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Dermatofibroma: a curious tumor.

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Editorial

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Dermatofibroma: A curious tumor

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A tumor, such as a dermatofibroma, causes consternation among many patients, but it rarely creates problems on its own. Also called a histiocytoma, it remains one of the most common mesenchymal growths. Its etiology is unknown with the previous theory that it is a dermal response to injury, such as an insect bite, being challenged. As much as patients like to blame spiders or other arthropods for traumatizing an arm or leg, no definitive explanation is available for its etiology.

This lesion seems more likely to be a neoplastic process due to the persistent nature of the lesion, the frequency of local recurrence of some variants, and the clonal proliferative growth suggested by several cytogenetic studies (1, 2). Clonality, by itself, is not necessarily synonymous with a neoplastic process, as has been demonstrated in several inflammatory conditions, including atopic dermatitis, psoriasis, and lichen sclerosis (2).

A dermatofibroma represents a benign dermal and often superficial subcutaneous proliferation of oval cells, appearing as histiocytes and spindle-shaped cells resembling fibroblasts and myofibroblasts (3). It occurs four times more often in women and is found in patients of any age, while nearly 80% of the patients are between the ages of 20 and 49 years (4).

CLINICAL FINDINGS

A dermatofibroma typically arises slowly and as a solitary, 0.5- to 1-cm nodule, frequently yellowish brown, and slightly scaly. Fig 1 It is most often found on an extremity, particularly the leg; however, the palm, sole, fingers, genitalia, head and neck are not exempt. Its color may range from pink to red or even to tan. Variations include a diameter, larger than 5 cm (5). It is usually a solitary lesion, but several dermatofibromas may also be present, only rarely multiple (i.e., 15 or more) tumors, most frequently in the setting of an autoimmune disease or altered immunity.

The diagnosis is easily made on inspection, with palpation revealing a hard nodule. If the overlying epidermis is squeezed, the "dimple sign" will be seen due to tethering of the overlying epidermis to the

underlying lesion further confirming the diagnosis. This has also been called the Fitzpatrick sign and may also be elicited by placing an ice cube over the lesion. (6)

A dermatofibroma is usually asymptomatic, but itching and pain are occasionally noted. Significant trauma may cause ulceration.

The differential diagnosis is extensive but some lesions that might offer confusion, due to similarity of appearance and consistency, are listed in Table 1. A tumor that might warrant excision to prove its benign nature is a juvenile xanthogranuloma, where feeling the firm consistency will discount this lesion. Palpation of one or more hard nodules especially on the trunk may raise the suspicion of dermatofibrosarcoma protuberans, which can be differentiated by histopathology and immunohistochemical testing. Traumatizing the lesion with subsequent erosion and ulceration may lead to the misdiagnosis of squamous cell carcinoma or even atypical fibroxanthoma.

Table 1. Differential diagnosis of dermatofibroma.

Differential Diagnosis of Dermatofibroma
Melanocytic nevus
Blue nevus
Dermatofibrosarcoma protuberans
Juvenile xanthogranuloma
Keloid and hypertrophic scar
Keratoacanthoma
Leiomyoma
Malignant melanoma
Mastocytosis
Metastatic carcinoma of the skin
Neurilemoma
Pilomatrixoma
Prurigo nodularis
Spitz nevus
Squamous cell carcinoma
Atypical fibroxanthoma

Diagnosis

The diagnosis of a dermatofibroma is predominantly clinical. Dermatoscopy may be useful, when revealing the most common pattern of a peripheral pigment network, along with a central white area (7). In the case of any diagnostic uncertainty, an excisional biopsy with removal of the subcutaneous fat would be indicated.

Histopathologic examination will reveal epidermal hyperplasia and hyperpigmentation of the basal cell layer ("dirty fingernail" sign). The bulk of the tumor is within the mid-portion of the dermis without any

capsule formation. (Figs 2 and 3)Whorling fascicles of spindle cell proliferation with excessive collagen deposition are characteristic. Some histologic variants of dermatofibroma have been described, as seen in Table 2; however, the clinical picture is generally within the characteristic limits. Results from immunohistochemical testing with antibodies to factor XIIIa are frequently positive in dermatofibroma.

Table 2. Histologic variants of dermatofibroma.

Histologic Variants of Dermatofibroma
Cellular (8)
Aneurysmal(9)
Atypical (dermatofibroma with monster cells)(10)
Epithelioid(11)
Atrophic(12)
Polypoid(13)
Dermatofibroma with spreading satellitosis (14)
Deep (subcutaneous) dermatofibroma

Treatment

A dermatofibroma is considered a benign lesion with a good prognosis. Although unusually rapid growth may occur, most dermatofibromas remain static for many years. Spontaneous regression has been reported which may result in post inflammatory hypopigmentation. Aggressive subtypes (cellular, aneurysmal, atypical, and deep/subcutaneous) locally recur in up to 20% of the patients and rarely metastasize. Although these variants are definitely diagnosed histopathologically, some clinical findings may raise suspicion. For example, an abnormally large size of the lesion, especially measuring more than 5cm and rapid growth, may be indicative of a cellular or aneurysmal dermatofibroma. An unusual appearance mimicking a vascular tumor can be a leading sign to an aneurysmal subtype.

No treatment is usually necessary for dermatofibromas. The scar resulting from excision is sometimes more noticeable than the original lesion especially on the leg, so simple reassurance that the lesion is benign may be indicated. Complete excision, including the subcutaneous fat, is ideal for symptomatic ones, where a cosmetically unacceptable lesion may be the end result of intervention done at the request of the patient. Superficially shaving of the lesion or cryosurgery can be attempted; however, recurrences are more likely, and the cosmetic results are not necessarily better. Intralesional steroid injections have been used with variable results. Carbon dioxide laser surgery for multiple facial

dermatofibromas has also been utilized (15), while an effective and safe therapeutic option could be use of the pulsed dye laser (PDL) (16).

Conclusions

A dermatofibroma remains slightly more than a cosmetic nuisance. If it looks within normal limits, excision just for cosmetic purposes is not recommended; however, if any uncertainty exists about an unusual appearance, an abnormally large size, any irregularity, or unusual location, excision should be considered. In these circumstances, the lesion might be better being studied by the dermatopathologist, instead of remaining on the patient's body.

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Figure 1 Clinical appearance of a dermatofibroma

Figure 2

Figure 3