Multiple subcutaneous inflammation, osteolysis, and polyarthritis

Yasuhiko Takechi • Tetsuya Shinozaki •
Toshio Fukuda • Kazuyoshi Asami •
Takashi Yanagawa • Kenji Takagishi

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Diagnosis

Subcutaneous and intraosseous fat necrosis associated with pancreatic acinar cell carcinoma

Discussion

Chronic and acute pancreatitis, adenocarcinoma, and acinar cell carcinoma of the pancreas can cause a syndrome characterized by fever, polyarthritis, subcutaneous and intraosseous fat necrosis, and increased serum lipase activity [1–5]. However, diagnosis is difficult when the patient has no abdominal symptoms. Histology of the subcutaneous fat tissue and the lytic bone show only nonspecific inflammation and necrosis, which are insufficient to establish a diagnosis. Skin lesions, as a manifestation of subcutaneous fat necrosis from pancreatic disease,

can be distributed widely throughout the body. However, these findings are insufficient to support a definite diagnosis, especially at their onset. Eosinophilia is common in patients with pancreatic disease and subcutaneous fat necrosis [2]. However, laboratory data alone are insufficient for a definite diagnosis without abdominal symptoms. Whole-body computed tomography (CT) scanning was performed to clarify the etiology of the fever in this patient and revealed pancreatic acinar cell carcinoma and liver metastases. Acinar cell carcinoma of the pancreas often occurs in middle-aged men with nonspecific symptoms. Arthritis and subcutaneous fat necrosis were observed in 16% of those patients. Half of the patients had metastases at presentation; an additional 23% subsequently developed metastases. One-year and 3-year survival rates were, respectively, 57% and 26% [6]. Radical therapy for the patient, even after definite diagnosis when extra-abdominal symptoms appear at presentation and after a long lapse in making the diagnosis, is almost impossible to prevent a rapid and fatal outcome of this disease. Indeed, an autopsy revealed pancreatic carcinoma in a patient with polyarthritis and subcutaneous fat necrosis [7]. Abdominal CT would show the tumor in the pancreas whether abdominal symptoms exist or not. However, it would be unusual to perform abdominal CT of patients with fat necrosis or polyarthritis unless we keep this condition in mind [3, 6]. High serum lipase levels also facilitate a definite diagnosis [3, 4, 6]. So that earlier diagnoses can be made following appropriate therapy [4], we must bear in mind the possibility of subcutaneous and intraosseous fat necrosis attributable to pancreatic disorders, including acinar cell carcinoma.

Fat necrosis associated with pancreatitis or pancreatic carcinoma was inferred as resulting from the liberation of lipase and other enzymes into the circulation directly or via lymphatic channels [8, 9]. Many case reports have

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Y. Takechi • T. Shinozaki (✉) • T. Yanagawa • K. Takagishi
Department of Orthopaedic Surgery,
Gunma University Graduate School of Medicine,
3-39-22 Showa,
Maebashi, Gunma 371-8511, Japan
e-mail: tshinoza@showa.gunma-u.ac.jp

T. Fukuda
Department of Laboratory Sciences & Pathology,
Gunma University School of Health Sciences,
Maebashi, Japan

K. Asami
Department of Orthopaedic Surgery,
Maebashi Red Cross Hospital,
Maebashi, Japan

described the elevation of pancreatic serum enzymes such as amylase [8, 9], trypsin, and, especially, lipase [1, 3–5]. A possible cause of arthritis in patients with pancreatic disease is free fatty acids, which might cause arthritis when released into the joints [1]. Simkin et al. [10] explained the elevation of free fatty acids in the synovial fluid of the inflammatory joint in those patients. However, some patients with pancreatitis and subcutaneous fat necrosis show accompanying pleural and pericardial effusions aside from arthritis [8]. Immunofluorescence studies of the inflammatory pleura showed that the staining of immunoglobulins G and C3, C1q, C3, C4, C5, and CH50 was also reduced in serum and in pleural and pericardial effusions. Based on these facts, immune complex formation, except for the free serum lipase, might be the pathogenesis of inflammation associated with pancreatic disease [8].

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