

A Case of Idiopathic Multiple Eruptive Dermatofibromas

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Published:

J Turk Acad Dermatol 2019;**13** (3): 19133c2

This article is available from: <http://www.jtad.org/2019/3/jtad19133c2.pdf>

Key Words: Dermatofibroma, Histiocytoma, Benign fibrous, Skin

Abstract

Observation: Dermatofibroma is a common benign fibrohistiocytic tumor of the dermis, which is generally located in the lower extremities of adults. Multiple eruptive form of dermatofibroma is rare and defined as the presence of a large number of dermatofibromas in one person. Although multiple eruptive dermatofibromas is usually associated with many systemic diseases, especially immunological diseases, it may also be seen in healthy people. It should be made diagnostic investigations for immunological, lymphoproliferative or metabolic diseases in cases with multiple dermatofibroma lesions. If these diseases are ruled out, the cases should be considered as idiopathic and should be followed up closely. In the literature, it is noteworthy that patients with idiopathic multiple eruptive dermatofibromas are usually seen in children. Because it is rare, we present a case of idiopathic multiple eruptive dermatofibromas in adulthood.

Introduction

Dermatofibroma is a common benign fibrohistiocytic tumor of the dermis, which is generally located in the lower extremities of adults. They are firm, minimally elevated to dome-shaped papules or nodules that usually measure from a few millimeters to 1 cm in diameter. Multiple and eruptive form of dermatofibromas is very rare. Multiple eruptive dermatofibromas (MDFs) have been observed in patients with many diseases such as autoimmune diseases, immunosuppression, atopic dermatitis, HIV infection, hematologic malignancies. However, they may also occur idiopathically without accompanying any disease[1]. Given the reported cases of MDFs to date, it is noteworthy that idiopathic MDFs cases usually occurred in childhood. Herein,

we present a case of idiopathic MDFs developed in adulthood. Informed consent was obtained from the patient for the use of photographs.

Case Report

A 47-year-old female presented with a large number of papules and nodules on the back and waist, which had appeared abruptly 7 months ago and increased in number over time. She did not experience any pain, itching, or burning. Dermatological examination revealed a large number of hyperpigmented, firm papules and plaques ranging from 0.5 cm to 2 cm in diameter on the back and waist (Figure 1). She had no remarkable medical history, except hypertension and diabetes mellitus. On physical examination no signs of autoimmune disease were observed. Routine labora-

tory investigation results, including complete blood count, erythrocyte sedimentation rate, C-reactive protein level, kidney and liver function tests, lipid profile, thyroid function test, and serum immunofixation electrophoresis were normal. HIV test, rheumatoid factor, and anti nuclear anti body results were negative, and chest X-ray was normal. Histopathological examination of one of the papules on her back showed irregular hyperplasia in the epidermis and hyperpigmentation in the basal layer, proliferation of factor-XIIIa positive spindle-shaped fibroblasts among collagen bundles (**Figure 2**), CD68-positive histiocytes (**Figure 3**), CD31 and CD34-positive perivascular lymphocytes, and CD68-positive plasma cells (**Figure 4**) in the dermis. These clinical and histopathological findings were consistent with idiopathic MDFs. As there is no specific treatment for MDFs, it was decided to follow-up the patient without any treatment. The patient is still being followed up by our clinic.

Discussion

MDFs, first reported by Baraf, *Shapiro* et al. in 1970, was defined as the occurrence of at least 15 dermatofibromas in one case in a few

months [2]. It was also reported by *Ammirati* et al, defined as the occurrence of 5-8 dermatofibromas in 4 months [3]. Our case presented more than 15 dermatofibromas in 7 months. The lesions are mostly distributed on the trunk, proximal extremities [4], and occasionally the face, palms and soles [5, 6]. A literature review, reported by *Antal* et al. showed that a female predominance (55%) in a total of 42 cases, in the distribution of lesions 97% of the cases had extremity involvement, 45% had trunk involvement, and 28% had diffuse involvement [7].

The precise mechanism for the development of MDFs is unknown. Whether dermatofibromas are reactive or neoplastic has been a controversial area for a long time [8]. However, the most remarkable hypothesis of MDFs pathogenesis is that it may be related to autoimmune dysregulation. Expressing MHC class II molecules by cells and morphologically resembling antigen presenting cells in dermatofibromas support this hypothesis [9]. Beside that, reported cases of familial MDFs suggest that dermatofibromas may also be caused by hereditary factors [10].



Figure 1. Numerous hyperpigmented papules and plaques on the on the back and waist

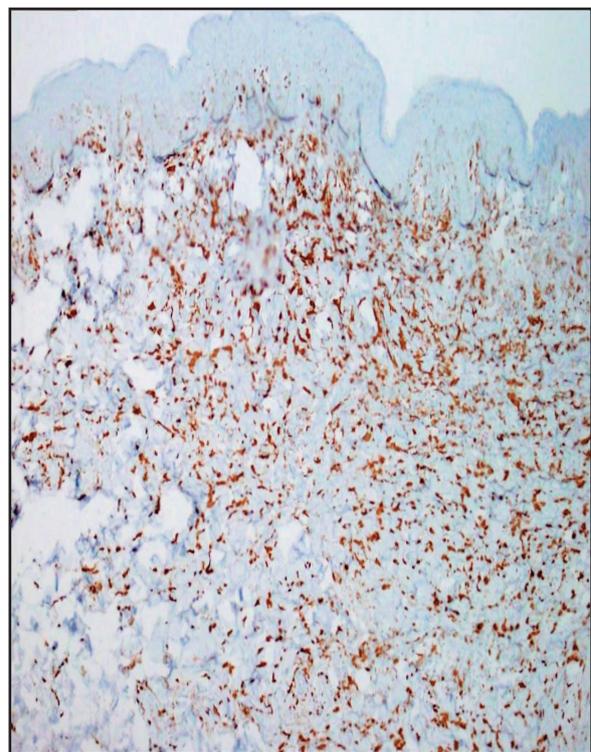


Figure 2. Factor-XIIIa positive spindle-shaped fibroblasts in the dermis (Factor-XIIIa, original magnification x10)

