Digital Arteriovenous Malformation

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Sir,

Digital arteriovenous malformation (AVM) is an acquired disorder of vascular malformation, characterized by a slightly raised dark red macule on the distal part of the finger involving the subungal or periungal area or the finger pulp. Middle-aged people are usually affected. Histologically, both thin-walled dilated vessels and thick-walled arterial vessels are found in the dermis and the subcutaneous fat. The tumour-like growth observed in acral haemangioma is typically absent. Digital AVM has been described and named differently in the literature before its recent re-classification as a distinctive disease entity (1). Herein we report a rare case of digital AVM, which fulfills the clinical and histological characteristics of AVM.

CASE REPORT

A 52-year-old woman presented with three ill-defined, tender reddish purple coloured macules on the volar side of the left index finger that had been present for 5 years. On physical examination, the largest macule, measuring about 1×1 cm, was slightly elevated and composed of small reddish purple dots with a mild verrucous surface (Fig. 1). Neither heating sensation nor pulsation was noted. She was a housewife and denied any previous trauma at the lesion site before it developed. However, after the lesion developed, she admitted that she frequently punctured the lesion with a needle to remove it. A gradual growth of the lesion was observed over the years, and for definitive diagnosis, a punch biopsy was performed. Histopathologically, epidermal hyperkeratosis, papillomatosis and prominent dilated subepidermal blood cysts were seen. Proliferation of the thick- and thin-walled vessels was found in the dermis and subcutaneous tissues. However, no tumour-like proliferation was found (Fig. 2).

As our patient did not wish further treatment, we only observed her for 3 months. There was no change in interval of the lesion during the follow-up periods.

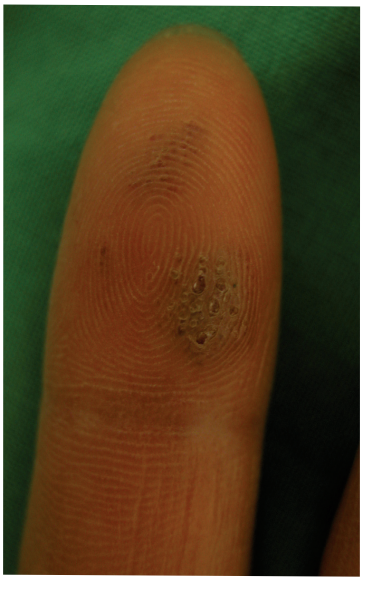

Fig. 1. Three reddish purple, slightly elevated macules composed of small reddish purple dots on the volar side of the index finger.

DISCUSSION

Digital AVM is an unusual disorder pertaining to the superficial vascular anomaly group. The term ‘digital AVM’ was first introduced by McCully et al. (2) in 1997. It is clinically characterized by a pulsatile purpuric nodule on the volar aspect of the index finger, with histological findings of both dilated arteries and veins in the dermis and subcutaneous tissues. In the past, similar cases have been described as cutaneous keratotic haemangioma and periungal and subungal arteriovenous tumours (3, 4).

The prevalence of digital AVM is not known and so far only 24 cases of digital AVM have been reported in the literature (1–5). This may not be the exact number, because as a result of its recent acknowledgement as a new disease entity, many cases may have been misdiagnosed under other miscellaneous names such as verrucous hyperkeratotic angioma, capillary haemangioma and sclerotizing angioma (3).

The mechanism behind digital AVM is not clear. Some authors (5, 6) propose that the shunt formed between the arterioles and venules is probably induced by trauma. However, not all reported cases of digital AVM have a previous history of known trauma. Among the 23 cases reported, 18 cases developed spontaneously (1–5). In our case, while there is no evidence that trauma was a causative factor, there is a possibility that the subsequent puncturings acted as a contributing factor for the growth of the lesion. Considering the predilection of AVM for the distal part of the fingers, it is conceivable that trauma, known or unknown, might be associated with its development.

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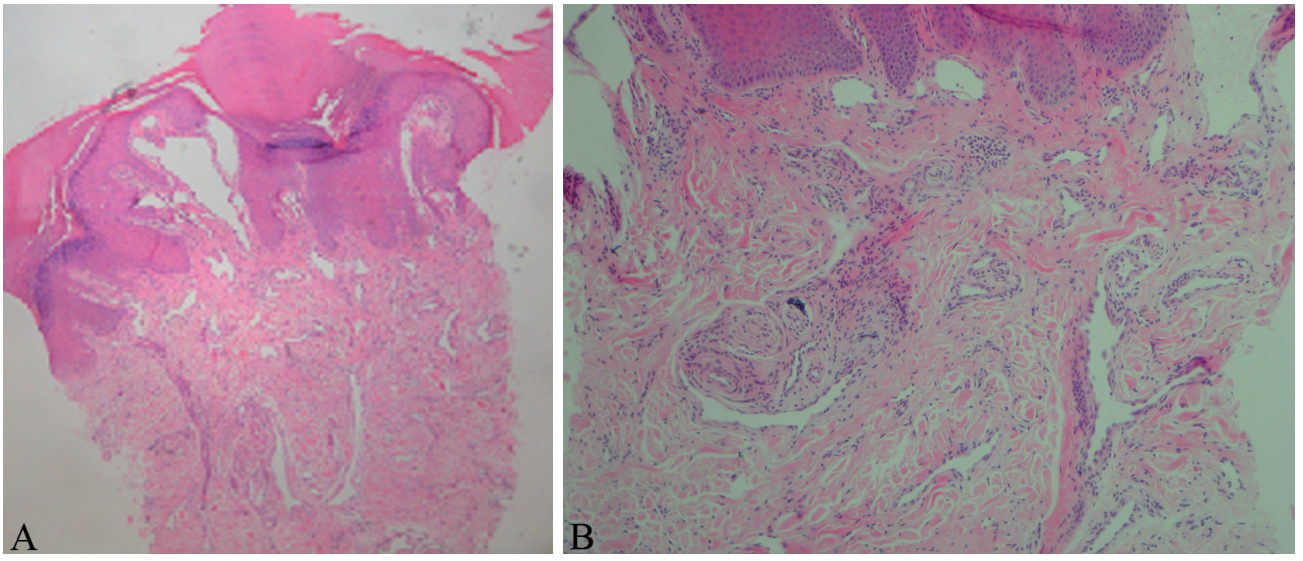

Fig. 2. (A) Dilated subepidermal blood cysts and thick- and thin-walled blood vessels in the dermis and subcutaneous tissues (haematoxylin and eosin staining, ×40). (B) Thin-walled vessels and thick-walled vessels are adjacent to each other (haematoxylin and eosin staining, ×100).

Differential diagnosis includes acral haemangioma, verrucous haemangioma and angiokeratoma. The most important differential diagnosis is acral haemangioma. It typically presents as a solitary vascular papule <5 mm in diameter and is usually located on the face or extremities, but a case on the digit has not been reported. Histologic

ally it is a well-circumscribed mass of large, thick-walled vessels located in the upper or mid dermis. Verrucous haemangioma clinically develops in childhood and is found mainly on the lower extremities. Histologically, it is a capillary haemangioma with epidermal verruciform projections. Angiokeratoma differs from digital AVM by its warty, prominently elevated appearance. Histologically it does not extend deeper over the papillary dermis.

Colour Doppler, magnetic resonance imaging and digital arteriography have additional complementary diagnostic value. They can provide information about the precise location of the arteriovenous fistulae, the feeding arteries and early venous filling (7). In conclusion, when confronting a superficial vascular anomaly on the distal part of the finger in middle-aged patients, we suggest that digital AVM should be considered.

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