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Case presentation

Nodular amyloidosis

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Abstract

Nodular amyloidosis is the rarest form of primary cutaneous amyloidosis. We report the case of a 74-year-old woman with an eight-year history of asymptomatic, hyperpigmented plaques on the pretibial areas. A skin biopsy specimen showed deposits of amorphous eosinophilic material that extended throughout the dermis with apple-green birefringence with a Congo-red stain, which established a diagnosis of nodular amyloidosis. Patients with nodular amyloidosis should be evaluated for systemic disease and followed appropriately due to a small risk of progression to systemic amyloidosis.

Case synopsis

History: A 73-year-old woman presented to the Skin and Cancer Unit for the evaluation of black plaques on the anterior aspects of the lower legs of eight years duration. The patient first noted a dark lesion on the lateral aspect of the left ankle that was followed by the appearance of similar lesions on the pretibial area of the left leg, medial aspect of the right ankle, and pretibial area of the right leg. Some of the lesions became thick. She denied pain or pruritus.

Review of systems was negative. Past medical history included breast cancer in remission and renal insufficiency that was attributed to hypertension. She had no history of diabetes mellitus or thyroid disease. Two prior biopsy specimens had failed to establish a diagnosis. She had previously used clobetasol cream for two weeks without improvement.

Physical examination: Black, waxy plaques, some with a cobblestone appearance, and hyperpigmented patches were noted from the pretibial area to medial malleolus of the right and left legs. The lesions were non-tender, and trace edema was present.

Laboratory data: White-cell count 4.6 $x10^9$/L, hemoglobin 10.3 g/dL, total protein 7.4 g/dL, creatinine 1.74 mg/dL, and gamma globulin elevated at 1.95 g/dL (range 0.60 – 1.60 g/dL) with serum IgG elevated at 2224 mg/dL (range 694-1618 mg/dL). Serum IgA and IgM were normal. Urine protein electrophoresis showed a pattern that was consistent with glomerular proteinuria. Serum protein electrophoresis showed a faint band with a polyclonal pattern in the gamma region. Serum free kappa chains were elevated at 48.6 mg/L (range 3.3 – 19.4 mg/L), and serum free lambda chains were elevated at 38.2 mg/L (range 5.7 – 26.3 mg/L). Free kappa/lambda ratio was 1.27 normal.

Histopathology: There are deposits of amorphous, pale-staining, eosinophilic material that extends throughout the dermis in addition to a perivascular and focally interstitial infiltrate of lymphocytes with numerous plasma cells. Apple-green birefringence is noted with a Congo-red stain. There is focal reactivity with a crystal-violet stain.

