# UC Davis
## Dermatology Online Journal

### Title
Extensive colloid milium in a patient with chronic actinic dermatitis

### Permalink
https://escholarship.org/uc/item/6m03q9pt

### Journal
Dermatology Online Journal, 31(3)

### Authors
Aziz, Hira
Rahman, Atiya
Shafqat, Sara
et al.

### Publication Date
2025

### DOI
10.5070/D331365367

### Copyright Information
Copyright 2025 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

eScholarship.org Powered by the California Digital Library
University of California

Case Presentation

# Extensive colloid milium in a patient with chronic actinic dermatitis

Hira Aziz, MBBS[1a], Atiya Rahman, MBBS, FCPS, MMEd, FRCP[1], Sara Shafqat, MBBS[1], Anam Altaf, MBBS[1], Akhtar Bajwa, MBBS, FCPS[1]

[1] Department of Dermatology, PNS Shifa & Bahria University Health Campus, Karachi, Pakistan

*Keywords: colloid milium, sun-induced, solar elastosis, photo-dermatoses*

Dermatology Online Journal

Vol. 31, Issue 3, 2025

## Abstract

Colloid milium is a rare and clinically underdiagnosed dermatosis, characterized by deposition of amorphous material in the dermis. Definitive diagnosis is established by histopathology, which reveals the presence of colloid in dermal papillae. Photo-exposed areas are the most frequently involved sites and include dorsa of hands, neck, and ears. We present an adult man with an outdoor occupation who had long-standing chronic actinic dermatitis. For one and a half years he had been developing skin colored to slightly erythematous papules and nodules on his face, anterior neck, and dorsal aspect of the hands, symmetrically. These discrete lesions arose in the background of his eczematous sun exposed skin. Skin biopsy for histopathology of these papules showed deposition of amorphous colloid material in the dermal papillae with an uninvolved Grenz zone along with dermal solar elastoses. The coexistence of colloid milium with chronic actinic dermatitis in the same patient has not been previously reported in the medical literature even though both conditions are precipitated by chronic sun exposure. Similarly, such extensive lesions of colloid milium have rarely been reported and we ascribe this to his profession, compelling him to spend numerous hours in the sun every day.

## Introduction

Colloid milium presents as small dermal papules, measuring 1 to 5mm in diameter, yellowish brown to translucent in color. They present symmetrically in irregular groups in areas exposed to sunlight.[1,2] Most commonly involved sites are the dorsa of hands, front and back of neck, and ears bilaterally.[3,4] The exact cause of colloid milium is uncertain but sunlight exposure is strongly implicated. The papules of colloid milium generally have a chronic course and are usually asymptomatic.[1] Similar lesions have also been described after exposure to petroleum products and hydroquinone.[2] Generally, three different variants of colloid milium are reported, an adult onset, nodular form, and a juvenile form. A pigmented form has been reported by Mehragan et al.[3] The nodular form is characterized by usually a single nodule up to 5cm in diameter, although multiple nodules may also occur. Its significance lies in the fact that it may be associated with myeloma. The pigmented form presents as gray-black clustered papules on the face. Out of all these variants the adult form is most commonly encountered. It generally occurs at the ages between 30 and 50 years old and in light skinned individuals.[3-5] We report an adult man with Fitzpatrick skin type III, presenting with adult colloid milium in the setting of chronic actinic dermatitis.

## Case Synopsis

A 41-year-old male gardener with a known history of chronic actinic dermatitis for the last ten years, presented to dermatology clinic for the evaluation of a 1.5-year history of asymptomatic raised lesions predominantly affecting his face, cheeks, nose, forehead, ears and also the dorsum of the hands. The patient denied any history of pus or fluid oozing out of these lesions, nor any history of itching or pain. On further inquiry, he had a long-term history of sun exposure, almost 8 to 10 hours per day for the last 15 years. He worked outdoors with no sunscreen application or use of barriers. He had been using emollients and topical corticosteroids irregularly to control his eczematous eruptions. He denied any use of topical bleaching agents such as hydroquinone and denied scratching. According to the patient, the eczematous eruption had been gradually progressing over the span of 10 years. There was no family history of simi-

a Corresponding Author: Hira Aziz, Department of Dermatology, PNS Shifa & Bahria University Health Campus, Karachi, Pakistan, Tel: 00923435040000, Email: dr.hira.aziz97@gmail.com




**Figure 1.** ***A)*** *Multiple papules, brown to erythematous, involving face on erythematous eczematous background with accentuated skin markings, predominantly on sun exposed sites.* ***B)*** *Similar skin color nodules and papules on ears, predominantly on the helix.* ***C)*** *Bilaterally symmetrical similar papules on dorsa of hands with underlying eczematous skin changes.* ***D)*** *Similar multiple lesions on the anterior aspect and base of neck.*

lar skin conditions. On examination he had multiple skin colored to erythematous, papules, coalescing into places, predominantly on sun exposed sites. They involved his face, ears, front of neck, and dorsa of hands bilaterally on an erythematous and eczematous background with accentuated skin markings, as shown in (Figures 1A-D). The depth of the skin creases, periorbital area, nasolabial and retroauricular folds were spared. The rest of the cutaneous and systemic examination was unremarkable.

