



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

Irena Wojtowicz<sup>1</sup>, Karolina Krawczyk-Wołoszyn<sup>1,2</sup>, Elżbieta Ostańska<sup>3</sup>, Adam Reich<sup>1</sup> ,  
Magdalena Żychowska<sup>1</sup> 

<sup>1</sup>Department of Dermatology, Institute of Medical Sciences, Medical College of Rzeszow University, Rzeszów, Poland

<sup>2</sup>The Doctoral School, University of Rzeszow, Rzeszów, Poland

<sup>3</sup>Department of Pathology, Institute of Medical Sciences, Medical College of Rzeszow University, Rzeszów, Poland

## 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.

**Forum Derm.**

**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.

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



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

## Address for correspondence:

Irena Wojtowicz, MD, Department of Dermatology, Institute of Medical Sciences, Medical College of Rzeszow University, Fryderyka Szopena 2, 35-055 Rzeszów, Poland, e-mail: wojtowicz.irena.maria@gmail.com

Received: 07.02.2024

Accepted: 29.02.2024

Early publication date: 15.04.2024

This article is available in open access under Creative Common Attribution-Non-Commercial-No Derivatives 4.0 International (CC BY-NC-ND 4.0) license, allowing to download articles and share them with others as long as they credit the authors and the publisher, but without permission to change them in any way or use them commercially.



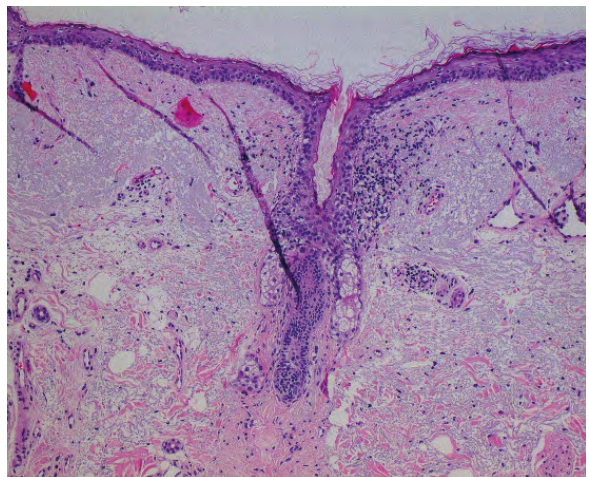
**Figure 2.** Dermoscopic presentation: sparse dotted and linear branched vessels randomly arranged over a pinkish background and patchy white-to-yellow scales. In the top left corner of the lesion, a pinpoint erosion is present



**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).

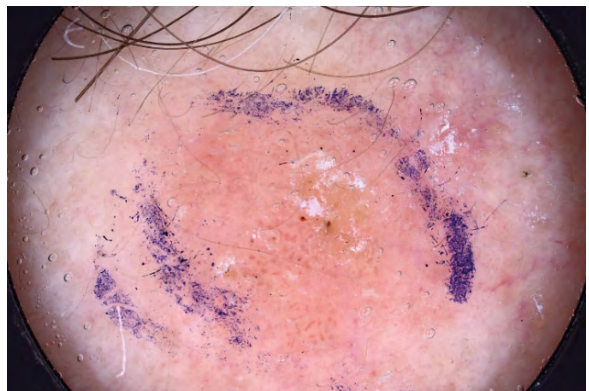
The patient came for a follow-up visit a month later, after applying an exfoliating cream for a few days. A dermoscopic examination was performed once again and showed coiled vessels in a clustered arrangement in the lower part of the lesion, previously covered with scales (Fig. 5, 6). Because of a strong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

