Palmar Fasciitis and Polyarthrititis Associated with Gastric Carcinoma: Complete Resolution After Total Gastrectomy

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Abstract

Palmar fasciitis and polyarthrititis (PFA) is a rare paraneoplastic rheumatic syndrome characterized by flexion contractures of both hands and thickening of palmar fascia. Several reports have suggested that this syndrome is a tumor-associated autoimmune disorder. We report a 44-year-old Japanese man who presented with flexion contractures of both hands associated with thickening of palmar fascia and polyarthrititis. These clinical pictures were suggestive of PFA associated with occult neoplasm. Upper gastrointestinal endoscopic examination revealed advanced gastric cancer. Resection of the cancer resulted in a gradual resolution of palmar fasciitis and polyarthrititis. This clinical course suggests an underlying tumor-related immunologic process in this syndrome.

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Key words: musculoskeletal manifestation, paraneoplastic syndrome, malignant neoplasm

Introduction

Various musculoskeletal symptoms can be associated with neoplasms. Palmar fasciitis with polyarthrititis (PFA) is a rare syndrome associated with neoplasm (1). The syndrome is characterized by rapidly progressive flexion contractures of both hands, nodular thickening of fascia of the palms and distal extremities, and polyarthrititis. The exact etiology of PFA is not well understood, but a few reports have suggested that the syndrome might be the result of a tumor-associated autoimmune disease (1-3). We report herein a Japanese patient with gastric cancer who presented with PFA. Our case is of special interest in that the syndrome improved following surgical resection of the primary tumor. This clinical finding may lend support to the tumor-related immunopathological mechanism of this rare syndrome.

For editorial comment, see p 685.

Case Report

A 44-year-old Japanese man presented in November 1997 with swelling and pain in both wrists. Treatment with nonsteroidal antiinflammatory drugs was unsuccessful, and pain gradually extended to involve all finger joints as well as other large joints. In January 1998, he noticed several nodular thickenings in the palms of both hands and painful restriction of finger movements. In May 1998, the patient was admitted to Tsukuba University Hospital for further evaluation of the reduced range of motion of his fingers and polyarthralgia. He had noted a 4 kg weight loss in the previous four months. The past medical history was negative for joint diseases, Raynaud's phenomenon and trauma.

Physical examination showed mild flexion contractures of all fingers with nodular subcutaneous thickenings in both palms, forearms, and legs (Fig. 1). The patient was unable to form a fist. Neither sclerodactyly nor nail fold capillary changes were noted. Mild arthritis was present in the shoulders, elbows, hands, hips, knees, and ankles. Neurological examination was negative.

Laboratory tests showed a normal complete blood cell count, Westergren erythrocyte sedimentation rate of 21 mm/h, C-reactive protein of 0.5 mg/ml (normal <0.2), and normal liver function tests except for a slightly elevated lactic dehydrogenase of 571 U/l (normal <520). Renal function tests were normal. Immunological tests showed an antinuclear antibody titer of 1:80 with a speckled pattern, rheumatoid factor of 28 U/ml (normal <20), and soluble interleukin (IL)-2 receptor (sIL-2R) of 4,440 U/ml (normal <530). Joint radiographs were normal. Technetium-99m bone scan showed a slight increased uptake in both shoulders, wrists, hips, knees, and ankles.

A full-thickness skin biopsy was obtained from the left dorsal surface of the forearm because incision of the palmar fascia was thought to result in impairment of hand function. The bi-

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Figure 1. Anterior view of both hands. Note the mild contractures and arthritis affecting both hands.

Figure 2. Histopathological findings of a full-thickness skin biopsy from the left dorsal surface of the forearm. Note the presence of mild thickening of the fascia (arrows) with mononuclear inflammatory infiltrates. The majority of inflammatory cells are lymphocytes with occasional plasma cells (HE stain, $\times 200$).

opsy demonstrated mild thickening of the fascia with mononuclear inflammatory infiltrates (Fig. 2); eosinophils were rarely seen. Mild perivascular and periadnexal inflammatory cell infiltration was observed in the deep dermis.

These clinical and histological features were suggestive of "palmar fasciitis and polyarthrititis associated with malignant neoplasms." Accordingly, we searched for an occult malignancy. Upper gastrointestinal endoscopic evaluation demonstrated an advanced IIa + IIc type tumor of the stomach. Biopsies revealed well-differentiated tubular adenocarcinoma. Computed tomography scans of the head, chest, and abdomen and bone scintigraphy were negative for metastasis or other malignancies. A final diagnosis of palmar fasciitis and polyarthrititis with gastric cancer was established.

The patient underwent total gastrectomy. After curative resection of the tumor, the polyarthrititis and nodular thickening of the palms, forearms, and lower legs showed a gradual spontaneous improvement. Serum sIL-2R level also decreased to 3,260 U/ml.

Discussion

PFA is a rare syndrome associated with malignant neoplasms. To our knowledge, only a total of 19 publications describing 29 cancer patients with this syndrome have been reported in the English-language literature since the first case was described by Medsger et al in 1982 (4). Table 1 summarizes the published cases of PFA associated with malignancies. The most frequently reported malignancy associated with PFA is ovarian carcinoma (10 patients, 34%), followed by neoplasms of the lung (2), breast (3), colon (5), and pancreas (6).

