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Case Report

Amyloidosis cutis dyschromia: a rare form of primary cutaneous amyloidosis

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Abstract

Amyloidosis cutis dyschromia is a rare form of primary cutaneous amyloidosis. Amyloid deposition in the skin occurs without systemic manifestations and produces hypopigmented and hyperpigmented macules. A 19-year-old woman is presented with progression of this condition over 16 years.

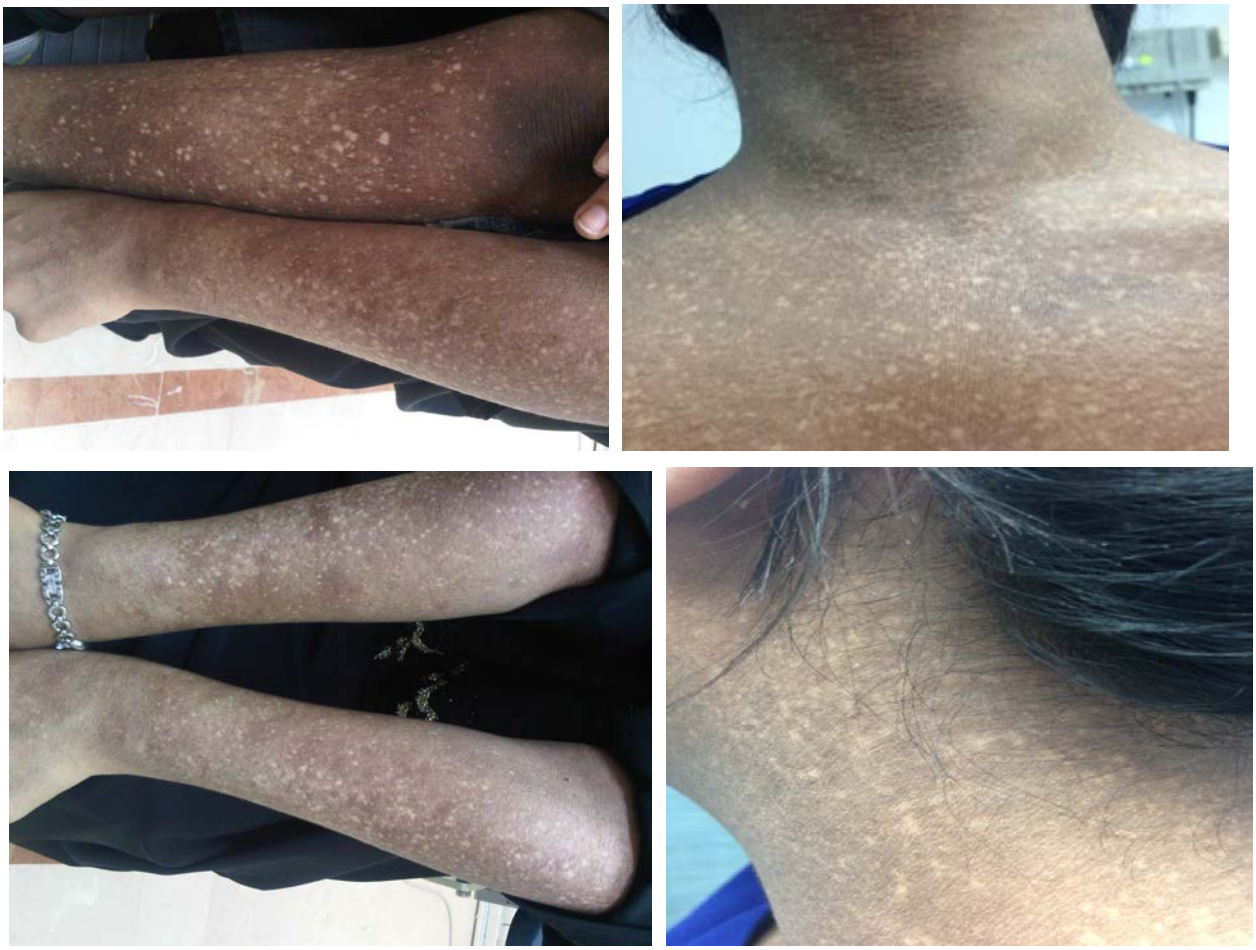
Introduction

Amyloidsis cutis dyschromia (ACD) also known as familial generalized dyschromic amyloidosis cutis is a rare disorder of pigmentation; the abnormal gene or locus is unknown. It is considered to be a type of primary cutaneous amyloidosis, which is characterized by the deposition of amyloid in the skin with absence of systemic deposits. To date, there are about 26 cases reported in the medical literature. Asians are affected more than other ethnic groups. The disease presents with mottled pigmentation formed by hyperpigmented and hypopigmented macules and patches in a generalized distribution [1-14]. We report a case of ACD with diffuse symmetrical involvement of the skin sparing the face, palms, and soles along with xerosis of the involved areas. Histopathology showed amorphous eosinophilic deposits in the papillary dermis that stained positive for Congo red.

