



## Review Article

# Acral Persistent Papular Mucinosis in Indian Patient: Rare Presentation with Review of Literature

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## Abstract

*Acral persistent papular mucinosis is a rare subtype of localized lichen myxedematosus. Presenting as acrally located bilaterally symmetric, asymptomatic papules. These lesions are ivory to flesh-coloured, 2–5mm sized papules arranged on the dorsum of the hands and extensor aspects of distal forearms and are persistent. Thirty-five cases appear to fit the proposed diagnostic criteria till this date as reported in literature. We report a 60-year-old Indian man who presented with papules on the dorsum of his hands for last six years. Histopathology revealed circumscribed area in the upper and mid reticular dermis with splaying of collagen fibers caused by mucin deposits. Deposits stained positively with alcian blue at pH 2.5. The thyroid profile was normal.*

**Keywords:** acral, persistent, mucinosis.

## Introduction

Acral persistent papular mucinosis (APPM) is a type of papular mucinosis. It is a rare sub type of localized lichen myxedematosus<sup>[1,2]</sup> which is characterized by symmetric, asymptomatic, chronic, ivory to flesh coloured, about 2–5 mm sized papules arranged on the dorsum of the hands and extensor aspects of the distal forearms. The lesions are persistent but gradually increase in number<sup>[3]</sup>. No systemic association is usually seen<sup>[3]</sup>.

APPM was first described by Rongioletti et al in 1986 as a new condition.<sup>[3]</sup> Later, in 2001, it was classified as a subtype of localized lichen

myxedematosus<sup>[3]</sup>. To date, there are 35 reported cases in the literature.<sup>[2,4-9]</sup> Another 6 cases have been described, but they do not meet the established criteria for APPM.

## Case Report

A 60-year old man presented with a six-year history of progressive eruption of asymptomatic papules on the dorsum of his hands, wrists, and distal forearms. Lesions increased slowly in number and size over six years. The lesions were persistent. No other family member was similarly affected.

Physical examination revealed multiple 2-5 mm flesh-coloured to translucent papules, which were round and firm with a smooth surface over the dorsum of both hands. The skin between the lesions appeared to be normal. (Figure 1 and 1a) There were no other similar lesions on the rest of the body.

Routine laboratory tests including, erythrocyte sedimentation rate, liver enzymes, renal function tests revealed no abnormalities. Thyroid profile (T3, T4, thyroid-stimulating hormone, anti-thyroid antibodies), serum protein electrophoresis (IgM, IgA and IgG serum levels), autoantibody profile were all normal. Chest X-ray and abdominal ultrasound were normal.

The histologic examination from one of the papules, stained with hematoxylineosin, showed normal epidermis with a focal, fairly circumscribed area with splaying of collagen fibers and scanty inflammatory infiltrate in the upper and mid reticular dermis (Figure 2). When stained with alcian blue at pH 2.5, a well-circumscribed deposit of mucin, which stained negative with periodic acid-Schiff, was present in the upper and mid reticular dermis (Figure2a). This suggests that the deposited material was hyaluronic acid. The patient was diagnosed to have APPM.

Thus, our patient satisfied the diagnostic criteria of APPM (Table 1). As the lesions were asymptomatic and not very apparent, so no treatment was proposed.

**Table 1** Clinical and histologic criteria of APPM [2]

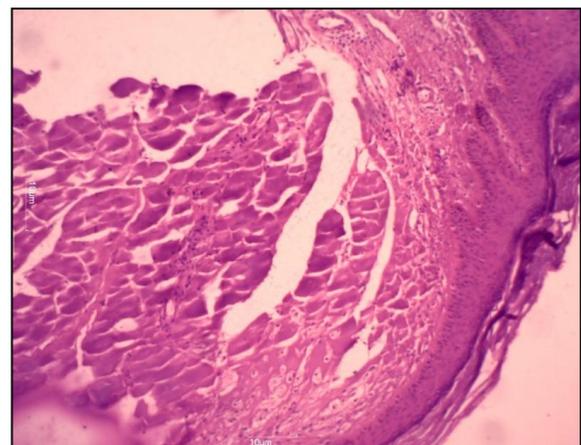
Clinical criteria
2-5 mm, few to multiple, ivory to flesh-coloured papules
Persists without spontaneous resolution, may increase in number
Predominately female patients
No systemic disease overlap
No associated gammopathy
Histological criteria
Focal, well-circumscribed mucin
Mucin in papillary and mid dermis, never confined to deep reticular dermis
Spared Grenz zone
Variable fibroblast proliferation, usually absent



