Discrete papular mucinosis: A rare subtype of lichen myxedematosus

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ABSTRACT:

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Lichen myxedematosus is a chronic, progressive idiopathic cutaneous mucinosis characterized by localized or generalized papular eruption of unknown etiology in which mucin deposition in the dermis is the distinctive histologic feature. The classification system was revised into three clinicopathological subsets, localized lichen myxedematosus, scleromyxedema and atypical forms of lichen myxedematosus. We report a rare subtype of lichen myxedematosus, discrete papular subtype, presented with papular eruption on the back, chest, face and neck. Histopathology showed focal mucin accumulation in upper and mid reticular dermis with scattered stellate fibroblasts among mucinous material, confirmed by Alcian blue staining. Her serum protein electrophoresis showed polyclonal immunoglobulin, serology for hepatitis C and HIV were negative and her thyroid function test was normal. She was diagnosed with localized forms of lichen myxedematosus, discrete papular subtype and was treated with an excellent response to topical corticosteroids and oral hydroxychloroquine combination therapy.

Key words: lichen myxedematosus, papular mucinosis, skin-colored papules

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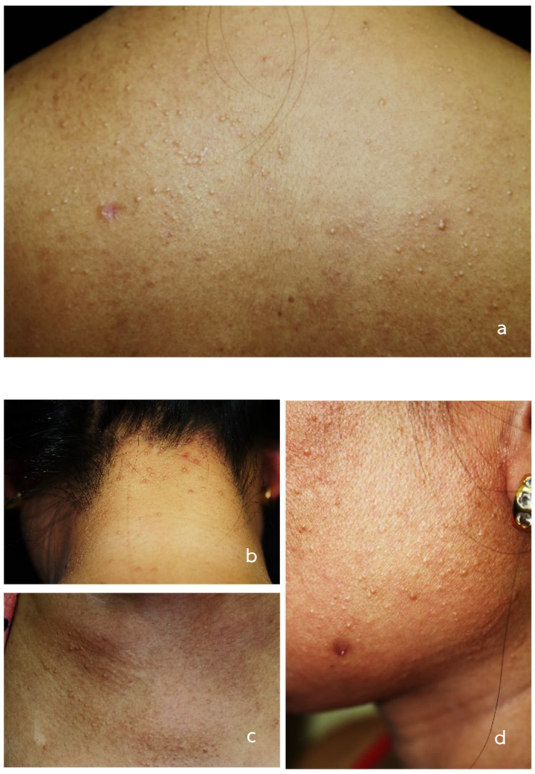

Figure 1 Multiple 3-5 mm discrete, dome-shaped skin-colored shiny papules on back (a), posterior neck (b), chest (c) and face d).

Introduction

Lichen myxedematosus is a group of cutaneous mucinosis characterized by localized or generalized papular eruption in which mucin deposition in the dermis is the predominant feature[1-3]. Lichen myxedematosus is divided into three clinicopathologic subsets, localized lichen myxedematosus, scleromyxedema and atypical forms of lichen myxedematosus[4,5]. The epidemiologic data showed that localized lichen myxedematosus is a rare entity and has less prevalence than scleromyxedema[4, 6-12]. Localized lichen myxedematosus includes five subtypes based upon clinical and histopathologic findings, acral persistent papular mucinosis (APPM), discrete papular lichen myxedematosus (DPLM), self-healing papular mucinosis (SHPM), cutaneous mucinosis of infancy (CMI) and nodular lichen myxedematosus (nodular LM)[1]. We describe an interesting case of DPLM in our patient[4].