Clinical features of PFA are rapidly progressive flexion contractures of both hands and polyarthrititis. There are no specific distinctive diagnostic tests for this disorder, and the diagnosis is therefore based on clinical presentation. The differen-

tial diagnosis includes other conditions associated with contractures of the hands. The musculoskeletal manifestations of PFA are similar to those of Dupuytren's contracture, an orthopedic disease of the hands. The latter causes flexion contractures of the fingers and nodular thickening of the palmar fascia (20). However, the findings of the present patient differed from the above disorder in that the thickening of the fascia extended to the forearms and lower legs and clinically apparent polyarthrititis was present. Systemic sclerosis (SSc), a systemic fibrosing disorder, is often associated with contractures of the hands. However, Raynaud's phenomenon, seen in almost all patients with SSc, was not present in the present patient. The absence of skin sclerosis and esophageal dysfunction were two additional features against the diagnosis of SSc. Eosinophilic fasciitis is a rare fibrosing disease with a variable degree of eosinophilia (21). In this disorder, a symmetric and subcutaneous induration develops in the extremities, and some degree of joint contracture may occur. However, the hands are usually spared. The present patient had no eosinophilia. PFA could also resemble reflex sympathetic dystrophy (RSD), which is thought to be induced by reflex neurologic mechanisms. The clinical features of RSD include pain and swelling in the distal extremity, dystrophic skin changes, hand contractures, and vasomotor or sudomotor disturbances (22). PFA differs from RSD in that the fasciitis is more severe, arthritis is more inflammatory, and both processes are more rapidly progressive than in RSD (23). Furthermore, there are no vasomotor or sudomotor disturbances in PFA.

Several reports have suggested that PFA is the result of a tumor-associated, generalized autoimmune disorder (7, 13). Deposits of immunoglobulin and complements, mononuclear perivascular infiltrates, and fibrosis have been found in the fas-

Table 1. Summary of Previously Published Cases of Palmar Fasciitis with Polyarthritis

Author (Ref)	Year	Age/ Sex	Associated Malignancy	Effect of Tx on Musculo- skeletal manifestations
Medsger et al (4)	1982	65/F	Ovary	—
		50/F	Ovary	—
		62/F	Ovary	Improved with chemotherapy & CS
		58/F	Ovary	—
		60/F	Ovary	Improved with chemotherapy
Baron et al (5)	1982	65/F	Bladder, Lung, Colon	Improved with CS
Baer et al (6)	1983	62/F	Pancreas	—
Shiel et al (2)	1985	86/F	Lung	—
		75/F	Ovary	Improved with CS
Pfinsgraff et al (1)	1986	66/F	CML	Improved with CS
		59/F	Pancreas	Improved with Penicillamine
		66/M	SCC*	—
		71/F	Adenocarcinoma*	—
		54/M	Hodgkin	Improved with chemotherapy
Valverde-Garcia et al (3)	1987	55/F	Breast	Improved with chemotherapy & CS
Caron et al (7)	1989	74/F	Plasmacytoma	—
Zerbe et al (8)	1991	54/F	Peritoneal carcinosis	Improved with chemotherapy
Willemse et al (9)	1991	54/F	Coelomic epithelial	Improved with CS
Van den Bergh et al (10)	1991	59/M	Prostate	—
Strobel et al (11)	1992	59/F	Ovary	Not mentioned
Leslie (12)	1992	55/F	Uterine cervix	—
Vinker et al (13)	1996	25/F	Ovary	—
Dhôte et al (14)	1997	66/F	Breast	Improved with chemotherapy
Saxman et al (15)	1997	54/F	Breast	Not mentioned
Wright (16)	1997	57/F	Ovary	Not mentioned
Grados et al (17)	1998	59/F	Renal pelvis	—
		92/F	Uterine	—
Eekhoff et al (18)	1998	71/M	Large cell carcinoma*	Not mentioned
Matteson (19)	1998	69/F	Ovary	—
Present case	1999	44/M	Stomach	Improved after tumor resection

*Unknown primary, Tx: treatment, CS: corticosteroids, CML: chronic myelogenous leukemia, SCC: squamous cell carcinoma.

cia (1–4, 24). Antinuclear antibodies were positive in some cases (1, 2, 4). One report has described the presence of leukocytoclastic vasculitis in the dermis (13). Interestingly, regression of fasciitis after antineoplastic treatment (Table 1) or excision of the tumor (24) has been reported. Likewise, the symptoms in the present patient gradually improved after resection of the tumor. Serum sIL-2R level, one of the markers of immune activation (25), also decreased in the present patient after tumor resection. These findings strongly suggest the involvement of tumor-related autoimmune mechanisms in the pathogenesis of PFA.

In summary, we have presented a Japanese patient in whom PFA syndrome was associated with gastric cancer. The present patient is unique in that the syndrome resolved after resection of the tumor, suggesting an underlying tumor-related immunologic process in this syndrome.

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