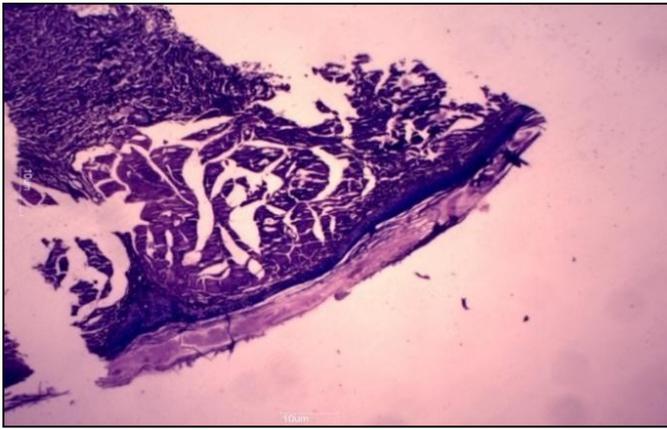
**Figure 1** Flesh-coloured to translucent papules, which were round and firm with a smooth surface over the dorsum of both hands.



**Figure 1a** Zoomed view of papules



**Figure 2:** Superficial dermis reveals eosinophilic mucin deposition with normal overlying epidermis and a grenz zone. (H & E, 100X)



**Figure 2a** Basophilic nodular mucin in upper dermis (alcian blue,40X)

### Discussion

Mucin is a jelly like acid glycosaminoglycan (GAG). Acidic GAG like hyaluronic acid and heparin stain with alcian blue, toluidine blue and colloidal iron. Mucinosis is the deposition of GAG in extracellular matrix. Cutaneous mucinosis may be primary or secondary to collagen vascular diseases, mesenchymal and neural tumors, eosinophilia myalgia syndrome, histiocytosis, etc., Primary cutaneous mucinosis has been divided into diffuse, focal, and follicular varieties. Diffuse cutaneous mucinosis includes generalized and pretibial myxoedema, reticular erythematous mucinosis, scleredema, lichen myxoedematosus.

LM (Lichen myxoedematosus), first described in 1906,<sup>[10]</sup> was earlier classified in 1953 by Montgomery and Underwood into four subtypes: (i) Generalized lichenoid papular eruption, (ii) discrete papular form, (iii) localized-to-generalized lichenoid plaques, and (iv) urticarial plaques and nodular eruptions.<sup>[11,12]</sup> LM was reclassified in 2001 into a) generalized form called scleromyxoedema, which is usually associated with monoclonal gammopathy; b) localized forms without demonstrable paraproteins are further classified into five types that are- (i) discrete papular LM, (ii) acral persistent papular mucinosis (APPM), (iii) self-healing papular mucinosis, (iv) papular mucinosis of infancy, and (v) nodular LM; and c) atypical forms are further classified as (i) scleromyxoedema without monoclonal gammopathy, (ii) localized LM with monoclonal gammopathy, (iii) localized LM with mixed features of different subtypes, and (iv) not otherwise specified variety.<sup>[3]</sup>

Discrete papular mucinosis has no gender predilection and lesions are present on trunk and

limbs. Self healing papular mucinosis is characterized by early age of onset and spontaneous resolution within months. Lesions are more localized on head and trunk. Lesions of papular mucinosis of infancy are present at birth or develop in early months of life. Nodular localized mucinosis has nodular lesions with relatively early age of onset i.e. in thirties.

APPM is a rarely described subtype of localized lichen myxoedematosus (LM).<sup>[2,13]</sup> Although it was described as a distinct clinical and histological form of cutaneous mucinosis in 1986,<sup>[4]</sup> such lesions had been previously described by Montgomery and Underwood in 1953.<sup>[11]</sup> Diagnostic criteria of APPM were proposed by Harris et al.<sup>[2]</sup>