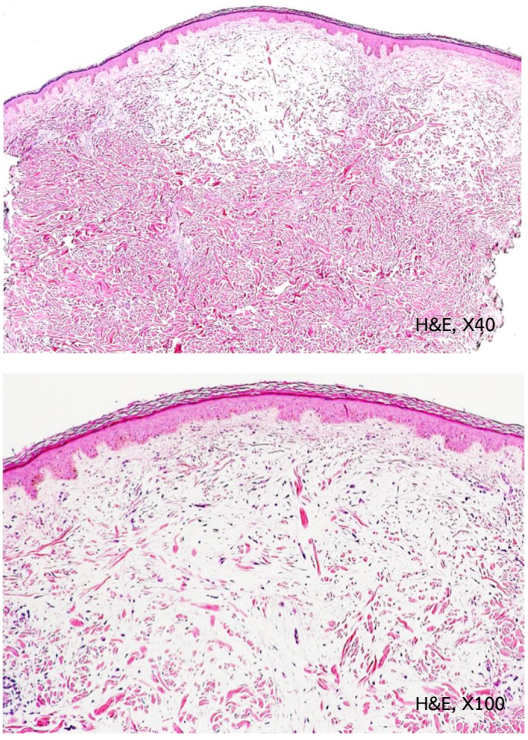

Figure 2 Punch biopsy shows space between the collagen in dermis with scattered stellate fibroblasts among mucinous material

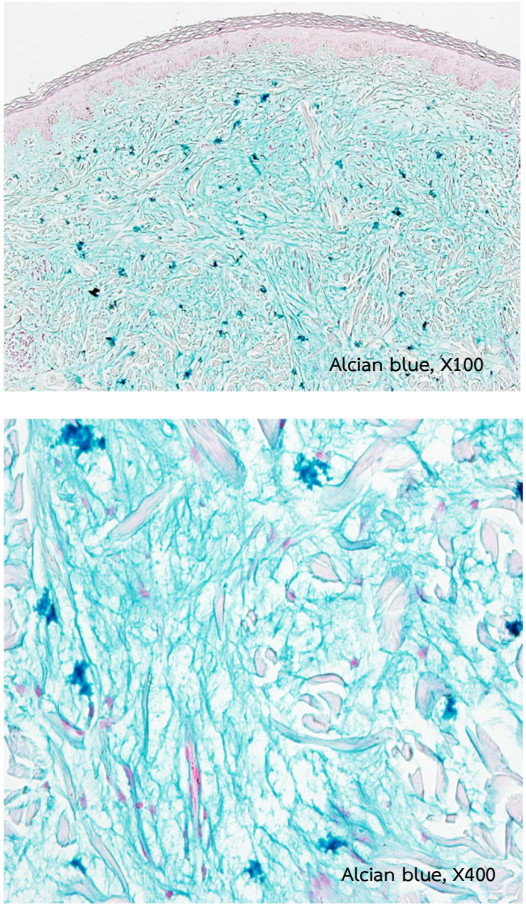

Figure 3 Biopsy specimen stained with Alcian blue shows blue mucin deposition between dermal collagen fibers.

Case report

A 45-year-old Thai woman presented with a 3-month history of asymptomatic skin-colored papules on her back, chest, face and neck. The lesions are persistent and progressively increased in number. The surrounded area showed no signs of inflammation. Itch was occasional. She denied any constitutional or systemic symptoms. Her past medical history was significant for Graves' disease, for which radioactive iodine uptake was administered 18 years prior. She became hypothyroidism after the treatment and requiring 100 mcg of levothyroxine replacement daily. She is followed regularly for her thyroid disease, which is stable. Her last thyroid function test was normal.

