Thieme

Primary Localized Cutaneous Nodular Amyloidosis of the Cheeks

Primär lokalisierte kutane noduläre Amyloidose der Wangen

Authors

V. Jievaltaite[1], J. Stumbriene[1], V. Kucinskiene[1], J. Makstiene[2], S. Valiukeviciene[1]

Institutions

1 Department of Skin and Venereal Diseases, Lithuanian University of Health Sciences, Kaunas, Lithuania

2 Department of Pathology, Lithuanian University of Health Sciences, Kaunas, Lithuania

Bibliography

DOI https://doi.org/10.1055/s-0043-124725 |
Akt Dermatol 2018; 44: 156–159
© Georg Thieme Verlag KG Stuttgart · New York
ISSN 0340-2541

Corresponding author

Skaidra Valiukeviciene, Department of Skin and Venereal Diseases, Lithuanian University of Health Sciences, Kaunas, Lithuania
Skaidra.Valiukeviciene@kaunoklinikos.lt

ABSTRACT

We report the rare case of a primary localized cutaneous nodular amyloidosis (PLCNA), which clinically appeared as waxy, yellow-red infiltrated plaques with telangiectasia on the face of a 52-year-old woman. Diagnosis was confirmed by immunohistochemistry results. Histologically, diffuse amyloid tissue infiltration could be revealed. Amyloid stained positive for lambda, but negative for kappa light chain antibodies whereas no proliferation of clonal plasma cells in the bone marrow was found.

ZUSAMMENFASSUNG

Wir berichten über den seltenen Fall einer primär lokalisierten kutanen nodulären Amyloidose (PLNCA), die sich wachsartig mit gelb-rot infiltrierten Plaques an der Gesichtshaut einer 52-jährigen Frau zeigte. Die Diagnose wurde immunhistochemisch bestätigt. Es fand sich eine diffuse Amyloid-Infiltration mit positiver Färbung für Lambda- und negativer für Kappa-Leichtketten-Antikörper ohne Proliferation der klonalen Plasmazellen ins Knochenmark.

Case Report

The 52-year-old woman had a 10 years history of reddish-yellow infiltrated plaques on both cheeks (▶ **Fig. 1 a**). Dermatoscopy showed homogeneous yellow diffuse infiltrate in the centre of the skin lesions and peripheral telangiectasia (▶ **Fig. 2**). Histopathological examination revealed deposition of homogeneous eosinophilic material in the dermis positive for Sirius and Congo red staining (▶ **Fig. 3**, ▶ **Fig. 4**). The material stained by Congo red produced green birefringence under polarized light. Immunohistochemical staining showed that the amyloid deposits are positive for lambda light chains and negative for kappa light chains and cytokeratin (▶ **Fig. 5**). Direct immunofluorescence with IgG, IgA, IgM and C3 complement was negative.

