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CASE REPORT

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Choose your biopsy site wisely — the utility of dermoscopy in the diagnosis of Bowen's disease of the face

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ABSTRACT

Precise assessment of facial lesions in photo-damaged skin could be challenging. A collision of benign, premalignant and malignant tumours is not uncommon. Selecting the biopsy site is fundamental for making a proper diagnosis. Therefore, biopsies should not be taken blindly but should be preceded by a detailed preliminary evaluation with dermoscopy, in particular. The article presents a case of a 78-year-old female patient, in whom dermoscopy-guided incisional biopsy of an irregular erythematous plaque led to the diagnosis of *in situ* squamous cell carcinoma.

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Keywords: Bowen's disease, squamous cell carcinoma, dermoscopy guided biopsy, dermatosurgery, dermoscopy, dermatoscopy

CASE REPORT

A 78-year-old woman was referred to the Department of Dermatology for evaluation of a pink, scaly plaque of unknown duration located on the right zygomatic arch. She reported chronic occupational and recreational sun exposure over the years. The lesion had been treated with cryotherapy twice, however, it was still slowly growing. The patient reported a history of basal cell carcinoma (BCC) on the nose 6 years earlier and another lesion located above the current plaque that had been surgically removed. However, the histopathological diagnosis was not available.

On physical examination was observed an irregular ill-defined, oval-shaped plaque of a pink-to-red colour, measuring around 3 cm in diameter. There were also white-to-yellowish scales randomly distributed over the lesion (Fig. 1).

Dermoscopic examination showed sparse linear branched and dotted vessels irregularly distributed over the pinkish background. Patchy white-to-yellow fine scales were also seen. In the upper part of the lesion, a pinpoint erosion was present (Fig. 2, 3). At that point, an incisional biopsy was randomly taken from the upper part of the lesion.

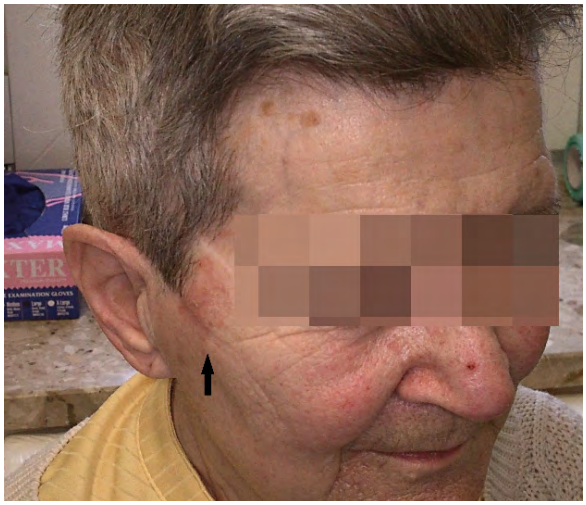

Figure 1. Clinical presentation — an ill-defined oval-shaped erythematous plaque on the right zygomatic arch

Histological examination showed degenerative changes due to chronic sun exposure: atrophy of the epidermis with low-grade dysplasia, lymphocytic-histiocytic inflammatory infiltrate around vessels of the superficial plexus and skin

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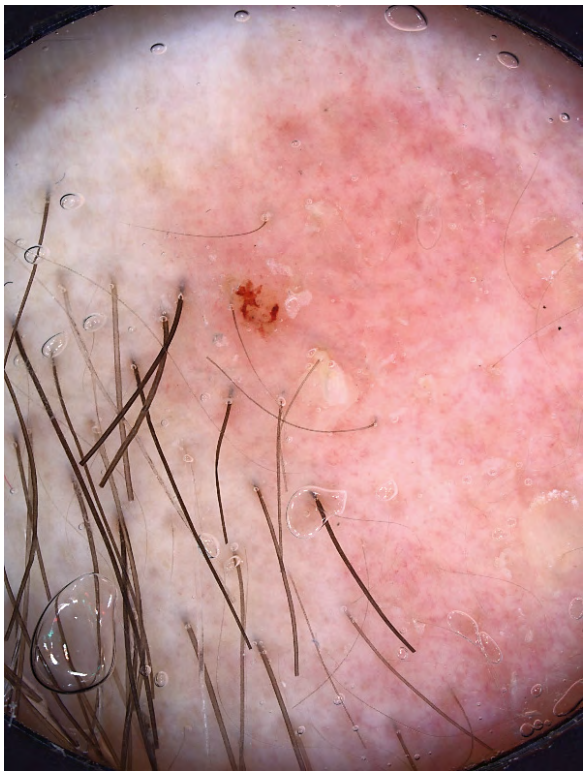

Figure 2. Dermoscopic presentation: sparse dotted and linear branched vessels randomly arranged over a pinkish background and patchy white-to-yellow scales. In the top left corner of the lesion, a pinpoint erosion is present

