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Dermatoscopic and ultra-high frequency ultrasound evaluation in cutaneous postradiation angiosarcoma

Letter to the Editor

T. Oranges [1], A. Janowska [1], S. Vitali [2], B. Loggini [3], R. Izzetti [3], M. Romanelli [1], V. Dini [1]

[1] Department of Clinical and Experimental Medicine, University of Pisa, Pisa, Italy.

[2] Department of Diagnostic and Interventional Radiology, University of Pisa, Pisa, Italy.

[3] Department of Translational Research and New Technologies in Medicine and Surgery, University of Pisa, Pisa, Italy.

Cutaneous angiosarcoma (cAS) is a rare malignant aggressive vascular tumour and includes three variants: cAS affecting the head and neck (Wilson-Jones type), postradiation cAS, and cAS associated with chronic lymphoedema (Stewart-Treves syndrome).[1, 2] The diagnosis is often delayed, because cAS is frequently clinically misdiagnosed as haematoma, rosacea, cellulitis or eczema.1 The diagnosis of cAS may be difficult also for the pathologists and the tumour may be misdiagnosed as a benign vascular lesion.[2]

Dermatoscopy [3-9] and ultrasonography [9, 10] in cAS may allow clinicians to perform an early diagnosis. Dermatoscopy may show the presence of bluish, reddish or yellowish areas, white lines or veils, white follicular outlets, different vascular pattern, or pink-purple 'steam-like areas'.[3-9] The main dermatoscopic differential diagnoses are other vascular tumours, such as infantile haemangioma in children or Kaposi sarcoma, and non-vascular tumours laking specific dermatoscopic features, such as amelanotic melanoma, Merkel cell carcinoma and primary cutaneous B-cell lymphoma.[5]

The high-frequency ultrasound (18 MHz probe) shows a hypoechoic well-defined vascularized lesion.[10] There is only one case report, in French, describing the use of ultra-high frequency ultrasound (UHFUS) Vevo MD 70 MHz in cAS, showing neoplastic ovoidal structures and intralesional hypervascularization.[9]

We describe the case of a postradiation cAS in an 80-year-old woman with a history of chemotherapy and radiotherapy for a vulvar carcinoma. The lesion was multifocal, previously

misdiagnosed as a hematoma, with violaceous plaques and nodules affecting the lower part of the abdomen of the patient, with a yellowish background. The main nodule showed a central verrucous and ulcerated area (Fig. 1a).

We performed a dermatoscopic examination using a Delta 20 polarizing dermatoscope (Heine Optotechnik, Herrshing, Germany) and an ultrasound evaluation using UHFUS Vevo MD 48-70 MHz (Visualsonic, Toronto, Canada) with colour Doppler evaluation. The lesion was subsequently surgically excised, and histologic-sonographic correlation was performed.

Dermatoscopic examination of the lesion showed different aspects in the different spreading lesions. In the main nodule, yellowish and brownish areas in a violaceous background were evident. The other areas showed a violaceous-bluish background sometimes with a white veil and lines, purple oval structures, bluish homogeneous lesions or pink-purple 'steam-like areas' (Fig. 1b–e).

The ultrasonographic evaluation of the nodule selected for the excisional biopsy showed alterations in epidermis, dermis and subcutaneous tissue. The evaluation with a UHFUS 70 MHz probe showed an ill-defined inhomogeneous hypoechoic area, with multiple anechoic reticulated channels. A hypoechoic sub-epidermal layer (depth <1 mm) was also evident (Fig. 2a).

With the UHFUS 48 MHz probe, the hypoechoic sub-epidermal layer was clearly recognizable. Moreover, the presence of oedema was visible together with the neoplastic infiltration of the adipose tissue, appearing as hypoechoic multiple lanceolate structures around the adipose lobules (Fig. 2d).

Histological examination of the nodule showed a meshwork of neoplastic anastomosing vessels dissecting through dermal collagen, lined by crowded atypical endothelial cells, with areas of hemorrhagic extravasation (Fig. 2b). The neoplastic cells were reactive for CD31 and CD34 antigens, and negative for HHV8. The irregular vessels were represented by the reticulated channels on ultrasonography (Fig. 2a). At a deeper histological section, we observed atypical endothelial cells around the adipose lobules (Fig. 2e).