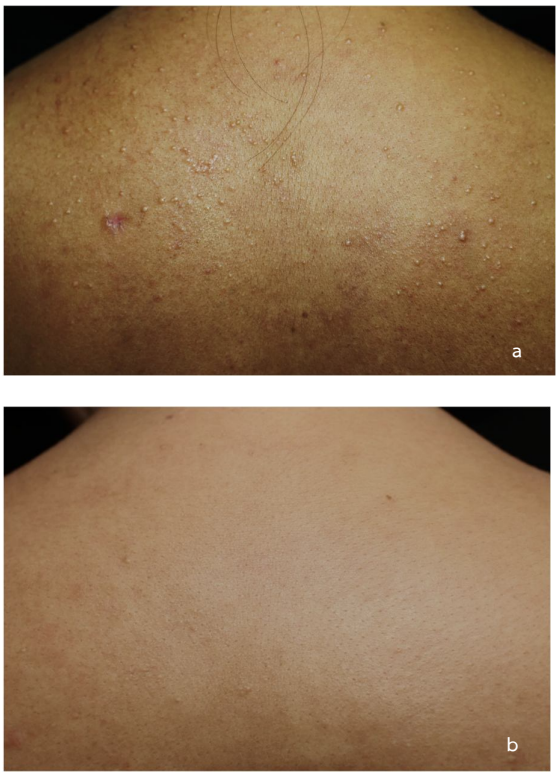

Figure 4 Before treatment (a). Excellent improvement after 6 months of combination therapy (b).

On physical examination, multiple 3-5 mm monomorphic discrete, dome-shaped skin-colored shiny papules were observed on her back, chest, face, and posterior neck area (Figure 1). Histopathology showed focal mucin accumulation in upper and mid reticular dermis with scattered stellate fibroblasts among mucinous material (Figure 2). Alcian blue stain showed positive results, confirmed the diagnosis of lichen myxedematosus (Figure 3). Serum protein electrophoresis was obtained and showed polyclonal immunoglobulin. Her serology for hepatitis B, C virus and anti-HIV were all negative. Her thyroid function test and other laboratory tests were within normal range. Combination therapy of oral hydroxychloroquine and 0.1% triamcinolone acetonide lotion was given and have shown to be effective in our patient with almost clear of the lesion over 6 months (Figure 4).

Discussion

Lichen myxedematosus is a chronic, progressive idiopathic cutaneous mucinosis characterized by waxy, lichenoid papules, nodules and/or plaques due to abnormal mucin deposition in the upper dermis and variable amounts of fibroblast proliferation[13,14]. In 1906, Dubreuilh was first who described lichen myxedematosus (LM), then later classified by Montgomery and Underwood in 1953 into four distinctive clinical patterns, generalized lichenoid papular eruption (later called scleromyxedema), discrete papular form, localized to generalized lichenoid plaques, and urticarial plaques and nodular eruptions[6]. In 2001, The classification system was revised by Rongioletti and Rebora into three clinicopathological subtypes[4].

First subtype is generalized lichen myxedematosus or scleromyxedema, which is associated with various systemic manifestations. Diagnosis of scleromyxedema requires four criteria including: (1) generalized papular and sclerodermoid eruption, (2) triad of histological features including diffuse mucin deposition, fibroblast proliferation, and fibrosis, (3) presence of monoclonal gammopathy, and (4) absence of thyroid diseases[4]. Second subtype is localized form of lichen myxedematosus, which has the characteristic features of (1) papular eruption, (2) mucin deposition with variable fibroblast proliferation, and (3) absence of monoclonal gammopathy nor thyroid disorder. Localized forms of lichen myxedematosus are divided into five subtypes, a discrete papular lichen myxedematosus (DPLM), acral persistent papular mucinosis (APPM), self-healing papular mucinosis (SHPM), cutaneous mucinosis of infancy (CMI), and nodular lichen myxedematosus (nodular LM)[4]. The last subtype is atypical (intermediate) forms of lichen myxedematosus, which does not meet either generalized or the localized form criteria. It should be noted that the classification

is complex and may have overlaps in their clinicopathological features among each subtypes[4].

