

Chapter 46

Amyloidoses

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Definition and Description

The amyloidoses are a group of diseases characterised by extracellular proteinaceous tissue deposit, which shows green polarisation birefringence after Congo red staining. Deposition of amyloid can be localised (restricted to one organ of the body) or systemic. Three types of systemic amyloidoses are important for the clinician: AL (related to a monoclonal light chain production), AA (associated with chronic inflammation) and heredo-familial amyloidosis (due to underlying hereditary mutations of several proteins) [1]. Cutaneous amyloidosis could be restricted to the skin (i.e. cutaneous localised amyloidosis) or can be one of the systemic manifestations of the disease. In AL amyloidosis, skin involvement is characterised by petechiae and ecchymoses occurring spontaneously or after a minor trauma in eyelids and flexural regions. Bilateral periorbital lesions and macroglossia are the presenting manifestations of the disease in 15 % of cases and provide a clue to early diagnosis (Figs. 46.1 and 46.2). Papules, nodules or non-pruritic waxy plaques in retroauricular, umbilical, inguinal and anogenital regions are also possible during the course of the disease. Acral cutaneous infiltrative lesion with scleroderma-like findings is also reported [2]. There are three types of cutaneous localised amyloidoses (CLA): lichen, macular and nodular amyloidosis. Lichen amyloidosis is the most frequent type of CLA characterised by multiple pruritic brownish or red-lichenoid papules distributed on the shins, thighs, feet and legs. Macular amyloidosis presents as brownish patches with reticular or rippled pattern usually distributed symmetrically over the upper back, the forearms and legs. Nodular amyloidosis is the rarest form.

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Fig. 46.1 Macroglossia in a patient with AL amyloidosis. The tongue is firm to palpation. Note the non-reducible impression in the tongue caused by the teeth



Fig. 46.2 The same patient of Fig. 46.1. Periorbital purpura. Frequently the purpura is bilateral, and the patient gives no history of trauma to the area of ecchymoses

Nodules may occur on the trunk, limbs, extremities and genitals and may be a few millimetres to several centimetres in size and are brownish or red in colour. There is little or no itching.

Differential Diagnosis

Petechiae and ecchymoses in systemic amyloidosis may resemble many causes of purpura or coagulopathy. Lesions around eyes may resemble simple bruising. Amyloidosis waxy plaques of eyelids may resemble syringomas in its early stages;

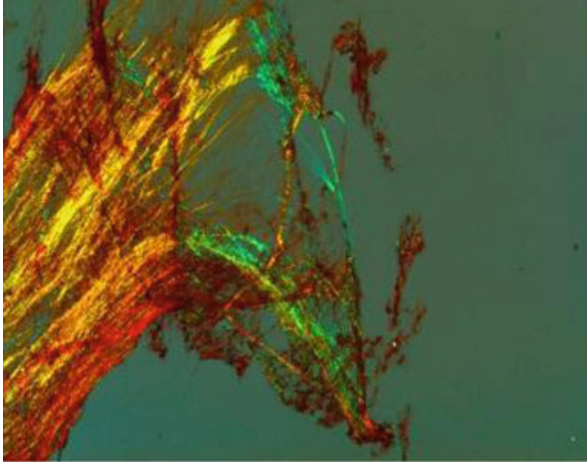


Fig. 46.3 Subcutaneous fat aspirate stained with Congo red and viewed under polarised light amyloid shows apple-green birefringence

the differential, later, might include histiocytoses, mucinoses, xanthomatoses, necrobiotic xanthogranuloma and cutaneous metastases. Lichen amyloidosis requires differential diagnoses with lichen simplex chronicus and hypertrophic lichen planus. Lichen amyloidosis could be misdiagnosed almost be confused with prurigo nodularis, papular mucinosis, pemphigoid nodularis, epidermolysis bullosa pruriginosa and underlying scleroderma. The differential diagnosis for macular amyloidosis includes lichenification, the so-called atopic dirty neck and notalgia paresthetica. The so-called atopic dirty neck shares with amyloidosis the same rippled pigmented appearance. Differential diagnoses to consider with nodular amyloidosis include cutaneous sarcoidosis, lupus vulgaris and granuloma annulare and primary skin tumours such as basal cell carcinoma, xanthomas, granuloma faciale and skin lymphoma.

Biopsy

The diagnosis of amyloidosis requires the histological demonstration of amyloid deposits. This is a positive Congo red-stained tissue specimen with the characteristic apple-green birefringence in polarised light. In systemic amyloidosis, abdominal subcutaneous fat aspiration (Fig. 46.3) or biopsy of minor salivary glands is convenient and a non-invasive method that demonstrates amyloid deposits in 70–85 % of patients (Figs. 46.4 and 46.5). The diagnosis of cutaneous localised amyloidosis is based on the presence of amyloid fibrils in skin biopsy. In macular and lichenoid forms, the amyloid deposits are confined to the papillary dermis. Immunohistochemistry stains are negative for cytokeratin, and electron microscopy shows characteristic fibrillar and linear amyloid. In nodular cutaneous amyloidosis,