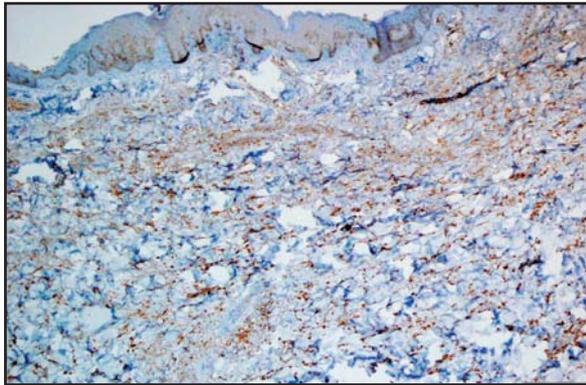


Figure 3. CD68-positive histiocytes in the dermis (CD68, original magnification x10)

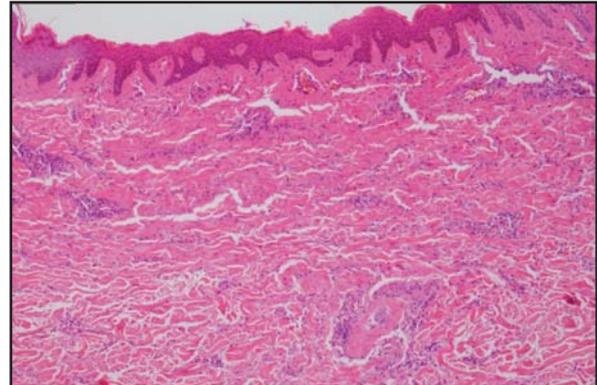


Figure 4. Perivascular lymphocytes and plasma cells in the dermis (Hematoxylin and Eosin Stain, original magnification x10)

Dermatofibromas are poorly demarcated tumors centered on the dermis. Dermatofibromas are composed of a variable admixture of fibroblast-like cells, histiocytes, and blood vessels. Histopathological findings of MDFs shows hyperplasia in the epidermis, hyperpigmentation in the basal layer, spindle-shaped fibroblasts and histiocytes located among collagen bundles in the dermis. Perivascular lymphocytes and plasma cells can be found in the dermis. The subcutis typically is preserved, but if involved, be alert to the possibility of the lesion being a dermatofibrosarcoma protuberans. A positive reaction for factor-XIIIa and a negative reaction for CD34 support a diagnosis of dermatofibroma. These two immunohistochemical reactions are useful in distinguishing the two tumors. However, occasional CD34 positivity occurs in some variant of dermatofibroma[1, 11].

MDFs have been observed in patients with many diseases, especially autoimmune diseases. A literature review of 62 cases of MDFs between the years 1973-2006, reported by Huang et al. found that 66% of all patients had an accompanying disease and 49% of them had an immunological disease [12]. Similarly, another study of 67 cases, reviewed the literature between the years 1973-2006, reported by Zaccaria et al. found that 46 cases of all cases (66%) had an accompanying disease and 83% of 46 cases had an immunological disease [13]. There are many accompanying autoimmune diseases, reported with MDFs, including systemic lupus erythematosus[14], dermatomyositis[12], Myasthenia gravis[15], pemphigus vulgaris[16], Sjögren syndrome[17], sarcoidosis[18], and Graves-Basedow disease[19].

There are also other accompanying diseases or conditions, reported with MDFs, such as HIV[20], immunosuppressive or immunomodulatory drugs (corticosteroid[16], cyclophosphamide[15], methotrexate[12], imatinib[21], TNF inhibitors[22], efalizumab[23], pregnancy[24], atopic dermatitis[10], pulmonary hypertension[25], acute and chronic myeloid leukemia[26, 27], myelodysplastic syndrome[28], Sezary syndrome[13], and multiple IgA myeloma[13]. However, MDFs may also develop idiopathically without accompanying any disease, like our case did. In one study, reviewed the cases of MDFs in the literature between the years 1973 and 2012, it was found that 51 of 72 cases (70%) had an accompanying disease, while 21 of 72 cases (30%) were described as idiopathic MDFs[29]. Despite the MDFs can occur in patients of any age, it is noteworthy that there is pediatric age predominance among reported cases with idiopathic MDFs in the literature[30].

No treatment is usually required for dermatofibromas. Surgical treatment may be required for some reason, such as presence of cosmetically unacceptable or symptomatic lesions, diagnostic uncertainty, suspicion of aggressive subtypes[1].

In conclusion, although MDFs can develop suddenly in association with various systemic diseases, especially immunological diseases, they can also develop in healthy people without any systemic diseases. If multiple eruptive dermatofibromas develop, screening for underlying associated diseases should be warranted. Dermatologists should be aware that MDFs may be a sign of immunosuppression. If diagnostic investigations for systemic disease

ses do not reveal any disease, the case should be considered as idiopathic and followed up closely.

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