The lesions tend to persist and may increase slowly, but systemic involvement does not occur.<sup>[2,14-16]</sup> They mainly involve the back of the hands and wrists, the distal aspects of the forearms, and rarely the antecubital fossae. All cases described till date are sporadic except for a pair of sisters<sup>[17]</sup> and another patient's father having suspicious lesions.<sup>[18]</sup> According to review done by Di-Quing Luo et al APPM is more common in females, though we are reporting it in male adult. Ratio of female/male with APPM is 25:7. The mean age of the patients in previous study was  $49.6 \pm 15.2$  years. Our patient's age was 60 years. The mean age at onset was  $42.9 \pm 15.9$  years. It is rare in younger patients with only three patients who were less than 20 years of age at the onset of their lesions.<sup>[17,19]</sup> In our case the age of onset was lesion was 54 year. Lesions are generally asymptomatic, only three had pruritic lesions.<sup>[18,20-21]</sup> Majority of the cases reported are from Europe. Five cases are from USA, 3 from China and 2 from Japan. There has been no case report of APPM from India.

Aetiology of APPM is still unknown, but thyroid disorders, gammopathy and lupus erythematosus are absent in all localized forms of LM.<sup>[2,13]</sup> The typical histopathology of APPM is presence of focal, well-circumscribed deposit of acid mucopolysaccharides in the papillary and mid-dermis.<sup>[2,4,22]</sup> These deposits never extend to the deep reticular dermis.<sup>[2]</sup> Fibroblastic proliferation is variable, but usually absent.<sup>[2]</sup>

An over stimulation of fibroblasts has been implicated in patients with human immunodeficiency virus infection, but not in other cases. In the localized form, the lesions are confined to

only a few sites and mainly affects middle-aged women. It is not associated with sclerotic features, paraproteinemia, systemic involvement, or thyroid disease. Typically, lesions are asymptomatic, persist, and gradually increase in number.

The differential diagnosis includes various dermatological conditions like granuloma annulare, focal acral hyperkeratosis, degenerative collagenous plaques of the hand, lichen amyloidosis, keratoelastoidosis marginalis of the hands, molluscum contagiosum, acrokeratoelastoidosis acrokeratoderma, and malignant atrophic papulosis, as well as other forms of mucinosis. The locations of lesions and findings on histopathology and alcian blue stain help to make the diagnosis without difficulty.

The lesions of APPM are limited to the skin without any systemic involvement. It is only a cosmetic problem with a good prognosis. Treatment is not required; it is generally a cosmetic concern. Destructive therapies such as liquid nitrogen, carbon dioxide laser, or electrodesiccation<sup>[23]</sup> are not of much help as they can leave scars.<sup>[5]</sup> Topical corticosteroids, tacrolimus,<sup>[8]</sup> and pimecrolimus have been used with some success,<sup>[22,24]</sup> although more studies are required to show the benefit of various treatments.<sup>[2]</sup> Topical and intralesional corticosteroids have been used with variable success<sup>[16,22,25]</sup> often without response,<sup>[20]</sup> and resolved lesions may also recur after corticosteroids are stopped.<sup>[25]</sup> Spontaneous resolution may occur in LM<sup>[3,26]</sup> including discrete papular mucinosis,<sup>[3]</sup> but no tendency to spontaneous resolution was previously reported in APPM,<sup>[13-15]</sup> even after four<sup>[27]</sup> or twelve years<sup>[3]</sup> of follow-up. Our patient was not given any treatment and was counselled regarding only cosmetic effect of disease with no systemic involvement and the lesions were asymptomatic and not very apparent. APPM being an asymptomatic disorder may easily be ignored by both patients and doctors, we believe that this entity is more common than it appears to be reported in the literature.

### Summary

APPM is generally under diagnosed and under reported localized form of lichen myxedematosus (also called papular mucinosis) with no association with systemic disease or gammopathy.

Histologically, APPM is characterized by the presence of mucin in the papillary and mid dermis

with sparing of deep dermis along with variable fibroblast proliferation. It is persistent and asymptomatic and does not require treatment although patient should be explained regarding the course of the disease and its benign nature.

