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ATYPICAL VASCULAR PROLIFERATION IN CHRONIC RADIODERMATITIS SECONDARY TO RADIOTHERAPY FOR INFANTILE HEMANGIOMA

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Abbreviation **IH** = infantile hemangioma.

Case report. A 45-year-old patient was examined for the presence of a neoformation that had arisen in the dorsal vertebral region on an area of skin treated with X-ray. The father, who worked as a technician in a private radiology office, reported that the daughter, when aged a few months, had received a diagnosis of infantile hemangioma and had been treated with radiotherapy. After an unspecified period of time, the skin of the treated area underwent degenerative phenomena, diagnosed as chronic radiodermatitis and no longer regressed. For 6 months, the patient reported the onset on the radiodermatitis of a slow-growing neoformation, bleeding several times. Dermatological examination (Fig. 1, 2) showed in the dorsal vertebral region an 8 cm, rounded area, which was depressed for 1 cm compared to the surrounding healthy skin, hairless and whitish in color with small hyperpigmented areas and some telangiectases; in the center of this area there was an about 8 mm, blackish in color, neoformation with a crusty-hemorrhagic appearance. A diagnosis of ulcerated neoformation on radiodermatitis was clinically made and the patient was sent to Plastic Surgery for the removal of the neoformation and lipofilling. The histological examination showed (Fig. 3, 4) an ulcerated neoformation consisting of vascular lacunae lined with endothelium and filled with blood. At the periphery of the angiomatous neoformation, the epidermis was thickened due to the presence of small rounded accumulations of amorphous, colloid type substance that flowed into larger masses (Fig. 5). Elsewhere (Fig. 6) the epidermis was thinned and the dermo-epidermal junction flattened; the dermis was fibrotic, devoid of hair follicles and glands, with very scarce vessels, some of which at the dermal-epidermal junction and at the limit

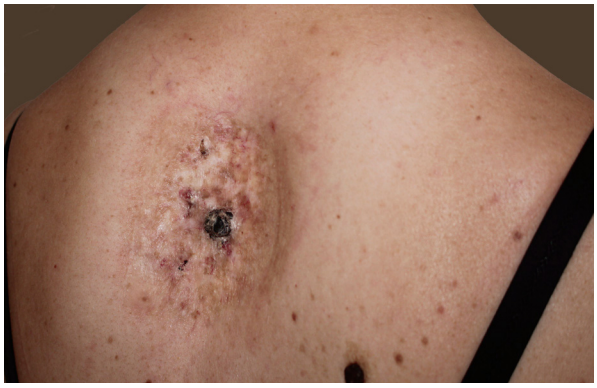

Fig. 1

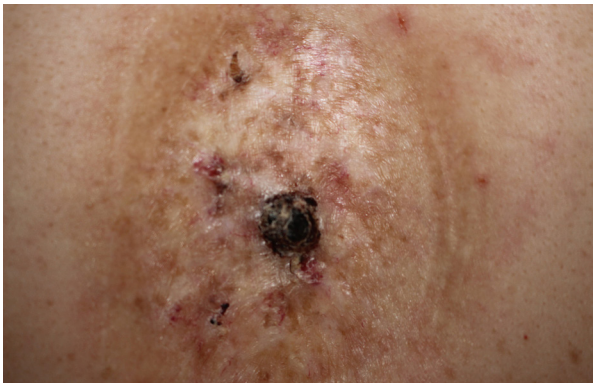

Fig. 2

Fig. 1, 2: Crusted ulcerated neoformation on chronic radiodermatitis in a 45-year-old patient.

