An Atlas of Lumps and Bumps, Part 28: Dermatofibroma

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Photo Essay

Alexander K.C. Leung, MD[1,2], Benjamin Barankin, MD[3], Joseph M. Lam, MD[4], Kin Fon Leong, MD[5]

Volume 63 - Issue 6 - June 2023

Dermatofibroma, also known as benign fibrous histiocytoma of the skin, is a common benign dermal lesion composed primarily of fibrohistiocytic cells densely incorporated into a connective tissue matrix with thickened collagen. Dermatofibroma most frequently affects adults between the second and fourth decades of life and occasionally children.[1,2] It is the most common cutaneous neoplasm in adults.[1] Approximately 20% of dermatofibromas occur in individuals less than 17 years of age,[3] and has a male to female ratio of 1:3.[4]

Dermatofibroma is a cutaneous fibrohistiocytic proliferation of unknown etiology. The clonal proliferative growth, the persistent nature of the growth, and the frequency of local recurrences of some variants suggest that the condition is neoplastic in nature.[4,5] However, the condition occurs as a result of trauma at the site of the lesion in approximately 20% of cases.[2,6,7] Trauma can be in the form of vaccination, insect bite, superficial puncture wounds from wood splinters or thorns, ear-piercing, nipple-piercing, or tattooing.[2,6,7] Thus, a reactive process may also be involved as inflammatory cells can be demonstrated in some cases.[6] Familial cases with an autosomal dominant mode of inheritance have rarely been reported.[8] Thus, genetics may also have a role to play.

Typically, a dermatofibroma presents as a firm, tan-pink, red or reddish brown, dome-shaped nodule with a smooth surface.[8]

The lesion is attached to the skin but not to the underlying structures.[8] Although the lesion can develop anywhere on the body, there is a predilection for the extremities, particularly the lower extremities.[1,2,9] The size varies from a few mm to 3 cm with most lesions less than 1 cm in diameter.[1,2,9] Giant lesions greater than 3 cm have rarely been described.8 In adults, dermatofibromas tend to grow slowly over months and then become stable for years and may regress spontaneously.[2,10] Although most dermatofibromas arising in childhood are also slow-growing, some may grow larger and affect unusual locations such as the head and neck.[2,11] Characteristically, pinching or squeezing of the lesion results in central dimpling of the overlying skin (“dimple sign” or “Fitzpatrick’s sign”).[1,2] This can be attributed to tethering of the epidermis to the underlying lesion.[3] Dermatofibromas are usually asymptomatic but, occasionally, itching and pain may be noted.[4]

Dermatofibromas are most often solitary, but two to five lesions are present in approximately 10% of cases.[9] Multiple eruptive dermatofibromas (more than 15 lesions or development of five or more lesions within 4 months) may be associated with immunodeficiency, HIV infection, chromosomal abnormalities, pregnancy, ulcerative colitis, Crohn disease, diabetes mellitus, Graves disease, Hashimoto thyroiditis, myasthenia gravis, dermatomyositis, systemic lupus erythematous, Sjögren disease, sarcoidosis, and hematologic malignancy.[8,12-15]

Hemosiderotic fibroma, a variant of dermatofibroma, accounts for approximately 2% of dermatofibromas.16 Clinically, a hemosiderotic fibroma presents with a dark brown, bluish black, or black nodule, which may mimic a melanoma.[16-18]

Histologically, a hemosiderotic fibroma contains numerous small blood vessels, extravasated erythrocytes, siderophages, and hemosiderin deposits which account for dark brown or bluish black color of the lesion.[16-18]

Plaque-like dermatofibroma is another clinical variant. Typically, a plaque-like dermatofibroma appears as a large, indurated plaque on the lower limb or trunk.[19] The plaque may remain stable for years or exhibit progressive growth.[19] There is a tendency to develop satellite lesions around the central plaque.[19] In spite of this, the lesion has been found to be benign.[19]

Atrophic dermatofibroma is a rare clinical variant that presents as a solitary patch with the central area typically depressed.[20,21] The depression of the central area can by accounted for by dermal atrophy in at least 50% of cases.[21,22] Elastic fibers within the tumor are either decreased or absent.[22] The majority of cases are asymptomatic although some patients noted the lesion to be painful.[22]

The diagnosis of dermatofibroma is usually clinical, based on typical physical findings. Dermoscopy typically shows a central white patch with a peripheral pigment network.[4,23,24] Reflectance confocal microscopy shows a normal honeycombed pattern in the epidermis and edged papillae, bright rings, and dilated vessels in the dermoepidermal junction.[25] Excisional biopsy should be considered if the diagnosis is in doubt.

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AFFILIATIONS:

[1]Clinical Professor of Pediatrics, the University of Calgary, Calgary, Alberta, Canada
[2]Pediatric Consultant, the Alberta Children's Hospital, Calgary, Alberta, Canada
[3]Dermatologist, Medical Director and Founder, the Toronto Dermatology Centre, Toronto, Ontario, Canada
[4]Associate Clinical Professor of Pediatrics, Dermatology and Skin Sciences, the University of British Columbia, Vancouver, British Columbia, Canada.
[5]Pediatric Dermatologist, the Pediatric Institute, Kuala Lumpur General Hospital, Kuala Lumpur, Malaysia

CITATION:

Leung AKC, Barankin B, Lam JM, Leong KF. An atlas of lumps and bumps, part 28. *Consultant*. 2023;63(6):e7. doi:10.25270/con.2023.06.000003

DISCLOSURES:

Dr Leung is the series editor. He was not involved with the handling of this paper, which was sent out for independent external peer review.

CORRESPONDENCE:

Alexander K. C. Leung, MD, #200, 233 16th Ave NW, Calgary, AB T2M 0H5, Canada (aleung@ucalgary.ca)

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