The DPLM is a rare type of localized form and can be underestimated with only small number of cases were reported[4,7-11]. The typical skin lesions of DPLM are waxy, skin colored, violaceous or reddish papules, sized 2-5 mm, vary in number, and may coalesce into nodules or plaques[4,5,15]. The distribution is symmetric pattern, involving the extremities and trunk. DPLM can occur at any part of the body. The lesions progress slowly without systemic involvement and rarely resolve spontaneously[16]. APPM is likely to involve extensor surface of both distal upper extremities, back of the hands and wrists, occasionally the distal forearms[17]. Cutaneous mucinosis of infancy is a variant of DPLM or APPM which occur in pediatric patient and are located on the upper arms, especially the elbows, and trunk[18]. SHPM can resolve spontaneously without sequalae[4]. Nodular LM is characterized by multiple nodules on trunk and extremities[19,20]. Hepatitis C virus or HIV infection can be associated with the localized form of lichen myxedematosus, thus an early recognition, and further laboratory investigations if clinically indicated is important[21,22].

Histological examination of the localized forms of lichen myxedematosus demonstrates mucin accumulation in the upper and mid reticular dermis that stained positively with Alcian blue, colloidal iron, mucicarmine, toluidine blue, thionine, methylene blue and variable degrees of fibroblast proliferation[1]. Large stellate fibroblasts are irregularly interspersed through the mucin deposit[3]. The diagnosis requires both clinical and histological features. The typical firm, waxy papules with the histological features of focal or diffuse dermal mucin deposition and variable fibroblast proliferation is the key to establish the diagnosis[4].

Major associated systemic diseases of lichen myxedematosus include paraproteinemia (scleromyxedema), HIV, and HCV infection[13, 21,22]. Although these associated diseases may not be included in criteria for diagnosis, laboratory investigation for these diseases if clinically indicated are important since these diseases may require specific treatment regimen[21,22].

Another differential diagnosis of cutaneous mucinosis in patient with Graves' disease is localized myxedema, regardless of the thyroid function. Localized myxedema is most commonly seen in patients with Graves' disease. It can also occurs in the setting of Hashimoto thyroiditis without thyrotoxicosis, and even in euthyroid state[23]. There are four main clinical variants, diffuse non-pitting edema, plaque type, nodular, and elephantiasis[24]. The lesions can vary in color and may exhibit a characteristic

peau d'orange appearance[25]. The thickening and induration of the skin are the characteristic features of localized myxedema, which has not been demonstrated in our patient. In addition, the histopathology of localized myxedema is characterized by hyperkeratosis with follicular plugging, acanthosis and papillomatosis[26]. The presence of mast cells and sparse inflammation are additional findings[3]. Mucin is deposited with in the reticular dermis, particularly the mid to the lower part[3]. In contrast to aforementioned features, the mucin deposition found in our patient was in the upper and mid part of reticular dermis without any other localized myxedema related histologic findings.

Our patient presented with multiple skin-colored shiny papules on her back, chest, face and posterior neck for 3 months. The biopsy showed focal mucin accumulation in upper and mid reticular dermis with scattered stellate fibroblasts among mucinous material, confirmed by Alcian blue staining. We worked up for the associated systemic diseases, her serum protein electrophoresis showed polyclonal immunoglobulin, serology for hepatitis C and HIV were negative and her thyroid function test was in the reference range. These are consistent with DPLM.

There are insufficient evidences supporting the specific therapy for localized cutaneous mucinosis and it often does not require any treatment. Spontaneous resolution may rarely occur, even in HIV-infected patient[22,27]. Many treatment options have been reported with variable outcomes including oral retinoids, CO2 laser, electrocoagulation, dermabrasion, hyaluronidase injections, and psoralen ultraviolet A[16]. Topical corticosteroid or calcineurin inhibitors may provide some benefit[16]. One study reported the effectiveness of hydroxychloroquine in patients with scleromyxedema[28]. Our patient has been treated with topical corticosteroids and oral hydroxychloroquine 400 mg/day for 6 months with a significant response to these combination therapy.

In conclusion, the diagnosis and classification of lichen myxedematosus require the characteristic clinical presentation, the distinctive histopathologic features and the presence or absent of monoclonal gammopathy without thyroid disorder. The associated systemic diseases should be evaluated since theses involve a prognostic and therapeutic approach. Topical corticosteroids and oral hydroxychloroquine combination therapy can provide an excellent response in this present case.

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