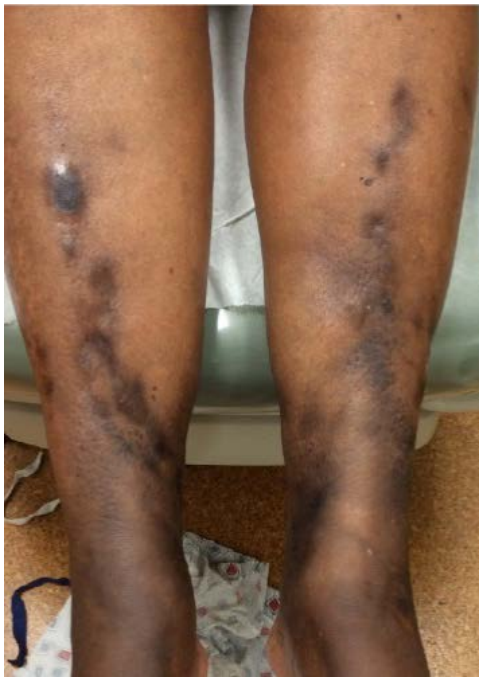
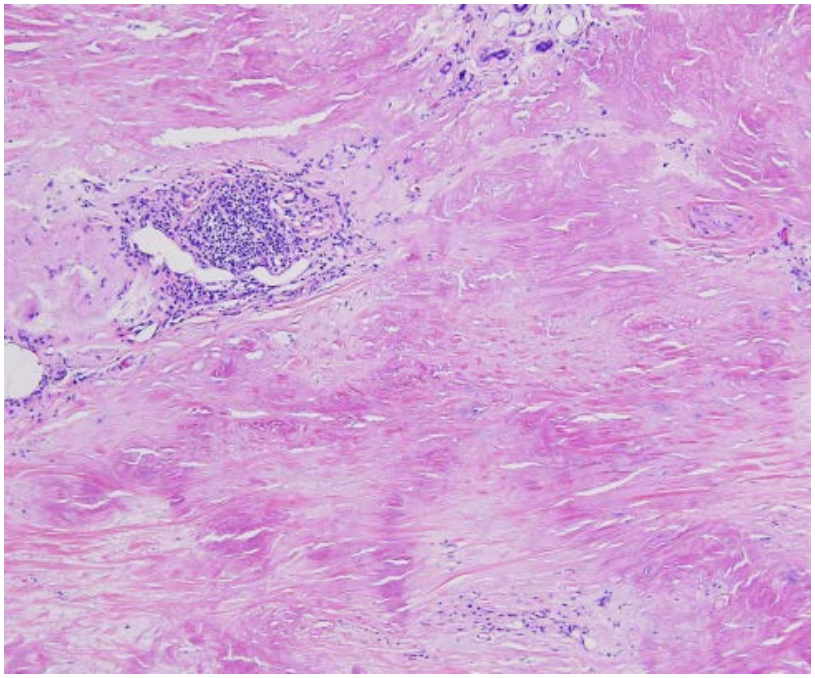

Figure 1. Hyperpigmented waxy plaques Figure 2. Amorphous, pale eosinophilic material in dermis

Discussion

Diagnosis: Nodular amyloidosis

Comment: Amyloidosis comprises a group of disorders that are characterized by the tissue deposition of amyloid, which is a proteinaceous substance with a cross-β-pleated sheet configuration [1,2]. Cutaneous amyloidosis may be either a primary localized amyloidosis that is limited to the skin or a cutaneous manifestation of systemic amyloidosis. Primary cutaneous amyloidosis has three major forms: macular amyloidosis, lichen amyloidosis, and, most rarely, nodular amyloidosis (NA) [3]. In contrast to the other forms of primary cutaneous amyloidosis in which amyloid is derived from keratinocytes, in NA the amyloid material is composed of immunoglobulin light chains that are believed to be produced by a local clonal plasmacytoma [4-6].

NA presents clinically as one or more, asymptomatic, waxy nodules or plaques on the face, trunk, or extremities, including acral sites. Histopathologic features include amyloid deposits in the dermis, subcutaneous fat, and blood-vessel walls. A perivascular infiltrate of plasma cells may be observed. Immunostaining is positive for light chain deposition. Amyloid deposits that are stained with Congo red demonstrate apple-green birefringence under polarized light.

Although the prognosis for NA is good in most individuals, an estimated 7% of patients progress to systemic amyloidosis [7,8]. NA also is associated with systemic diseases [6,9]. Hence, patients should be evaluated for systemic diseases, which include systemic amyloidosis, multiple myeloma, and Sjögren syndrome. Appropriate evaluation includes a complete blood count, creatinine level, liver-associated enzyme levels, serum and urine protein electrophoresis, and an electrocardiogram [6].

Many treatments have been employed for NA, which include surgical excision, cryotherapy, intralesional triamcinolone, electrodesiccation and curettage, carbon dioxide and pulse dye lasers, and dermabrasion. Although there are reports of clearance with remission of one year or longer, the lesions often are poorly responsive to therapy and frequently recur [3,6, 10-14]. Our patient has experienced some improvement with clobetasol 0.05% ointment twice daily and recently began a trial of colchicine.

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