abscess and granulomatous reactions.

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Diagnostic Pitfalls of Differentiating Cellular Digital Fibroma from Superficial Acral Fibromyxoma

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Dear Editor:

Acquired digital fibrokeratoma is an exophytic tumor with hyperkeratotic epidermis on acral sites. Meanwhile, cellular digital fibroma (CDF) is a unique subset of acquired digital fibrokeratomas that comprise slender spindle-shaped CD34-positive cells[1]. Here, we report a rare case of CDF and its clinicopathologic characteristics.

A 38-year-old Korean man presented with a painless nodule, which began to grow six months prior to examination, on the ventral part of the proximal phalanx of his right index finger. Physical examination revealed a fixed erythematous protruding nodule 0.5 cm in diameter (Fig. 1A). The results of punch biopsy for complete removal showed a polypoid tumor constricted at its base and lateral sides by acanthotic epidermis with collarette-like changes (Fig. 1B). Collagenous bundles were filled mostly with myxoid materials and numerous spindle cells arranged in a loose fascicular pattern (Fig. 1C). No nuclear atypia or mitoses were identified. Immunohistochemistry revealed most proliferative spindle cells were positive for CD34 (Fig. 1D) and vimentin (Fig. 1E) but negative for CD99, S-100, and smooth muscle actin. Prominent myxoid stroma was detected by Alcian blue stain (Fig. 1F). On the basis of these findings, the lesion was diagnosed as CDF. After the lesion was completely removed, the patient did not experience any recurrence over 18 months of follow-up.

Since McNiff et al.[1] first described CDF in 2005, their observations have been regarded as important for the diagnosis of fibrohistiocytic neoplasms, which can be easily misdiagnosed as superficial acral fibromyxoma (SAFM)[2].

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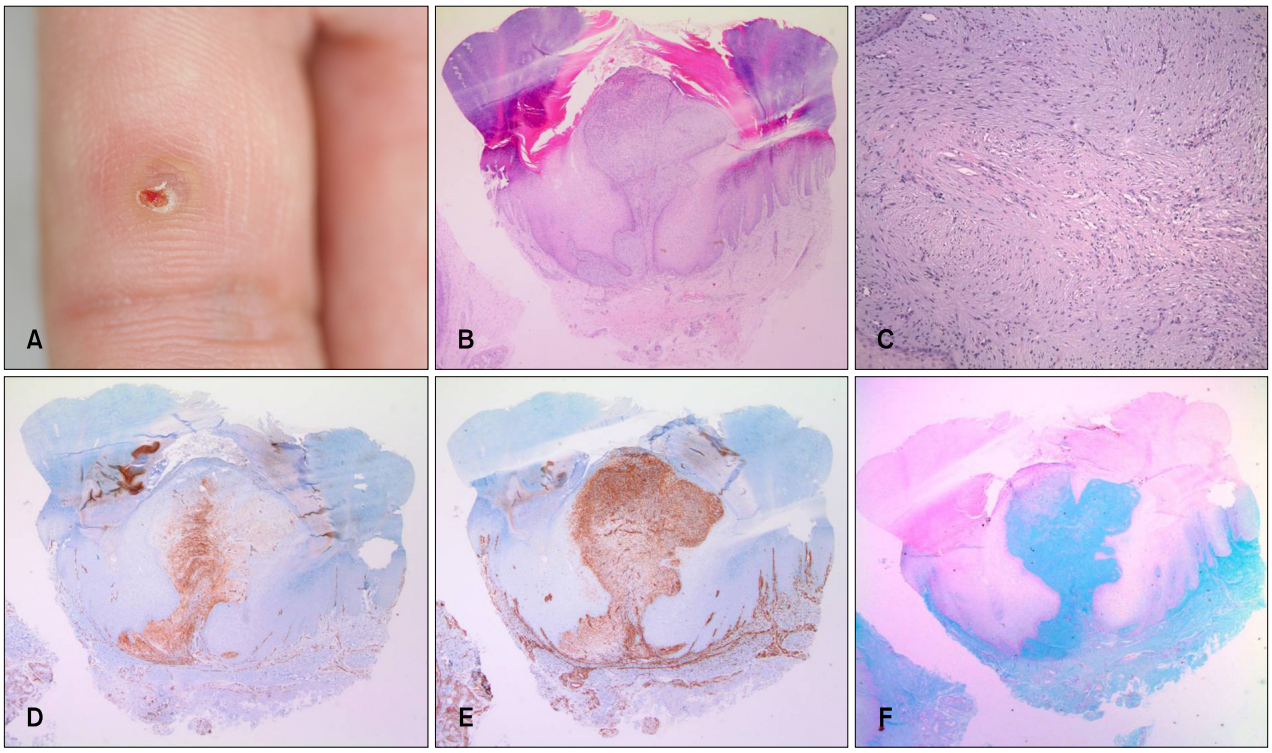