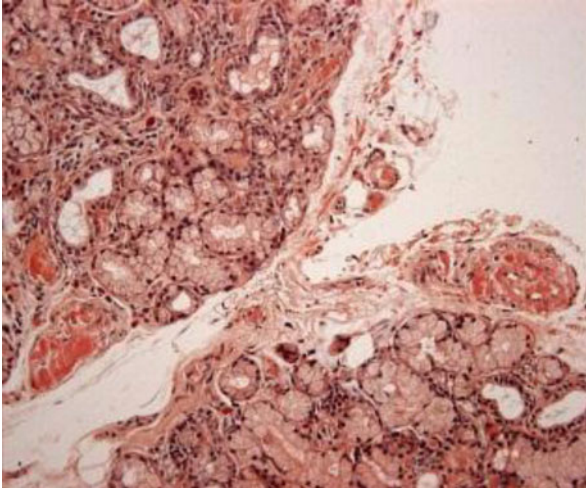


Fig. 46.4 The biopsied specimen of the minor (labial) salivary gland shows amyloid deposits (*arrows*) mainly in the interstitium (Congo red staining)

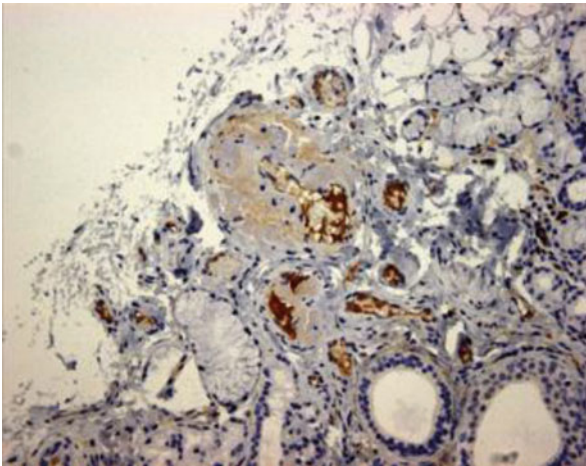
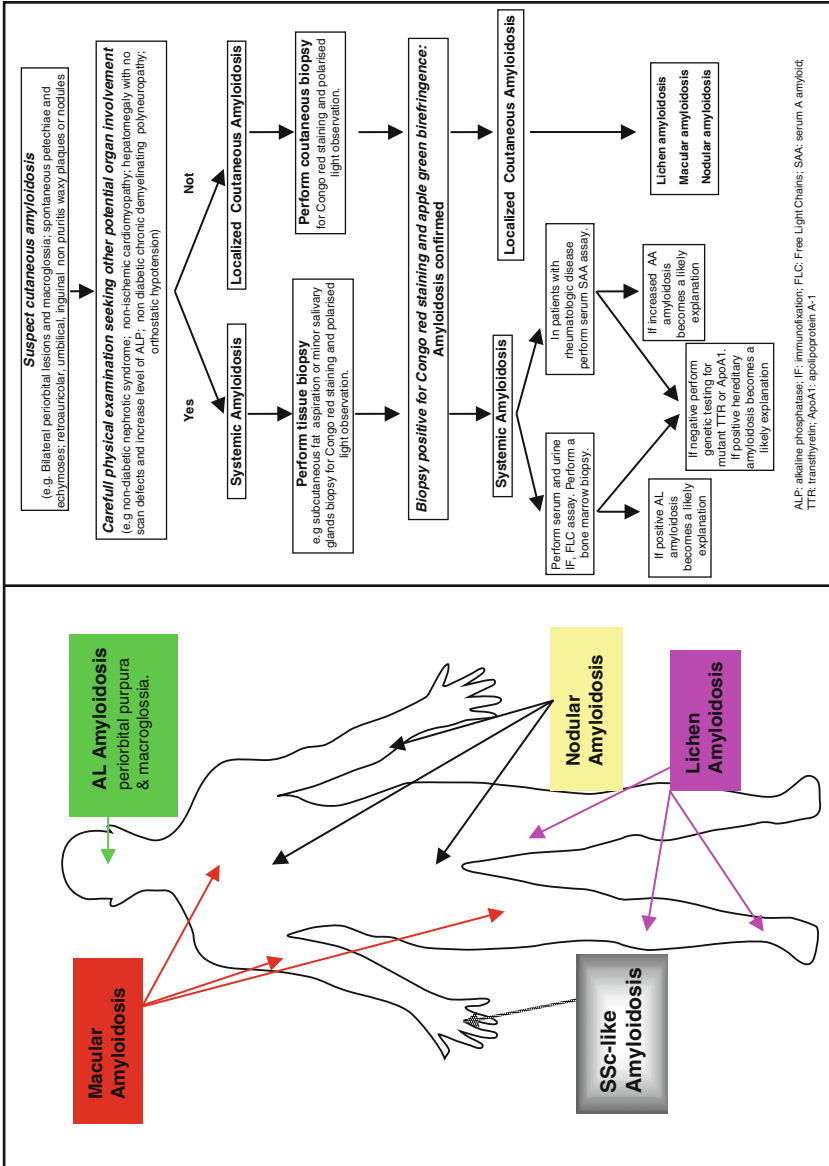


Fig. 46.5 The same biopsy of Fig. 46.2. On immunohistochemistry these amyloid deposits (*arrows*) are positively stained with anti- λ light chain antibody

the amyloid deposits are located in the papillary, subpapillary and reticular dermis, with infiltration of the blood vessel wall. Immunohistochemistry stains are negative for cytokeratin and positive for kappa and/or lambda immunoglobulin light chains.

See Also

Identify in the book where the lesion or the disease is also mentioned and described.



References

1. Obici L, Perfetti V, Palladini G, Moratti R, Merlini G. Clinical aspects of systemic amyloid diseases. *Biochim Biophys Acta*. 2005;1753:11–22.
2. Steciuk A, Domp martin A, Troussard X, Verneuil L, Macro M, Comoz F, Leroy D. Cutaneous amyloidosis and possible association with systemic amyloidosis. *Int J Dermatol*. 2002;41:127–32.