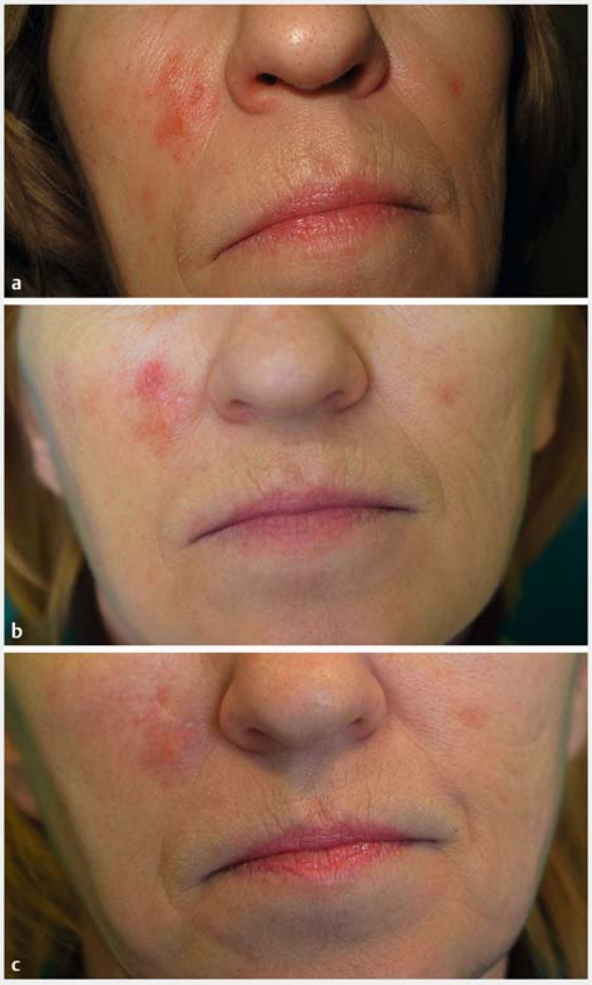
Laboratory findings revealed thrombocytopenia and hyperkalemia. The liver enzymes, creatinine, glucose tests and the antinuclear antibodies were without pathological changes. Serum protein concentrations of α1 globulin were 3.1 %, correspondingly kappa and lambda light chains – 21.7 mg/l and 73.6 mg/l, the ratio of them – 0.29. Separation of blood monoclonal protein fractions was negative.

Cardio and thyroid ultrasonography showed mitral regurgitation and nodules in the thyroid. Chest X-ray, ultrasonography of liver, pancreas, spleen, kidneys, gall-bladder as well as gastroscopy were without significant changes. Biopsy from subcutis and the bone marrow trephine biopsy (TB) did not show any specific abnormality. On the basis of clinical findings and immunohistochemistry the diagnosis of PLCNA was confirmed. Open-spray technique cryotherapy (CT) was applied on the skin lesions four times (▶ **Fig. 1 b, c**). We used two freeze/thaw cycles (with a 10 second freeze time) of liquid nitrogen sequentially every time at one month intervals. After the last procedure the patient was satisfied with the results of this treatment.

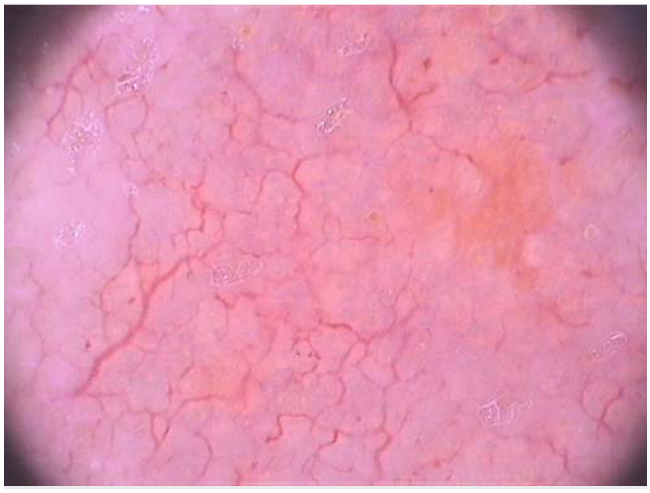
Discussion

According to literature there are three forms of primary localized cutaneous amyloidosis – lichenoid, nodular and macular [1, 2]. Nodular is the rarest form of them and was mentioned by Gottron for the first time in 1950 [3]. Based on published reports, PLCNA occurs between the age of 24 and 87 years (median 57 years). This condition is more common in males than in females (ratio of 1.2:1.0) and is usually located on the face, scalp, lower extremities or genital area [4 – 6]. The course of disease is chronic and the diagnosis is made within 13.5 years after the onset of clinical symptoms [4]. Nearly 25 % of the