Case synopsis

A 19-year-old woman presented with progressive diffuse symmetric hyper and hypopigmented patches and macules that started to develop at the age of three years. The changes were asymptomatic and the patient denied any history of photosensitivity. Her past medical history was negative for any significant medical problems or disease. No history of prolonged or repeated infections could be elicited. The patient denied using any long-term medications, topical creams, or preparations before the onset of the skin changes. She had normal growth and development as a child. Her parents are first-degree cousins. One of her paternal aunts had a similar pattern of pigmentation.

Physical examination showed multiple hyperpigmented patches with intermingled multiple non-atrophic hypopigmented macules involving all the body, but sparing the face, palms, and soles. Some of the areas involved were dry and scaly (Figure 1-5). The dermatoglyphs were intact. No dental or nail abnormalities were noticed. Scalp and hair examination was within normal limits. Serum protein electrophoresis was negative and 24 hours urine collection for arsenic was within normal range. Skin biopsy from involved skin revealed eosinophilic globules in the papillary dermis (Figure 6-7). Congo red stain was positive (Figure 7-8). Topical emollients and steroids improved the skin dryness but not the dyschromia.



Figures 1-4. Hyperpigmented patches and macules with intermingled hypopigmented macules along with xerosis

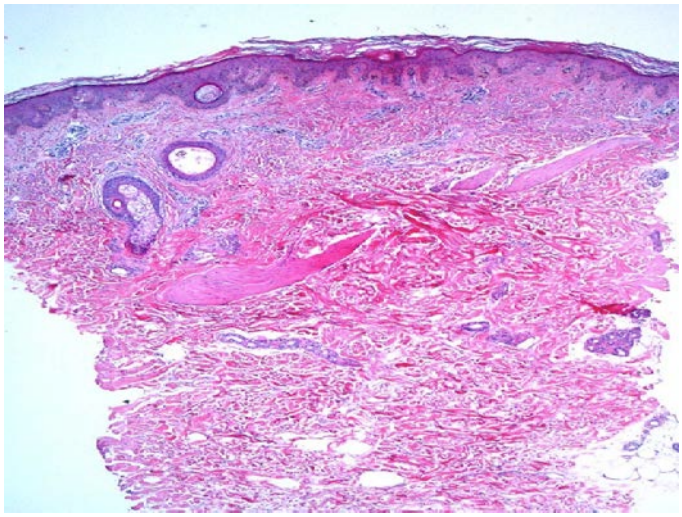
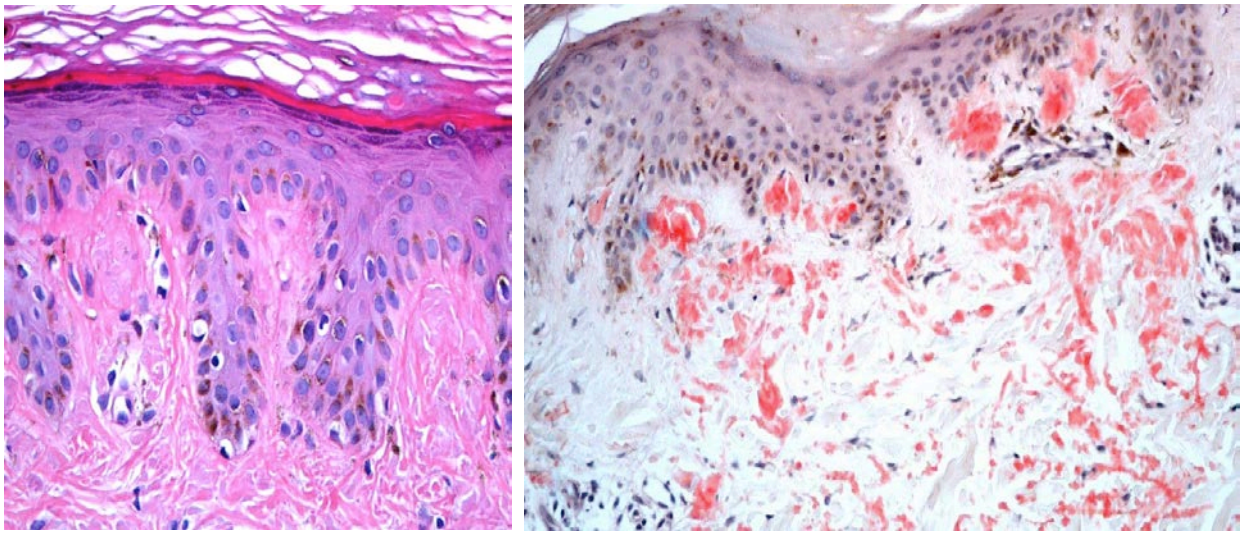


Figure 5. HE X10: amorphous eosinophilic deposits (Amyloid) in the papillary dermis



Figures 6. HE X100: amorphous eosinophilic deposits (Amyloid) in the papillary dermis

Figure 7. Congo red stain: Amyloid deposits in the papillary dermas showing positive staining.