The patient's baseline investigations like complete blood count, liver and renal function tests, anti-nuclear factor, and porphyrin screen were unremarkable. Skin biopsy taken from dorsum of right hand and sent for histopathology revealed hyperkeratosis, alternating hypergranulosis, and mild spongiosis in the epidermis. The dermis showed solar elastosis and perivascular infiltration by lymphocytes and histiocytes (Figure 2A). Additionally, there was a subepidermal, normal appearing, uninvolved Grenz zone. Lower in the papillary dermis fissured homogenous masses of amorphous colloid were seen (Figure 2B-C). This amorphous material was Periodic acid-Schiff positive (Figure 2D). These findings were consistent with the diagnosis of chronic actinic dermatitis with colloid milium.

The patient was counseled regarding the disease pathogenesis and treatment response with available therapeutic options. He was informed that there was no completely satisfactory treatment for colloid milium at the time, apart from lasers. He was advised strict sun avoidance and protection by physical and chemical barriers methods to avoid further ultraviolet (UV) damage and prevention of new lesions eruption.

The patient's photodermatitis was treated with emollients, topical corticosteroids, and tacrolimus. Furthermore, our patient was provided with cryotherapy sessions every fortnight for four to 5 sessions for colloid milium lesions, but the response was unsatisfactory. He was also prescribed topical isotretinoin 0.01% for almost three months but there was only a marginal improvement. No new lesions were reported. Our patient refused sessions of dermabrasion and laser treatment. He was counseled about additional therapeutic options to manage his chronic actinic dermatitis.

## Case Discussion

The pathogenesis of colloid milium is uncertain although, some authors suggest that an aggravating factor for these degenerative changes is chronic sun exposure.[1, 2] Our patient presented with two dermatological conditions, both induced by chronic photo-damage, chronic actinic dermatitis and colloid milium. This has not been reported in medical literature before. It might be that the patient, owing to his profession and scanty resources, could not take adequate sun protection measures. Daily application of sunscreen in sufficient amounts so as to provide adequate UV protection to all exposed body parts was not a viable option for him. The patient was also reluctant to change his profession. Hence, chronic sun exposure continued. The patient was counseled

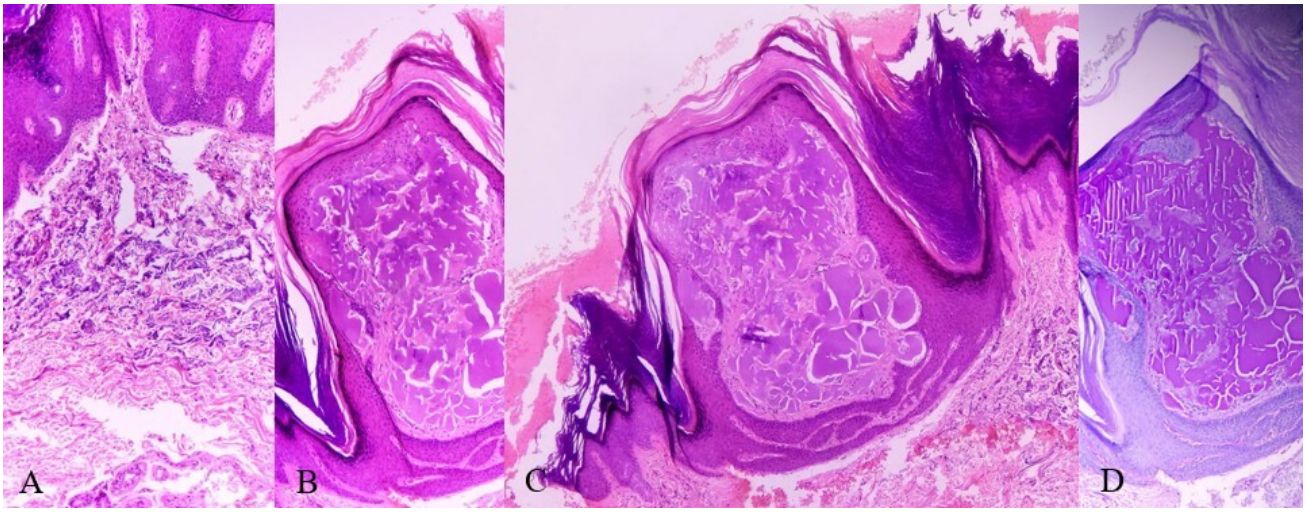



**Figure 2.** ***A)*** *Skin biopsy taken from dorsum of right hand for histopathology revealing hyperkeratosis, alternating hypergranulosis, mild spongiosis. Dermis shows solar elastosis and mild perivascular infiltration by lymphocytes and histiocytes at 10X (stained with hematoxylin and eosin, magnification 4X).* ***B)*** *There is a subepidermal uninvolved Grenz zone. Below it the papillary dermis demonstrates fissured homogenous masses of amorphous colloid (stained with hemoxylin and eosin, magnification 40X).* ***C)*** *There is a subepidermal uninvolved Grenz zone. Below it the papillary dermis demonstrates fissured homogenous masses of amorphous colloid (stained with hematoxylin and eosin, magnification 100X).* ***D)*** *The fissured homogenous masses of amorphous colloid staining positive with Periodic acid-Schiff stain magnification 100X.*

about choice of clothing, wide brimmed hats, and time of the day with maximum UV emissions.

