and perivascular inflammation, fibrosis, and fat necrosis. C, Lobular panniculitis. D, Dense neutrophilic infiltration of subcutaneous fat associated with fat necrosis and deposition of granular basophilic material (arrowhead).

A man in his 20s with panhypopituitarism, septo-optic dysplasia, developmental delay, duodenal stricture, and a history of pancreatitis presented with a painful eruption on his bilateral lower legs. The patient was well until 2 days prior to hospitalization when he developed bilateral lower extremity edema. The day prior to admission, he developed painful pink lesions on both legs. He had not applied any topical medications to his legs or had recent exposure to hot tubs or fish tanks at the home. He had a history of keratosis pilaris on the lower legs and was otherwise well with no fevers, recent upper respiratory infections, abdominal pain, vomiting, or diarrhea.

Physical examination showed a man in no apparent distress. On the bilateral anterior legs were scattered tender, pink to purple nodules, and plaques (**Figure**, A). There was also a background of pinpoint folliculocentric papules on leg and thighs consistent with keratosis pilaris. There was 2+ pitting edema of the lower extremities. A punch biopsy specimen was obtained for histopathology and microbiology cultures (Figure, B-D). Routine complete blood cell count and complete metabolic panel had results within normal limits.

WHAT IS YOUR DIAGNOSIS?

- **A.** Erythema nodosum
- **B.** Pancreatic panniculitis
- **C.** Alpha-1-antitrypsin deficiency panniculitis
- **D.** Polyarteritis nodosa

Diagnosis

B. Pancreatic panniculitis

Microscopic and Laboratory Findings

Skin biopsy revealed a superficial and deep, dermal inflammation with associated fibrosis (Figure, B), lobular panniculitis (Figure, C), and necrotic adipocytes with basophilic, granular material (Figure, D) most consistent with a diagnosis of pancreatic panniculitis. Fungal, bacterial, and mycobacterial cultures had negative results.

Subsequent laboratory and imaging workup revealed elevated amylase (611 U/L; reference range, 30-110 U/L; to convert to microkatals per liter, multiply by 0.0167) and lipase (4041 U/L; reference range, 23-300 U/L; to convert to microkatals per liter, multiply by 0.0167) levels. Serum α-1-antitrypsin (A1AT) levels were normal. Abdominal ultrasonography demonstrated hypoechogenicity of the pancreatic body and tail most compatible with pancreatitis.

Discussion

Pancreatic panniculitis is rare, occurring in 2% of all patients with pancreatic disease including acute and chronic pancreatitis, pancreatic trauma, and rheumatologic diseases.[1,2] The pathophysiologic mechanism is not completely understood, but it is thought that pancreatic inflammation leads to pancreatic enzyme (trypsin and lipase) release, which in turn leads to fat necrosis and development of subcutaneous nodules.[3] Levels of amylase and lipase have not been found to be predictive of the development of pancreatic panniculitis.[2]

Pancreatic panniculitis presents as tender red and purple nodules most commonly on the lower extremities, but they have also been reported to appear elsewhere. The nodules subsequently ulcerate and discharge an oily brown substance that is the result of liquefactive necrosis of adipocytes. Analysis of this fluid in 1 case revealed a high level of free fatty acids.[4] Histopathological findings of pancreatic panniculitis include a lobular panniculitis with necrotic adipocytes with granular, basophilic material also known as "ghost cells."[5] The treatment of pancreatic panniculitis involves wound care and management of the underlying pancreatic disease. Some patients also experience sequelae of lipocyte degeneration in other organs including secondary acute arthritis. Arthritis has been reported in up to 88% of cases and most frequently involves the ankles and knees.[4]

Up to 40% of patients with pancreatic panniculitis have other clinical symptoms of pancreatitis at the time of presentation.[4] Our patient was atypical in that he did not present with nor did he ever develop any other symptoms of pancreatitis. Therefore, other potential mimickers were also considered. α-1-antitrypsin deficiency is a clinical and histopathologic mimicker of pancreatic panniculitis. Both present with painful nodules usually on the lower extremities, although patients with A1AT deficiency often have pulmonary and hepatic involvement, which our patient did not. Histopathologic findings are similar, demonstrating a predominantly lobular panniculitis with fat necrosis. However, a specific finding of A1AT panniculitis is the splaying of neutrophils between collagen bundles,[1] which our patient did not have. Furthermore, his serum A1AT levels were normal during the hospitalization. Other panniculitides such as erythema nodosum can also mimic pancreatic panniculitis. However, the biopsy did not demonstrate a septal-predominant pattern as seen in erythema nodosum. Finally, vasculitides such as polyarteritis nodosa can present on the lower extremities as painful nodules and plaques with systemic involvement, most commonly the kidneys. In our patient, the biopsy did not demonstrate necrotizing vasculitis of medium-sized arteries in the subcutis.

Taking together the histopathologic findings, ultrasonography, and serum pancreatic enzyme levels, a diagnosis of pancreatic panniculitis was made. Given our patient's lack of nausea, abdominal pain, and vomiting, he was prescribed a regular diet with low-fat restriction. He was treated supportively with compression, elevation, and local wound care, and his lesions resolved slowly over a period of weeks. Our patient did not develop arthritis. At follow-up 10 days after discharge, his amylase and lipase levels were 288 and 1697 U/L, respectively.

Pancreatitis panniculitis can be the first and rarely the only symptom of pancreatitis. Its presence should prompt the clinician to investigate pancreatic diseases in patients with panniculitis, especially those with a history of pancreatic disease or underlying risk factors.

ARTICLE INFORMATION

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