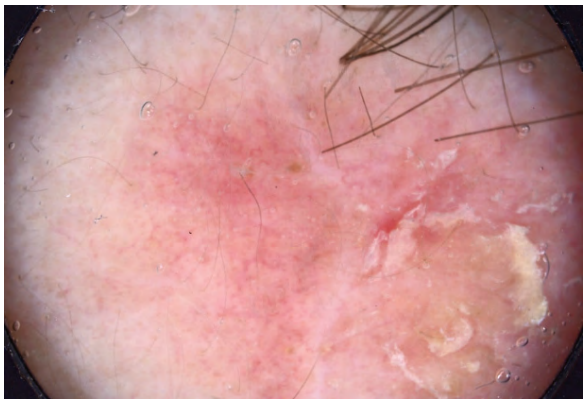

Figure 3. Dermoscopic examination showing the white-to-yellow surface scale

appendages, and stromal oedema. The findings were consistent with early actinic keratosis (Fig. 4).

The patient came for a follow-up visit a month later, after applying an exfoliating cream for a few days. A dermoscopic examination was performed once again and showed coiled vessels in a clustered arrangement in the lower part of the lesion, previously covered with scales (Fig. 5, 6). Because of a strong suspicion of squamous cell carcinoma *in situ*/Bowen's

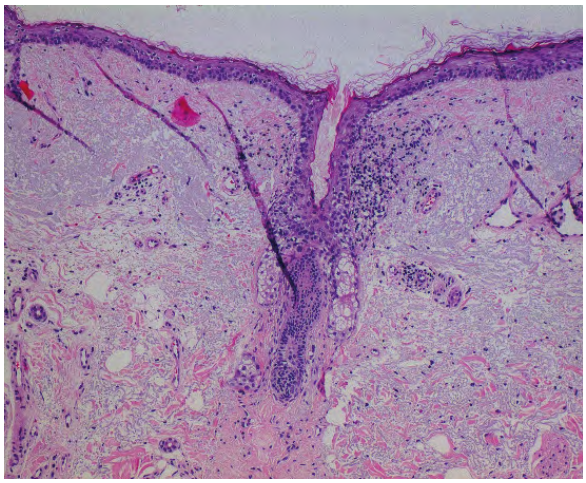

Figure 4. Histological view: atrophy of the epidermis with a low--grade dysplasia (actinic keratosis). Degenerative changes due to chronic sun exposure with no signs of invasive neoplasm

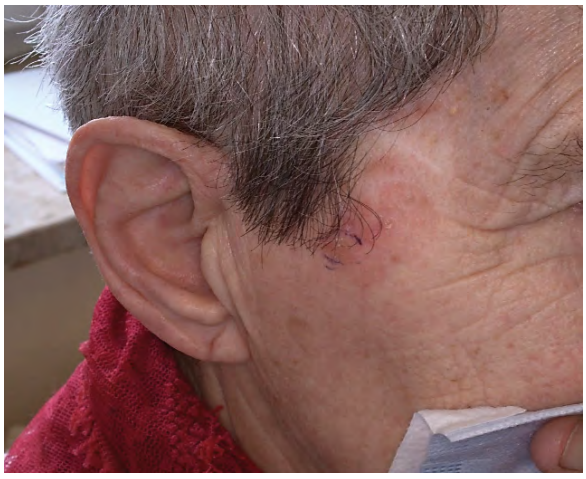

Figure 5. Clinical presentation of the patient at a follow-up visit. A scar after the first incisional biopsy is visible in the upper part of the lesion. The site for the second, dermoscopy-guided, incisional biopsy is circled in blue

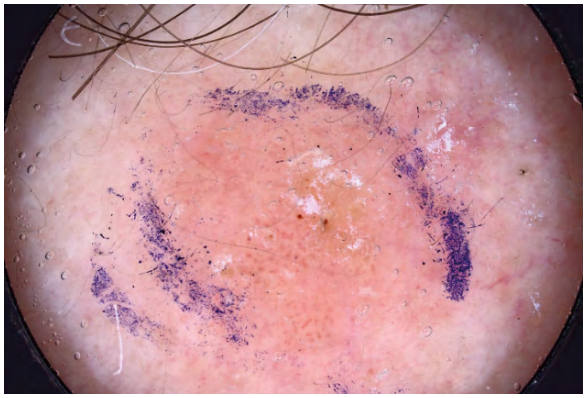

Figure 6. Dermoscopic view of the site selected for biopsy: coiled vessels in a clustered arrangement