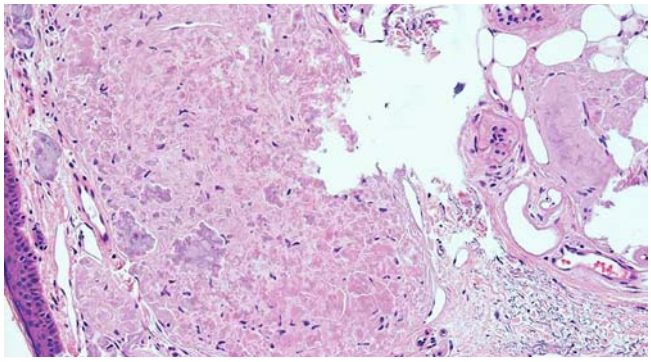
This document was downloaded for personal use only. Unauthorized distribution is strictly prohibited.



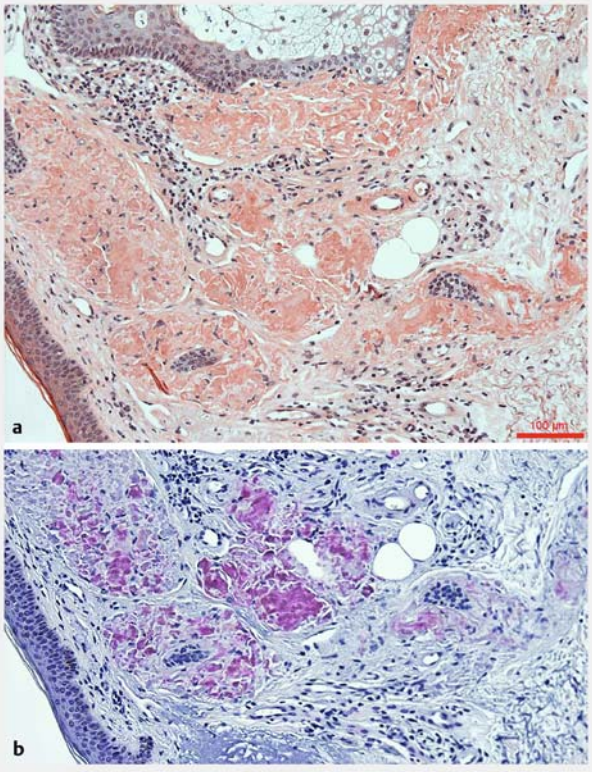
▶ **Fig. 1** Primary localized cutaneous nodular amyloidosis. **a** 1.5 × 2 cm and 0.5 × 0.5 cm diameter reddish-yellow infiltrated plaques on patient face. **b** Treatment result after the first cryotherapy procedure. **c** Treatment result after the third cryotherapy procedure – partial clinical response.



▶ **Fig. 2** Dermoscopic findings (× 20): homogeneous yellow color in the center of plaque and a peripheral telangiectasia.



▶ **Fig. 3** Histopathology findings (H + E × 100): deposition of homogeneous eosinophilic pink material in the dermis.



▶ **Fig. 4** Histopathological findings (× 100): homogeneous material positive for Congo red (**a**) and Sirius red (**b**) staining.

patients with nodular amyloidosis have association with Sjögren's syndrome [7] or other autoimmune disorders of connective tissues like lupus erythematosus, psoriasis, rheumatoid arthritis or primary biliary cirrhosis [8, 9].

Pathogenesis of PLCNA is still unclear and the diagnosis is based on the histopathological and immunohistochemical findings [3, 4, 6, 10 – 12].