Discussion

Primary cutaneous amyloidosis is a group of cutaneous disorders that are characterized by deposition of amyloid in the skin without deposition in any other organs [3]. ACD is a rare form of primary cutaneous amyloidosis that presents with diffuse hypo and hyperpigmented patches and macules with occasional itching. Onset is almost always before puberty [1-14]. Atrophy and blisters are rarely seen [4].

The disease is generally not associated with systemic symptoms. However, there is one case report in which ACD was associated with generalized morphea [5], and another case report involved two siblings suffering spasticity, motor weakness, and atypical Parkinsonism [6].

Histopathological examination shows amyloid deposits in the papillary dermis. Amyloid stains positive for crystal violet and Congo red. In rare instances, amyloid is not detected with the former stains and immunochemistry for anti-cytokeratin antibodies should be obtained if suspicion remains [1-4].

The pathogenesis is poorly understood but the disease is thought to be caused by an inherited increase in sensitivity to UVB leading to defects in DNA repair. Amyloid is formed as a result of keratinocyte degeneration [15].

Ozcan et al used oral acitretin (0.75 mg/kg/day for 3 months) with significant improvement in hyperpigmentation [7]. In another retrospective study published by Qiao et al, 10 patients were treated with oral vitamin E and vitamin C with minimal improvement. Three patients received 20 mg of oral acitretin daily for three months. A good response was observed in two of the three patients. Long term follow up of patients treated with acitretin was not published. No other treatments to date are successful to treat ACD [8].

Other causes of dyschromia should be excluded. The differential diagnosis is summarized in Table 1.

Table 1. Clinical differential diagnosis of ACD

Condition	Clinical Presentation	Associated features	Histopathology	Treatment	Other	References
Congenital						
Dyschromatosis universalis hereditaria	Generalized hyperpigmented and hypopigmented macules distributed in a reticulate pattern	Case reports of mental retardation, learning disabilities, seizures, eye abnormalities ,deafness ,insulin dependent diabetes and thrombocytopenia	Focal increase or decrease in melanin in the basal layer.	No treatment available Genetic Counseling	AD, AR	[16-18]
Dyschromatosis symmetrica hereditaria (reticulate acropigmentation of Dohi)	Hyperpigmented and hypopigmented macules distributed on the face and the dorsal aspects of the extremities	Case reports of dental abnormalities, neurological abnormalities and hypo/hyperpigemnted hairs	Increased/decreased melanin in hyperpigmented macules and hypopigmented macules respectively.	No treatment available Genetic counseling	AD, sporadic	[19,20]
Poikiloderma-like cutaneous amyloidosis	Poikilodermatous skin lesions, lichenoid papules, occasional blisters and palmoplantar keratosis	Short stature, photosensitivity	Amyloid deposition in the pigmented lesions and the lichenoid papules.	No treatment available Genetic counseling	AD, X-linked	[21-24]
Dyskeratosis congenita	Hyperpigmentation involving the upper chest and upper arms admixed with hypopigmented macules, occasional telangiectasias and epidermal atrophy, i.e. poikiloderma.	Leukoplakia, nail dystrophy, palmoplantar hyperhidrosis Dental, gastrointestinal, genitourinary, neurological, ophthalmic and skeletal abnormalities. Bone marrow failure Predisposition to hematological malignancies and squamous cell carcinoma	Epidermal thinning, telangiectasia, areas of increased pigment within the basal layer	No treatment available Genetic counseling	X-linked recessive 90% AD,AR <10 %	[25,26]
Xeroderma pigmentosum	Hyperpigmented macules in sun exposed skin (solar lentigines)	Increased risk of skin cancers, ocular abnormalities, neurological abnormalities, developmental delays	Increased or decreased melanin in basal layer, epidermal atrophy or hyperkeratosis ,solar elastosis	Photoprotection, oral retinoids	AR	[26-28]
Acquired						
Chronic arsenic toxicity	Hyperpigmented patches and macules *'rain-drop pigmentation'*, areas of depigmenation	Hyperkeratosis of palms and soles, cutaneous and internal malignancies	Basal cell pigmentation in hyperpigmented lesions.	Chelation therapy	Acquired	[29,30]

AD, autosomal dominant; AR, autosomal recessive

Conclusion

We report a woman with ACD. Some of the conditions in the clinical differential diagnosis include cutaneous diseases presenting with congenital or acquired dyschromia (Table 1). The diagnosis of ACD may be suspected based upon the presence of progressive diffuse hypo and hyperpigmented patches and macules with or without itching before the onset of puberty. The diagnosis is confirmed by histopathological examination, which shows amyloid deposits in the papillary dermis that stain positively for amyloid stains such as crystal violet and Congo red. To date, a small number of patients have been successfully treated with acitretin. However, this was not an option in our patient or in women of childbearing potential.

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