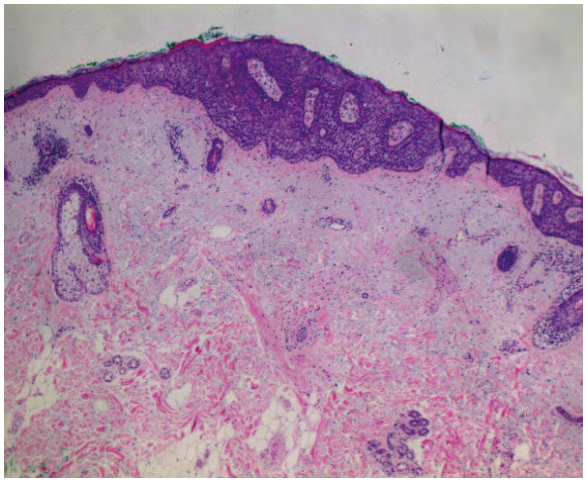

Figure 7. Histopathological examination showed full-thickness epidermal dysplasia with numerous abnormal mitoses, indicating carcinoma *in situ*/Bowen's disease

disease, a second biopsy, guided by dermoscopy, was taken. This time, histological examination showed high-grade atypia of the epidermis, with numerous abnormal mitoses, indicating carcinoma *in situ* [Bowen's disease (BD)] — Figure 7.

DISCUSSION

BD is an *in situ* squamous cell carcinoma (SCC) of the epidermis that was first described by John Templeton Bowen in 1912 [1]. It is estimated that around 3% to 5% of BD transform into invasive squamous cell cancer [2].

BD most commonly develops in photo-exposed areas of the skin, especially in the Caucasian race and in patients with low skin phototypes. The predisposing factors of BD include ultraviolet light exposure, psoralen-ultraviolet A (PUVA) therapy, thermal injury, ionizing radiation, immunosuppression, arsenic exposure, inflammatory dermatoses such as chronic lupus erythematosus or lupus vulgaris, and human papillomavirus (HPV) infections [3]. BD usually presents as a slowly enlarging, well-defined, skin-coloured, erythematous to pigmented scaly and/or crusted plaque. The plaque can rarely be eroded or ulcerated [4].

The differential diagnoses include the spectrum of premalignant and malignant keratinizing lesions: actinic keratosis (AK), keratoacanthoma (KA) and SCC [5]. In addition, inflammatory dermatoses such as psoriasis and nummular eczema should be taken into differential diagnosis.

Under dermoscopy, BD should be suspected when white-to-yellow surface scales and coiled vessels in linear or clustered arrangement on an erythematous background are present [5]. In a pigmented variant of BD, small brown globules and/or homogeneous pigmentation can be additionally observed [6]. However, these features are still not pathognomonic for BD and a biopsy must be taken to confirm the diagnosis [3].

The available therapeutic modalities of BD include topical chemotherapy (imiquimod 5% cream, 5-fluorouracil cream), light-based modalities (photodynamic therapy, radiotherapy, CO_2 laser), destructive therapies (curettage with cautery, cryotherapy) and surgical modalities (excision, Mohs micrographic surgery) [3].

Dermoscopy has already been reported as a useful tool for the selection of a biopsy site and therefore facilitation of the diagnosis of melanocytic lesions [7, 8], cicatricial alopecia [9–13], extramammary Paget's disease [14], melanonychia [15] and penile sclerosing granuloma [16]. Dermoscopy may not only aid selection of the biopsy site but also guide nail abrasion for mycological samples in case of onychomycosis [17]. By better detection of margins, dermoscopy may help to guide resection of lentigo maligna [18], squamous cell carcinoma [19–21] and basal cell carcinoma [22–24]. The real-time use of dermoscopes during surgical excision of intradermal naevus for optimal cosmetic outcomes has also been reported [25].

Precise assessment of facial lesions in photo-damaged skin could be challenging. A collision of benign lesions (*e.g.* solar lentigines, seborrheic keratosis, sebaceous hyperplasia *etc.*), premalignant lesions (actinic keratosis) and malignant tumours (*e.g.* BCC, SCC, lentigo maligna) is not uncommon. In addition, extensive erythematous or pigmented macules, with dermoscopic phenomena varying depending on the zone of the lesion, may be encountered on photo-damaged skin. Complete excision of large lesions may require advanced surgical skills, and still, this does not guarantee satisfying cosmetic outcomes. Therefore, less invasive proceedings are preferred for benign or premalignant conditions. In all these cases, if the diagnosis is uncertain or a malignant lesion is suspected (*e.g.* lentigo maligna), an incisional biopsy should be taken first. And the larger the lesion, the greater the importance of dermoscopy in selecting the best site for biopsy.

CONCLUSIONS

An incisional biopsy of extensive facial lesions should not be taken blindly but should be preceded by detailed preliminary evaluation based on non-invasive imaging methods, particularly dermoscopy. Early and accurate diagnosis of BD is essential for treatment initiation and preventing its transformation into invasive SCC.

Article information and declarations

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Author contributions

Conceptualization — MŻ and IW; resources — MŻ, EO and KKW; writing: original draft preparation — IW; writing: review and editing — MŻ and AR; visualization — MŻ and EO; supervision — MŻ and AR. All authors have read and agreed to the published version of the manuscript.

Conflict of interest

The authors declare no conflict of interest.

Ethics statement

Informed consent was obtained from the patient described in the article.

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Supplementary material

None.

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