The value of ultrasound diagnosis in the multidisciplinary approach of cutaneous tumours. Case report

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Abstract

We report the case of a senior patient, presenting with two cutaneous tumours in which the clinical and dermoscopic examination pointed towards a basal cell carcinoma. Ultrasound revealed highly vascularised tumours and elastography showed increased rigidity. Histological examination of both lesions following complete resection was consistent with squamous cell carcinomas. The distinctive feature of this case consists of the complex non-invasive diagnostic imaging of the tumour morphology, performed in real time, revealing aspects compatible with highly proliferative malignant tumours. This case emphasises the importance of ultrasound diagnosis in a multi-disciplinary approach for better and more predictable results.

Keywords: basal cell carcinoma; squamous cell carcinoma; dermoscopy; skin neoplasms; ultrasonography

Introduction

Skin cancer is the most frequent form of human cancer (9-13% of all diagnosed forms of cancer); 20% of people over the age of 70 had at least one basal cell carcinoma (BCC) or spinocellular carcinoma (SCC) [1].

BCCs develop slowly in photo-exposed areas (being directly linked to UV-exposure) or in mechanically stressed areas. The tumours present as nodules, papules or patches, which gradually increase in surface and often ulcerate. Typical clinical signs include prominent telangiectasias on the surface and a pearly white translucent border. Dermatoscopy may be used for more accurate di-

agnosis (arborising “treelike” telangiectasia, ulcerations, etc.) [2].

SCCs are more aggressive tumours, have metastatic capacity and occur especially in elderly patients. Two categories can be distinguished: aggressive, highly metastatic SCC developing on irradiated areas and chronic ulcerations, and SCC with low aggressiveness and lower metastatic risk, developing on photo-aggressed areas. Photo-induced SCCs develop more frequently on the forehead, scalp, ears, the back of the hand, often from precursor actinic keratosis lesions. Initially in the form of thick adherent scales, the lesions develop during a relatively short period of time into firm tumorous masses with well-defined edges. In the maxillo-facial area, the most common regional metastatic site appears to be the parotid gland [3-5].

The diagnosis of suspect non-pigmented cutaneous tumours is usually clinical. Post-excisional histology confirms the diagnosis. Ultrasonography (US) provides valuable real time information for differential diagnosis and therapeutic approach such as lateral extension and depth, vascularisation, rigidity. Elastography is a non-in-

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vasive technique which determines the elasticity of soft tissues. Reduced elasticity correlates with tumour congestion and hypervascularization [6-8].

This case report emphasizes the importance of US in evaluating cutaneous tumours and its impact on therapeutic approach optimisation.

Case report

A 83 year-old patient presented in Dermatology Clinic (Outpatient Unit) with two nodular and irregularly shaped lesions of the skin, situated on the left and right infraorbital region (fig 1a). The lesions were protruding, erythematous, with an irregular surface and relatively well defined edges, with areas of ulcerations and hemorrhagic crusts. Both tumours initially started as small asymptomatic papules, which developed over several months to indolent bleeding nodules. The left tumour was measuring 2/1 cm and was situated at 1.5 cm inferior to the infraorbital margin. The right tumour was situated at 1 cm inferior to the infraorbital margin, measuring 0.5/1.5 cm.

No lymphnodes were palpable in the head and neck region. Also, she did not recall any local trauma in the

past. Besides belonging to phototype II, she worked as a courier for more than 40 years, which implied outdoor activities. Dermatoscopy (fig 2a) of both lesions showed numerous dilated asymmetrical arborising vessels on the surface of both lesions. Bilateral BCC was suspected.

Gray scale US (fig 2b) revealed two well defined, hypoechogenic, inhomogeneous, ulcerated tumours (15/4 mm in the right side and 20/3.2 mm in the left side) located in the dermis and imprinting the hypodermis. Doppler US (fig 2c) found peripheral and central tumour hypervascularization with numerous dilated vessels, and 3, respectively 4 vascular pedicles. Qualitative elastography (fig 2d) revealed an increased rigidity of both tumours. Imagistic aspects, especially the presence of abundant basal vascularisation, raised the suspicion of achromic melanoma or SCC.

Surgical excision of the tumours was performed in general anesthesia (fig 1b,c). Histological examination revealed SCC for both lesions (3 mm Breslow index for the right side lesion and 2 mm Breslow for the left side lesion).

Discussions

Our case, where two SCCs appear symmetrically and synchronously, is a relatively rare situation, the incidence of multiple primary cancers being reported in 0.3-4.3% cases [9].

Although the patient was retired for 20 years, the UV rays have a cumulative effect and they can cause cutaneous tumours years after exposure [10,11].

The complex multidisciplinary approach of cutaneous tumours in order to optimise the surgical approach is a continuous challenge for practitioners. In our case, clinical examination pointed to a BCC diagnosis. US

Fig 1. Clinical aspect showing: a) nodular, ulcerated, symmetrical tumours – the patient's first visit; b) 7 days after surgery; c) 5 months after surgery.

Fig 2. a) Dermascan examination: hypoechoic inhomogeneous and ulcerated tumour located in the reticular dermis, irregular borders and sonographic depth index 3.3 mm; the Dermascan depth value was closer to the histological Breslow index (3 mm) compared to the conventional ultrasound depth index (4 mm); b) Gray scale ultrasonography: hypoechogenic ulcerated tumour located in the dermis with a depth index of 4 mm -the right side and 3.2 mm -the left side; c) colour Doppler examination: increased blood supply with more than 2 vascular pedicles; d) elastography showing high rigidity in the central area of the lesions, corresponding to the local hypervascularisation and tumoral infiltration.

provided important complementary data regarding the tumour morphology, depth (quantified in mm as sonographic index), degree of vascularisation, and elasticity. Increased sonographic index values in comparison to the histological Breslow index values in our case can be explained by the presence of the peritumoral inflammatory infiltrate. In addition, according to the literature data and our experience, the high frequency ultrasound (Dermascan 20MHz) offers highly accurate depth index information in comparison to conventional US [8,12].

Intratumoral vascularisation assessed through colour Doppler revealed aspects suggesting malignant tumoural lesions. In the case of benign tumours, colour Doppler usually shows a peripheral blood supply with a slow “wash out” time while performing contrast agent investigation [6]. Qualitative elastography based on a standard colour code, revealed an increased rigidity of both tumours, suggesting malignant lesions. Inflammatory and hypervascularized lesions have increased rigidity [6,8]. The clinical and US data indicated the necessity of performing surgery and also gave the surgeon valuable information regarding the surgical approach.

Similar studies show the importance of US in the diagnosis and treatment of skin cancer [13,14]. This case is only one example of the importance of an interdisciplinary approach in cases with cutaneous tumours. Assessing cutaneous tumours preoperatively by means of US can lead to optimal surgical results (tumour free surgical margins and the least amount of defects).

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