Scleredema and Monoclonal Gammopathy: Report of Two Cases

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Venencie PY, Powell FC, Su WPD. Scleredema and monoclonal gammopathy: Report of two cases. Acta Derm Venereol (Stockh) 1984; 64: 554–556.

Two patients had scleredema with monoclonal gammopathy, one of whom was considered to have smoldering multiple myeloma. In one patient, the scleredema cleared without treatment, while in the other, the scleredema and the monoclonal gammopathy persisted unchanged. *Key words: Multiple myeloma: Monoclonal gammopathy of unknown significance (MGUS).* (Received April 26, 1984.)

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Scleredema (scleredema adultorum, scleredema of Buschke) is an uncommon skin disease characterized clinically by nonpitting induration. It is not usually associated with other diseases, although diabetes mellitus is seen in a significant number of patients (1).

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Monoclonal gammopathy has been observed in 5 patients with scleredema (2–4), and herein we describe an additional 2 patients with this association.

REPORT OF CASES

Case 1. A 42-year-old woman was first seen at the Mayo Clinic in 1950 with a childhood onset of nonpitting induration of the face, neck, upper chest, upper back, shoulders, upper arms, and upper thighs. She had had no history of upper respiratory tract infection and did not have diabetes. Clinically, she was considered to have typical scleredema. Microscopic examination of skin biopsy specimens from her upper arm and her shoulder revealed a thickened dermis and swollen collagen bundles separated by fenestrations, without significant inflammatory infiltrate, findings consistent with the diagnosis of scleredema. On re-evaluation in 1962, she had had normal findings on serum protein electrophoresis. In June 1977, re-evaluation revealed no change in her symptoms or signs, but at this time, serum protein electrophoresis was abnormal, with a total protein concentration of 9.13 g/dl (normal 6.3 to 7.9) and γ-globulin of 3.44 g/dl (normal 0.7 to 1.6). The IgG level was elevated at 21.5 mg/ml (normal 6.4 to 14.3), and IgA and IgM were quantitatively normal. The serum immunoelectrophoresis showed a monoclonal IgG κ protein. The blood counts and sedimentation rate were normal. The urine immunoelectrophoresis was negative, as was a radiologic survey to rule out metastatic bone disease. The bone marrow aspirates and biopsy specimens showed a normal cellular bone marrow, with 5% atypical but well-differentiated plasma cells.

From 1977 to 1982, her general condition remained satisfactory without treatment, and the scleredema resolved completely in 1979. However, the monoclonal IgG κ protein remained unchanged at the time of last follow-up evaluation in December 1982. In addition, her peripheral blood counts were normal, metastatic bone surveys were negative, and 10% atypical plasma cells were found in the bone marrow, which was well preserved.

Case 2. A 64-year-old man was first seen at the Mayo Clinic in 1976 with a 2-year history of "tightness" of his skin, which he first noticed on his face. He had had no history of preceding upper respiratory tract infection and did not have diabetes. Clinical examination showed a woody induration of the skin over the face, neck, shoulders, and buttocks. His general health was good. There was no Raynaud's phenomenon, dysphagia, or dyspnea. Microscopic findings on a skin biopsy specimen from the right deltoid area were consistent with the diagnosis of scleredema. The following laboratory and other studies were normal: serum protein electrophoresis, quantitative determinations of the immunoglobulins, blood glucose level, hemoglobin level, blood cell counts, chest and colon roentgenograms, proctoscopy, and urine chemistry. Serum immunoelectrophoresis was not performed at that time. With physical therapy alone, the patient had a slight clinical improvement. When the patient was re-examined in 1979, the serum protein electrophoresis was quantitatively normal, but the immunoelectrophoresis showed a monoclonal IgA κ protein. The blood counts were normal, there was no proteinuria by routine analysis, and urine immunoelectrophoresis was not performed. At the time of last follow-up evaluation in September 1982, the monoclonal IgA κ protein remained unchanged, the patient's clinical condition was unaltered, and the blood counts were normal.

DISCUSSION

In our 2 cases, the clinical presentation of nonpitting induration on the head, neck, trunk, and proximal extremities was typical of scleredema, and the histopathologic findings were confirmatory. In both cases the clinical course was prolonged, similar to that seen in cases without monoclonal gammopathy (5).

In our first case, the findings of a monoclonal IgG κ protein with a concentration of γ globulin of 3.44 g/dl (normal 0.7 to 1.6) and of 10% abnormal plasma cells in the bone marrow in the absence of anemia, lytic bone lesions, hypercalcemia, or renal failure fulfill the criteria for smoldering multiple myeloma (6). In our second case, the presence of a monoclonal IgA κ protein, which was unchanged at the time of follow-up evaluation, and of a quantitatively normal serum protein electrophoresis and normal blood counts is suggestive of monoclonal gammopathy of unknown significance (MGUS).

Monoclonal gammopathy of the IgG γ type is found in patients with scleromyxedema and has been proposed as a diagnostic criterion for this disease by some authors (7).

Myelosuppressive therapy with melphalan has decreased the cutaneous lesions in some patients with scleromyxedema and monoclonal gammopathy (8–10). To date, monoclonal gammopathies have been found in 5 patients with scleredema: Korting et al. (2) described a patient with IgG $\varkappa$ multiple myeloma and scleredema who had subjective and objective improvement of the skin lesions when the alkylating agent cyclophosphamide was used to treat the myeloma, Pajarre (3) described a patient with monoclonal IgA protein of unidentified type, and Kövary et al. (4) described 2 patients with monoclonal IgG $\varkappa$ protein and 1 with monoclonal IgG γ protein.

The significance of this association has yet to be determined. Such an association could be coincidental, as MGUS has been found by Axelsson et al. (11) in 1 to 2% of the general population who are 50 years old or older, the incidence depending on the age. However, Kövary et al. (4) found 3 of 6 patients with scleredema who had monoclonal gammopathy, and this suggests that the association could be significant. The same authors (4) also suggested that monoclonal gammopathies could represent antibodies directed against pathologic substances in connective tissue in patients with scleredema, although they did not find cutaneous immunoglobulin deposits in the 3 patients they studied.

Because of the increasing number of reports of the association of scleredema and monoclonal gammopathy, these patients should be assessed for an underlying paraproteinemia. Serum protein electrophoresis should be done at regular intervals in all patients with scleredema because the paraproteinemia may not be present at the time of initial assessment and, when present, may precede a myeloma. Kyle & Bayrd (12) pointed out that small monoclonal peaks can be missed on serum protein electrophoresis so perhaps serum immunoelectrophoresis should be done in these cases.

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