Fig. 1. (A) An erythematous fixed protruding nodule 0.5 cm in diameter on the ventral part of the proximal phalanx of the patient's right index finger. (B∼F) Low-magnification view of the specimen indicates a polypoid tumor protruding above the surrounding skin. (B) It was constricted at its base and lateral sides by an acanthotic epidermis with collarette-like changes (H&E, ×20). (C) The tumor with a proliferation of spindle cells in a loose fascicular pattern was confirmed at higher magnification (H&E, ×100). (D) Immunohistochemistry indicates the tumor cells were positive for CD34 (×20) and (E) vimentin (×20). (F) Alcian blue staining revealed background myxoid stroma (×20).

Table 1. Characteristics of myxoid soft-tissue tumors mimicking cellular digital fibroma

Disease entity	Clinical features	Histopathological features	Immunohistochemistry
Superficial acral fibromyxoma	Predilection for hands and feet	Proliferation of spindle or stellate cells Storiform or fascicular pattern Myxocollagenous stroma Occasional appearance of mast cells and multinucleated cells	CD34(+), CD99(+), Vimentin(+), Alcian blue(+), SMA(−), S-100(−), EMA(+/−)
Myxoid dermatofibrosarcoma protuberans	Vary rare in the distal extremities	Diffuse infiltration of spindle cells Storiform or fascicular pattern Less myxoid area extending subcutis	CD34(+), Vimentin(+), S-100(−), EMA(−), Desmin(−)
Myxoid fibrous histiocytoma	Predilection for head, neck, and trunk	Proliferation of spindle cells Storiform or fascicular pattern Sclerotic collagen at the periphery Confined to the dermis	Factor XIIIa(+), CD34(−)
Low-grade myxofibrosarcoma	Predilection for proximal extremities and trunk	Significant cytologic atypia and mitoses	Vimentin(+), CD34(−), Desmin(−)
Superficial angiomyxoma	Predilection for head, neck, and trunk	Prominent hyalinized vessels	CD34(+/−), S-100(−), SMA(−)
Myxoid neurofibroma	Rarely >1 cm in diameter	Elongated cells with wavy nuclei	S-100(+), CD34(−)

SMA: smooth muscle actin, EMA: epithelial membrane antigen.

We initially considered a diagnosis of SAFM in our case; however, clinically, SAFMs are slow-growing asymptomatic tumors that commonly present as solitary lesions ranging from 0.5 to 5 cm in diameter[3,4]. The lesion in the present case was relatively smaller than typical SAFMs. Histopathologically, both SAFM and CDF can be characterized by spindle to stellate cells arranged in a storiform or fascicular pattern with variable degrees of myxoid background stroma[5]. Accentuated microvasculature and conspicuous mast cells are potentially suggestive of SAFM; meanwhile, keratin horn and epidermal collarette are commonly observed in CDF[4,5]. In our case, the nodule showed proliferation of spindle cells in a loose fascicular pattern; however, it was constricted at its base and lateral sides by collarette-like acanthotic epidermis. No vascular proliferation, atypical mitoses, or fibroblasts oriented vertically to the axis of the lesion were observed. In addition, the lesion was negative for CD99. Therefore, the tumor was consistent with a diagnosis of CDF. If lesions resemble myxoid fibrohistiocytic tumors (Table 1), immunohistochemistry can be used for an accurate diagnosis of CDF.

McNiff et al.[1] report that the natural course of CDF appears to be benign owing it its small size, unremarkable cytology, and absence of recurrence after biopsy. However, elucidating the detailed pathophysiology and clinical characteristics of CDF requires additional case reports. Rare cases of CDF, such as the one presented herein, must be distinguished from other cutaneous fibrohistiocytic tumors including SAFM.

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