

# UC Davis

## Dermatology Online Journal

### Title

Primary diffuse macular amyloidosis

### Permalink

<https://escholarship.org/uc/item/54z8k8r6>

### Journal

Dermatology Online Journal, 21(12)

### Authors

Kanchanapoomi, Melissa  
Rosenstein, Rachel  
Shvartsbeyn, Marianna  
et al.

### Publication Date

2015

### DOI

10.5070/D32112029548

### Copyright Information

Copyright 2015 by the author(s). This work is made available under the terms of a Creative Commons Attribution-NonCommercial-NoDerivatives License, available at <https://creativecommons.org/licenses/by-nc-nd/4.0/>

Peer reviewed

**Case presentation**

**Primary diffuse macular amyloidosis**

**Melissa Kanchanapoomi, MD, Rachel Rosenstein, MD PhD, Marianna Shvartsbeyn, MD, Shane A Meehan MD, Naomi Dolly MD, and Alisa Femia MD**

**Dermatology Online Journal 21 (12): 21**

**New York University School of Medicine**

**Special Guest Editor: Nicholas A Soter MD**

---

**Abstract**

We present a 53-year-old woman with diffuse macular amyloidosis. We discuss the clinical manifestations, pathophysiologic mechanisms, and associations of cutaneous macular amyloidosis.

**Case synopsis**

**History:** A 53-year-old woman presented to the Dermatology Clinic at Bellevue Hospital Center. Thirty months prior, the patient developed a pruritic, erythematous, macular eruption that involved the forehead, chest, and upper and lower extremities. She noted that the erythema progressed to hyperpigmentation. She denied fevers, oral ulcers, any other skin complaints, ecchymoses, hemoptysis, shortness of breath, chest pain, or generalized weakness.

There was no family history of autoimmune disorders. Past medical history included hypothyroidism.

**Physical examination:** On the face, neck, chest, back, abdomen, lateral aspects of the thighs, and lateral aspects of the arms and legs, multiple, hyperpigmented, rippled macules coalesced into patches with areas of linear sparing at the intertriginous areas. On the upper chest, there were diffuse, erythematous patches. There were diffuse, erythematous and violaceous patches on the face with mild periorbital edema.

**Laboratory data:** A complete blood count was normal except for an eosinophilia of 5.1%. Basic metabolic panel, hepatic panel, erythrocyte sedimentation rate, C-reactive protein, thyroid stimulating hormone, serum protein electrophoresis, urinalysis, serum immunofixation, rheumatoid factor, creatinine phosphokinase, aldolase, and a morning cortisol level were normal. Anti-SSA, anti-SSB, and anti-Jo 1 antibodies were negative. Human immunodeficiency virus test was negative. Anti-nuclear antigen was elevated at 1:160, with a homogenous pattern. Quantitative immunoglobulins showed an elevated IgM at 355 mg/dL, but IgG, IgA, and IgE, were normal.

**Histopathology:** There is a superficial, perivascular lymphocytic infiltrate with melanophages in the papillary dermis. Occasional necrotic keratinocytes are noted along the basal layer and there are small deposits of amorphous eosinophilic material within the papillary dermis.



Figures 1. Facial erythema and periorbital edema Figures 2 (right), 3 (below). Hyperpigmented rippled macules

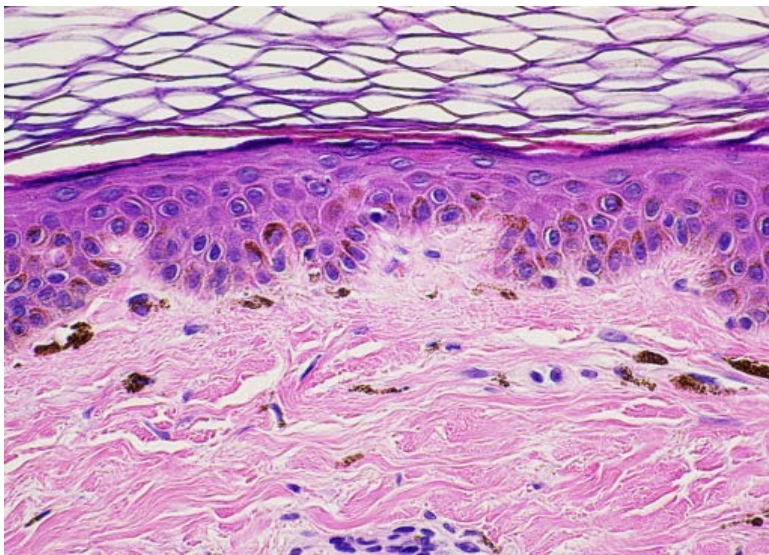


Figure 4. Melanophages in papillary dermis

# Discussion

**Diagnosis:** Primary diffuse macular amyloidosis

**Comment:** Amyloidosis includes a spectrum of diseases that involve the disordered folding of a protein which results in the extracellular deposition of insoluble fibrils in various tissues [1]. Amyloidosis may be classified as primary or secondary and localized cutaneous types or systemic [1]. The systemic and localized cutaneous variants are further classified into primary and secondary types [2].