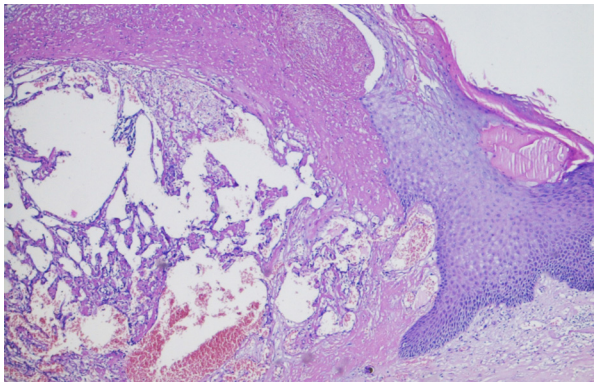

Fig. 3

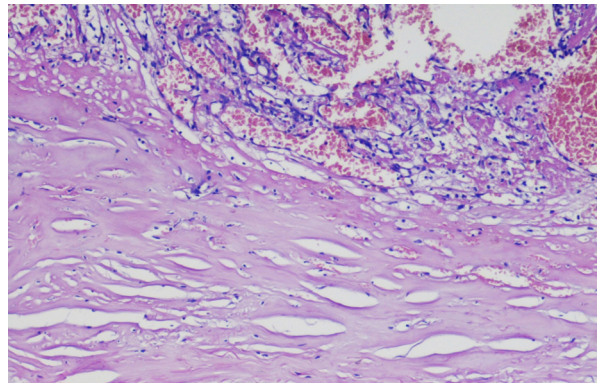

Fig. 4

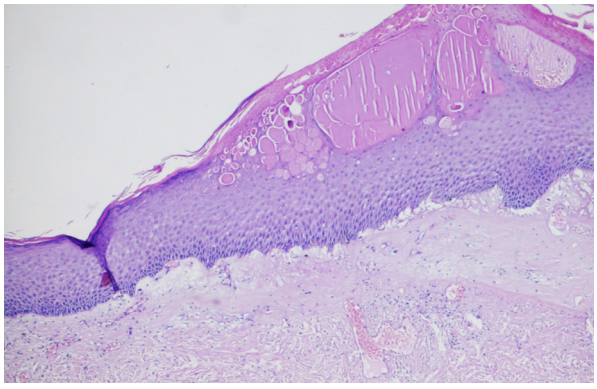

Fig. 5

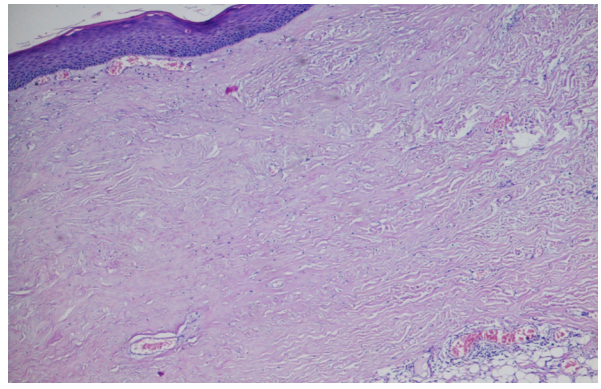

Fig. 6

Fig. 3, 4, 5, 6: Atypical vascular proliferation: branched and anastomosed vessels, filled with blood, in the upper dermis (Fig. 3, 4, H&E, 40x). In Fig. 5 (H&E, 40x) islets containing amorphous, colloid-like substance. In Fig. 6 (H&E, 40x) you can see flattened epidermis, dermal fibrosis, absence of skin appendages and isolated telangiectases.

with the subcutaneous fat tissue were considerably dilated. The final diagnosis was **atypical vascular proliferation in chronic radiodermatitis secondary to radiotherapy for infantile hemangioma**.

Discussion. Radiotherapy is still used today in the treatment of infantile hemangioma (IH) in the case of particular localizations such as the pituitary fossa, when other treatments are not possible (1). On the other hand, it is not actually indicated in cutaneous IH, even if it was still used until the '60s.

Among its side effects there is chronic radiodermatitis (6), which today is observed mainly in women undergoing radiotherapy for breast cancer.

The possibility of developing radiodermatitis depends on various factors, including the proximity to the skin of the radiotherapy target, the radiation energy, the overall dose of radiation and its treatment scheme, and the size of the skin surface exposed to radiation.

Chronic radiodermatitis is histologically characterized by fibrosis of the dermis with disappearance of the hair follicles and glands, and rarefaction of the vessels; some residual vessels can be very dilated. The epidermis can be acanthotic or atrophic and characterized by numerous dyskeratotic cells.

However, a more fearful side effect of radiotherapy for IH is the late onset, even after 6 decades (8) of tumors (2, 3, 7), including angiosarcoma (5) and melanoma (4).

Besides malignant tumors there are also benign proliferations. The **atypical vascular proliferations on radiodermatitis** are benign tumors consisting of branched and dilated vessels or irregular vascular lacunae delimited by endothelium; degeneration into angiosarcoma has been described in 3-6% of cases (8). The considerable delay between irradiation and the appearance of these proliferations seems to be linked to the low doses of X-rays used in the treatment of hemangioma (8).

The current case was presented due to the rarity of atypical vascular proliferations and to remind us that neoformations on radiodermatitis are not always malignant.

Conflicts of interest

The Author declares that he has no conflicts of interest.

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