Literature review indicates that adult colloid milium is the most common variant and has a strong correlation with ultraviolet radiation exposure; as most cases reported in medical literature have been reported in individuals who had outdoor jobs.[1,2,5] This is similar to our patient who was a gardener. In addition, colloid milium has been reported to develop after UV exposure for cosmetic reasons. Innocenzi et al have reported a 39-year-old woman who was exposed to ultraviolet A-radiation twice weekly for tanning and developed colloid milium on the face.[4] The dermatologist community, by and large, support stronger legislation against tanning beds and support attempts to make the public aware of the dangers associated with cosmetic tanning.[6]

Mostly, limited colloid milium have been reported before, either on the hands[1,2] or on the face.[3,4] However, Kirtak et al[5] have described extensive colloid milium in a 57-year-old male farmer who presented with such lesions on the forehead, around the eyes, and dorsum of hands. He had prolonged, chronic sun exposure spanning over more than four decades. The authors concluded sun exposure was a huge contributing factor in pathogenesis of colloid milium. Their patient, despite prolonged, excessive sun exposure did not have a history of photodermatitis or any photo-contact dermatitis. Similarly, Shenoy et al have described a 70-year-old man who had lesions on face, hands, and forearms for 20 years. The authors have discussed that histopathologically, it is difficult to differentiate between colloid milium and nodular amyloidosis; the clinical appearance of the lesions help to distinguish the two conditions.[7]

Treatment options for this condition are limited, and no completely satisfactory intervention has been found yet. Usually, the lesions are asymptomatic. However, facial lesions can cause disfigurement and can be of great cosmetic concern. Topical treatments include retinoids and keratolytic creams containing urea or salicylic acid. Electrocautery and curettage, cryotherapy, and photodynamic therapies have been tried with limited success. Good outcomes have been noted in some with long pulsed Erbium:Yttrium Aluminum Garnet laser and fractionated CO2 laser.[8,9]

## Conclusion

Colloid milium is a rare, clinically underdiagnosed dermatosis characterized by deposition of amorphous material in the dermis. When it affects the face, it leads to cosmetic concerns and the therapeutic options are mostly unsatisfactory. We strongly emphasize an association of chronic sun exposure in our patient leading to the development of concomitant conditions having photosensitivity as their primary pathogenic mechanism.

### Potential conflicts of interest

The authors declare no conflicts of interest.

# References


1. Zamora AB, Simoon MP, Sanchez AT, Ponce Olivera RM. Adult colloid milium. An underdiagnosed and difficult to treat entity. *Rev Med Hosp Gen Méx*. 2016;79:21-25. doi:10.1016/j.hgmx2015.10.002

2. Siadat AH, Mokhtari F. Colloid milium. *Adv Biomed Res*. 2013;2:28.107996. doi:10.4103/2277-9175.107996. PMID:23977656

3. Mehregan D, Hooten J. Adult colloid milium: a case report and literature review. *Int J Dermatol*. 2011;50:1531-1534. doi:10.1111/j.1365-4632.2010.04737.x. PMID:22098001

4. Innocenzi D, Barduagni F, Cerio R, Wolter M. UV-induced colloid milium. *Clin Exp Dermatol*. 1993;18:347-350. doi:10.1111/j.1365-2230.1993.tb02215.x. PMID:8403474

5. Kirtak N, Inaloz HS, Karakok M, Ozgoztasi O. A case of adult colloid milium with chronic sun exposure. *Int J Dermatol*. 2002;41(12):936-938. doi:10.1046/j.1365-4362.2002.01664_2.x. PMID:12492995

6. Sampson BP, Secrest AM, Hansen CB, Geller AC. Examining dermatologist use and opinions of ultraviolet radiation for cosmetic and medical purposes. *J Clin Aesthet Dermatol*. 2018;11(2):41-46. PMID:29552275

7. Shenoy T, Harber I, Cruse A, Brodell R. Adult colloid milium is clinically distinguishable from its histopathologic mimic cutaneous amyloidosis. *Dermatol Online J*. 2021;27(7). doi:10.5070/D327754362

8. Li YL, Luo YJ, Wu Y, et al. Infrared-induced adult colloid milium treated with fractionated CO2 laser. *Dermatol Ther*. 2014;27(2):68-70. doi:10.1111/dth.12056. PMID:24703260

9. Ammirati CT, Giancola JM, Hruza GJ. Adult-onset facial colloid milium successfully treated with the long-pulsed Er:YAG laser. *Dermatol Surg*. 2002;28(3):215-219. doi:10.1097/00042728-200203000-00004. PMID:11896771