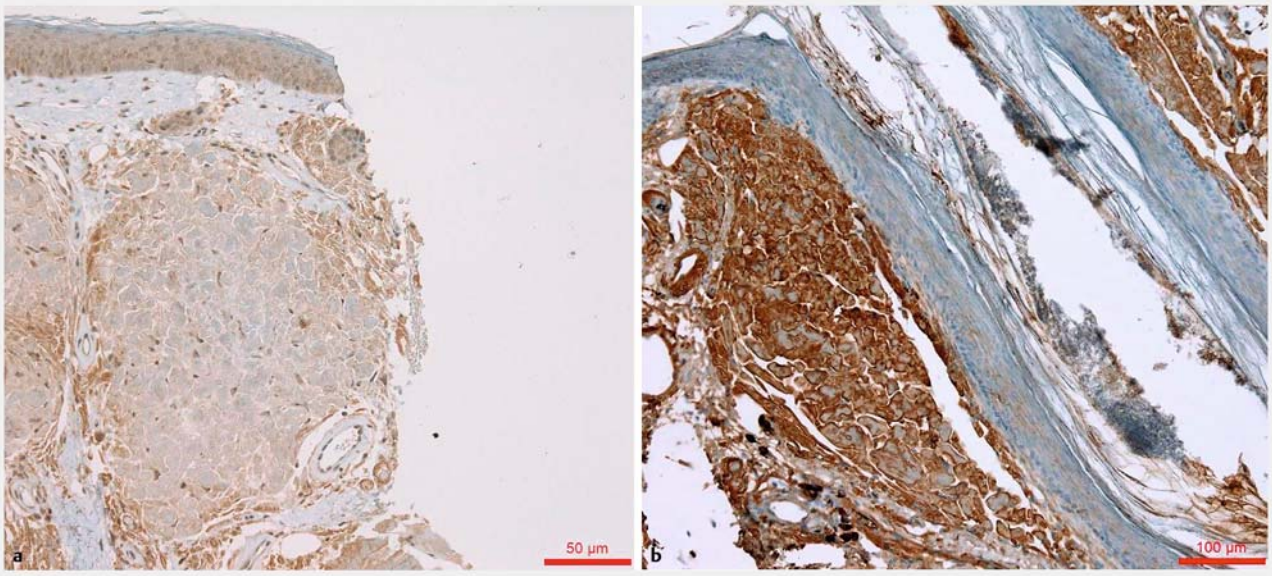
A wide range of laboratory tests did not reveal a primary systemic amyloidosis in our patient. The exclusion of a clonal plasma cell proliferation in TB was the leading criterion for diagnosis of PLCNA [12]. However, PLCNA has a risk of progression to

This document was downloaded for personal use only. Unauthorized distribution is strictly prohibited.

▶ **Table 1** Review of performed treatment in cases of primary localized cutaneous nodular amyloidosis.

Author	Localization	Method	Response
Raymond J et al. 2016 [13]	Chin and neck	Methotrexate 12.5 mg – 50 mg injections on a weekly basis over a 6-months period without folic acid	Reduction in size
Schucht K et al. 2016 [14]	Temple	Curettage	Not described
Cai YX et al. 2016 [6]	Nose	Excision	Short term efficacy
Lesiak A et al. 2012 [15]	Trunk and extremities	CO_2 laser	Complete
Tong PL et al. 2011 [8]	Lower leg*	Cyclophosphamide 50 mg, daily for 12 months	Stabilization of existing nodules
Alster TS et al. 1999 [16]	Chin and submental neck	585-nm pulsed dye laser	Reduction in size and colour
Vestey JP et al. 1994 [17]	Nose and chin	Cryotherapy	No response

* PLCNA associated with CREST (calcinosis, Raynaud phenomenon, oesophageal motility disorders, sclerodactyly and telangiectasia) syndrome and Sjögren's syndrome.



▶ **Fig. 5** Immunohistochemistry findings: amyloid deposits were negative for amyloid A (**a**) and positive for lambda light chains (**b**) stainings.

systemic amyloidosis between 7 % to 50 %. Therefore it is necessary to do a regular follow-up of the patients every 6 or 12 months [4].

Treatment of PLCNA is empirical, very controversial and based on several published case reports (▶ **Table 1**).