The colour Doppler evaluation (1.9 cm/s) with the 70 MHz probe showed intralesional hypervascularization. Some areas seemed to be not vascularized, and this is probably related to the impeded vascular flow due to the irregular lumen of the neoplastic vessels, lined by crowded endothelial cells (Fig. 2c).

The combined use of dermatoscopy and UHFUS may help clinicians to perform an early diagnosis. In particular, the use of UHFUS with both the probes provides a complete evaluation of both the more superficial and deeper parts of the tumour.

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Figure 1. Dermatoscopic examination of the lesion showed different aspects in the various spreading lesions [a: the asterisk corresponds to (b), the black arrow corresponds to (c), the white arrow corresponds to (d) and the white arrowhead corresponds to (e)]. In some areas (b), pink-purple 'steam-like areas' were prevalent, in the main nodule yellowish and brownish areas were present in a violaceous background. The other areas showed a violaceous-bluish background (d, e) sometimes with a white veil and lines (d), purple oval structures (d) and bluish homogeneous lesions (e).

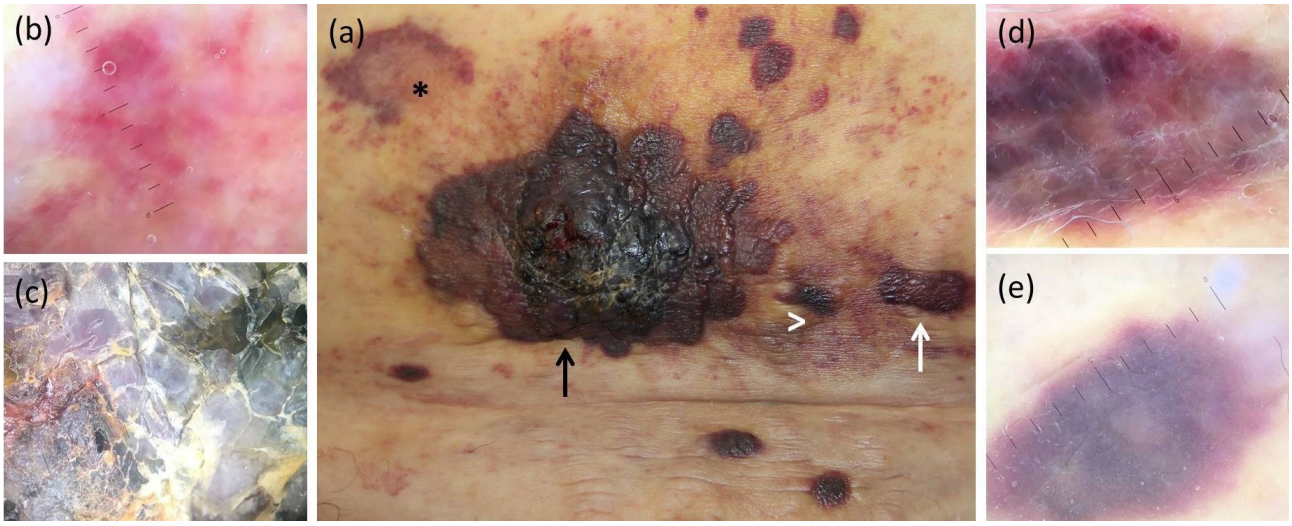

Figure 2. Ultra-high frequency ultrasound (UHFUS; 70 MHz probe) showing a not well-defined inhomogeneous hypoechoic area (a), with multiple anechoic reticulated channels (a, white arrow). A hypoechoic sub-epidermal layer was also evident (a, asterisk). Histological examination (b, haematoxylin-eosin stain, 10×) showed irregular vessels (b, white arrow) and areas of hemorrhagic extravasation (b, asterisk). The colour Doppler evaluation (1.9 cm/s) with the 70 MHz probe showed intralesional hypervascularization (c). UHFUS (48 MHz probe) showing the hypoechoic area with the hypoechoic sub-epidermal layer (d), the presence of oedema (d, asterisk) and neoplastic infiltration, appearing as hypoechoic multiple small lanceolate structures (d, white arrow) around the adipose lobules. Histological examination (haematoxylin-eosin stain, 4×) at a deeper section showed atypical endothelial cells around the adipose lobules (e).