In contrast to systemic amyloidosis, the abnormal protein is locally deposited in the skin and does not involve internal organs in primary localized cutaneous amyloidosis (PLCA). The etiology of amyloid in PLCA is not clearly understood. There are two major proposed theories: the fibrillar body theory and the secretory theory. The fibrillar body theory postulates that keratinocyte inflammation, and, consequently, apoptosis results in filamentous degeneration, which forms amyloid deposition. Stimuli of keratinocytes are suggested to be related to longstanding mechanical trauma, infectious diseases, and ultraviolet radiation. The secretory theory outlines that stimulated basal keratinocytes stimulate dermal amyloid [3-5]. Multiple case reports have associated PLCA with autoimmune and immune disorders, which implicates an underlying immune dysregulation as a potential etiology. Associated disorders include systemic sclerosis, CREST syndrome, rheumatoid arthritis, systemic lupus erythematosus, autoimmune thyroiditis, ankylosing spondylitis, primary biliary cirrhosis, sarcoidosis, and autoimmune cholangitis [6-10].

Within PLCA subtypes, there are three major variants, which include macular, lichen, and nodular [11]. There are other rare variants, which include bullous, poikilodermatous, and vitiliginous types [12]. Despite the distinct classification, patient presentation with overlapping of multiple subtypes occurs in both PLCA and systemic amyloidosis.

On histopathologic examination, all forms of systemic and cutaneous amyloidosis appear similar, with the deposition of an amorphous, globular, eosinophilic material in the dermal papillae with scattered apoptotic keratinocytes. Using a Congo red stain, this material appears orange-red. Under polarized light, the amyloid has a characteristic green birefringence [13].

Macular amyloidosis is typically pruritic, symmetric, brown in color, ill-defined, with a characteristic rippled appearance on the upper back and arms, and, less commonly, on the chest and buttocks [14]. Often, a history of repeated friction with the use of a scrub or nylon towel is elicited. Commonly, macular amyloidosis and lichen amyloidosis may co-exist owing to repeated scratching [15]. Additionally, an association between localized cutaneous amyloidosis and notalgia paresthetica often is observed.

## References

1. Merlini G, Bellotti V. Molecular mechanisms of amyloidosis. *N Engl J Med* 2003; 349: 583
2. Obici L, et al. Clinical aspects of systemic amyloid diseases. *Biochimica et Biophysica Acta* 2005; 1753: 11
3. Chang YT, et al. Apoptosis in primary cutaneous amyloidosis. *Br J Dermatol* 1999; 140: 210
4. Lee YS, et al. Macular and lichenoid amyloidosis: a possible secretory product of stimulated basal keratinocytes: an ultrastructural study. *Pathology* 1991; 23: 322
5. Horiguchi Y, et al. Lamina densa malformation involved in histogenesis of primary localized cutaneous amyloidosis. *J Invest Dermatol* 1992; 99: 12
6. Black MM. Primary localized cutaneous amyloidosis in systemic sclerosis. *Trans St Johns Hosp Dermatol Soc* 1971; 57: 177
7. Fujiwara K, et al. Primary localized cutaneous amyloidosis associated with autoimmune cholangitis. *Int J Dermatol* 2000; 39: 768
8. Apaydin R, et al. Lichen amyloidosis, ankylosing spondylitis and autoimmune thyroiditis: coincidence or association? *J Eur Acad Dermatol Venereol* 2000; 14: 135
9. Marzano AV, et al. Poikilodermatous subacute cutaneous lupus erythematosus. *Dermatology* 2003; 207: 285
10. Dahdah MJ, et al. Primary localized cutaneous amyloidosis: a sign of immune dysregulation? *Int J Dermatol* 2009; 48: 419
11. Kaltoft B, et al. Primary localized cutaneous amyloidosis – systematic review. *Dan Med J* 2013; 60: 11
12. Ogino A, et al. Amyloidosis cutis dyschromica: a case treated with acitretin. *J Dermatol* 2005; 32: 474
13. Linke RP. Classifying of amyloid on fixed tissue sections for routine use by validated immunochemistry. *Amyloid* 2011; 18: 67
14. Schepis C., et al. An odd case of diffuse macular amyloidosis. *G Ital Dermatol Venereol* 2013; 148: 156
15. Siragusa M, et al. Friction melanosis, friction amyloidosis, macular amyloidosis, and towel melanosis: many names for the same clinical entity. *Eur J Dermatol* 2001; 11: 545