CT, CO_2 laser, pulsed dye laser, local corticosteroid injections or excision are described as potentially used methods [6, 8, 13 – 17]. Moreover, there are some case reports where none of the treatment methods had been applied because of an asymptomatic occurrence of PLCNA or patient refusal [3, 4, 10].

Different from other published case reports [17], in our case cryotherapy resulted in partial clinical response and the patient was satisfied with treatment results. Therefore CT can be tried for PLCNA in similar cases. The monitoring of the patients with PLCNA is important for timely assessment and treatment of associated diseases as well as for the detection of a progression to systemic amyloidosis.

This document was downloaded for personal use only. Unauthorized distribution is strictly prohibited.

Conflict of Interest

The authors declare no conflict of interest.

References

[1] Schreml S, Schroeder J, Eder F et al. Hereditary and non-hereditary cutaneous amyloidoses. Pathologe 2009; 30: 197 – 204

[2] Misumi Y, Ando Y. Classification of amyloidosis. Brain Nerve 2014; 66: 731 – 737

[3] Zhai Z, Hao F, Song Z et al. Primary localized cutaneous nodular amyloidosis of the thighs. Cutis 2015; 95: E24 – 27

[4] Verma SB, Khopkar U. Bilateral recurrent facial primary cutaneous nodular amyloidosis (PCNA). JAAD Case Rep 2016; 2: 31 – 33

[5] Kaltoft B, Schmidt G, Lauritzen AF et al. Primary localised cutaneous amyloidosis – a systematic review. Dan Med J 2013; 60: A4727

[6] Cai YX, Li SJ, Zhou Y et al. Immunohistochemical study of immunoglobulin light chains and inflammatory cells in a patient with localized primary cutaneous nodular amyloidosis. J Eur Acad Dermatol Venereol 2016; 30: 469 – 470

[7] Wey SJ, Chen YM, Lai PJ et al. Primary Sjögren syndrome manifested as localized cutaneous nodular amyloidosis. J Clin Rheumatol 2011; 17: 368 – 370

[8] Tong PL, Walker WA, Glancy RJ et al. Primary localized cutaneous nodular amyloidosis successfully treated with cyclophosphamide. Australian Journal of Dermatology 2013; 54: e12 – e15

[9] Ung CY, Carr NJ, Ardern-Jones MR. Primary cutaneous nodular amyloidosis associated with psoriasis. Clin Exp Dermatol 2014; 39: 608 – 611

[10] Terushkin V, Boyd KP, Patel RR et al. Primary localized cutaneous amyloidosis. Dermatol Online J 2013; 19: 20711

[11] Elghetany MT, Saleem A, Barr K. The congo red stain revisited. Ann Clin Lab Sci 1989; 19: 190 – 195

[12] Clos AL, Lasagna-Reeves CA, Castillo-Carranza DL et al. Formation of immunoglobulin light chain amyloid oligomers in primary cutaneous nodular amyloidosis. Br J Dermatol 2011; 165: 1349 – 1354

[13] Raymond J, Choi J. Nodular cutaneous amyloidosis effectively treated with intralesional methotrexate. JAAD Case Rep 2016; 2: 373 – 376

[14] Schucht K, Schröder J, Siegmund H et al. Nodular Cutaneous Amyloidosis at the Temple. Case Rep Dermatol 2016; 8: 193 – 196

[15] Lesiak A, Rakowski A, Brzezinska A et al. Effective treatment of nodular amyloidosis with carbon dioxide laser. J Cutan Med Surg 2012; 16: 372 – 374

[16] Alster TS, Manaloto RM. Nodular amyloidosis treated with a pulsed dye laser. Dermatol Surg 1999; 25: 133 – 135

[17] Vestey JP, Tidman MJ, Mclaren KM. Primary nodular cutaneous amyloidosis – long-term follow-up and treatment. Clin Exp Dermatol 1994; 19: 159 – 162

This document was downloaded for personal use only. Unauthorized distribution is strictly prohibited.