**Conflicts of interest:** None declared.

**Sources of support:** nil

### Bibliography

1. Rongioletti F, Rebora A. Cutaneous mucinoses: microscopic criteria for diagnosis. *Am J Dermatopathol* 2001; 23:257–67.
2. Harris JE, Purcell SM, Griffin TD. Acral persistent papular mucinosis. *J Am Acad Dermatol* 2004; 51: 982–8.
3. Rongioletti F, Rebora A. Updated classification of papular mucinosis, lichen myxedematosus, and scleromyxedema. *J Am Acad Dermatol* 2001;44:273-81.
4. Rongioletti F, Rebora A, Crovato F. Acral persistent papular mucinosis: a new entity. *Arch Dermatol* 1986;122:1237–9.
5. Luo D, Wu L, Liu J, Zhang H. Acral persistent papular mucinosis: a case report and literature review. *J Dtsch Dermatol Ges* 2011 9(5): 354-9.
6. Callaly E, Mulligan N, Powell F. Multiple painless papules on the wrists. *Arch Dermatol* 2007;143:791-6.
7. André Jorge F, Mimura Cortez T, Guadalini Mendes F, Esther Alencar Marques M, Amante Miot H. Treatment of acral persistent papular mucinosis with electrocoagulation. *J Cutan Med Surg* 2011; 15(4): 227-9.
8. Rongioletti F, Zaccaria E, Cozzani E, Parodi A. Treatment of localized lichen myxedematosus of discrete type with tacrolimus ointment. *J Am Acad Dermatol* 2008; 58: 530-2.
9. Garrido A, Helena, Najera et al. Acral Persistent Papular Mucinosis: is it an under-diagnosed disease? *Dermatol. Online J* 2014;20(3).
10. Dubreuilh W. Fibromes miliaries folliculaires: Sclerodermie consecutive. *Arch Dermatol Syphilol* 1906;7:569-71.
11. Montgomery H, Underwood LJ. Lichen myxoedematosus; differentiation from

- cutaneous myxoedemas or mucoid states. *J Invest Dermatol* 1953;20:213-36.
12. Perry HO, Montgomery H, Stickney JM. Further observations on lichen myxoedematosus. *Ann Intern Med* 1960;53:955-69.
  13. Madan V, Gangopadhyay M, Dawn G. Multiple asymptomatic papules on the legs. *ClinExpDermatol* 2007; 32:773-4.
  14. Sebastian S, Zlotoff B, DeSantis E. 'Spreading bumps' on hands of a Native American. *Clin Exp Dermatol* 2008; 33:225-7.
  15. Alkali AS, Wilson NJE, Leonard N. An asymptomatic eruption on the arms. *ClinExpDermatol* 2008; 33:675-6.
  16. Sulit DJ, Harford R, O'Neill JT. Discrete papular form of lichen myxedematosus: a case report and review of the literature. *Cutis* 2005; 75:105-12.
  17. Menni S, Cavicchini S, Brezzi A, Gianotti R, Caputo R. Acral persistent papular mucinosis in two sisters. *ClinExpDermatol* 1995; 20:431-3.
  18. España A, Mosquera O, Idoate MA, Quintanilla E. Acral persistent papular mucinosis. *Int J Dermatol* 1993; 32:600-1.
  19. Barba A, Maruccia A, D'Onghia FS. Persistent acral papulous mucinosis. *Ann Dermatol Venereol* 1996; 123: 256-8.
  20. Crovato F, Nazzari G, Desirello G. Acral persistent papular mucinosis. *J Am Acad Dermatol* 1990; 23:121-2.
  21. Naeyaert JM, Kint A. Papular mucinosis. *Dermatologica* 1985; 171:508-9.
  22. Rongioletti F. Lichen myxedematosus (papular mucinosis): new concepts and perspectives for an old disease. *Semin Cutan Med Surg* 2006; 25:100-4.
  23. André Jorge F, Mimura Cortez T, Guadalini Mendes F, Esther Alencar Marques M, Amante Miot H. Treatment of acral persistent papular mucinosis with electrocoagulation. *J Cutan Med Surg* 2011; 15(4):227-9.
  24. Luo D, Wu L, Liu J, Zhang H. Acral persistent papular mucinosis: a case report and literature review. *J Dtsch Dermatol Ges* 2011 9(5): 354-9.
  25. Borradori L, Aractingi S, Blanc F, Verola O, Dubertret L. Acral persistent papular mucinosis and IgA monoclonal gammopathy: report of a case. *Dermatology* 1992; 185:134-6.
  26. Kwon OS, Moon SE, Kim JA, Cho KH. Lichen myxedematosus with rapid spontaneous regression. *Br J Dermatol* 1997; 136:295-6.
  27. Colombo E, Ottinetti A, Silvestri T, Delrosso G, Dacorsi M. Acral persistent papular mucinosis. *Eur J Dermatol* 1994; 4:124-6.