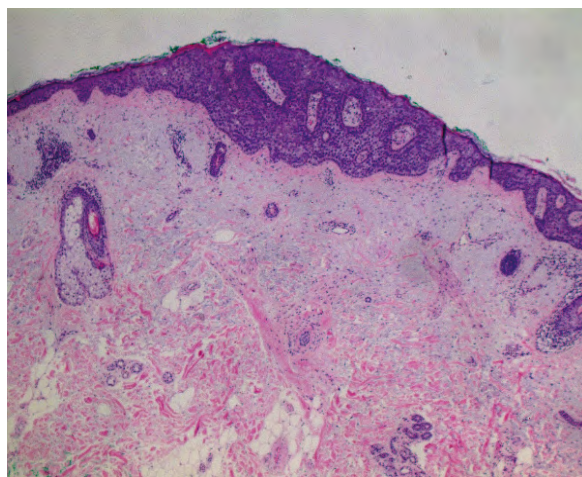


**Figure 5.** Clinical presentation of the patient at a follow-up visit. A scar after the first incisional biopsy is visible in the upper part of the lesion. The site for the second, dermoscopy-guided, incisional biopsy is circled in blue



**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) — Figure 7.

## DISCUSSION

Bowen's disease (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].

Bowen's disease 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 Papilloma Virus (HPV) infections [3]. Bowen's disease 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<sub>2</sub> 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 Bowen's disease is essential for treatment initiation and preventing its transformation into invasive SCC.

## Article information and declarations

### Acknowledgements

None.

### Author contributions

Conceptualization — MŽ and IW; resources — MŽ, EO and KK-W; writing: original draft preparation — IW; writing: review and editing — MŽ and AR; visualization — MŽ and EO; supervision — MŽ 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.

### Funding

This case report received no external funding.

### Supplementary material

None.

### REFERENCES

- Bowen J. Precancerous dermatoses: a study of two cases of chronic atypical epithelial proliferation. *Arch Dermatol*. 1983; 119(3): 243–260, doi: [10.1001/archderm.1983.01650270061020](https://doi.org/10.1001/archderm.1983.01650270061020).
- Wozniak-Rito AM, Rudnicka L. Bowen's disease in dermoscopy. *Acta Dermatovenereol Croat*. 2018; 26(2): 157–161, indexed in Pubmed: [29989873](https://pubmed.ncbi.nlm.nih.gov/29989873/).
- Palaniappan V, Karthikeyan K. Bowen's disease. *Indian Dermatol Online J*. 2022; 13(2): 177–189, doi: [10.4103/idoj.idoj\\_257\\_21](https://doi.org/10.4103/idoj.idoj_257_21), indexed in Pubmed: [35287414](https://pubmed.ncbi.nlm.nih.gov/35287414/).
- Behera B, Kumari R, Thappa DM, et al. Dermoscopy of Bowen's disease: a case series of five patients. *Indian J Dermatol Venereol Leprol*. 2021; 87(4): 576–580, doi: [10.25259/IJDVL\\_987\\_20](https://doi.org/10.25259/IJDVL_987_20), indexed in Pubmed: [33969658](https://pubmed.ncbi.nlm.nih.gov/33969658/).
- Marghoob A, Braun R, Jaimes N. *Atlas of Dermoscopy Third Edition*. CRC Press, Boca Raton 2023: 108–115.
- Zalaudek I, Argenziano G, Leinweber B, et al. Dermoscopy of Bowen's disease. *Br J Dermatol*. 2004; 150(6): 1112–1116, doi: [10.1111/j.1365-2133.2004.05924.x](https://doi.org/10.1111/j.1365-2133.2004.05924.x), indexed in Pubmed: [15214896](https://pubmed.ncbi.nlm.nih.gov/15214896/).
- Bomm L, Benez MD, Maceira JM, et al. Biopsy guided by dermoscopy in cutaneous pigmented lesion — case report. *An Bras Dermatol*. 2013; 88(1): 125–127, doi: [10.1590/s0365-05962013000100020](https://doi.org/10.1590/s0365-05962013000100020), indexed in Pubmed: [23539018](https://pubmed.ncbi.nlm.nih.gov/23539018/).
- Merkel EA, Amin SM, Lee CY, et al. The utility of dermoscopy-guided histologic sectioning for the diagnosis of melanocytic lesions: a case-control study. *J Am Acad Dermatol*. 2016; 74(6): 1107–1113, doi: [10.1016/j.jaad.2016.01.002](https://doi.org/10.1016/j.jaad.2016.01.002), indexed in Pubmed: [26826889](https://pubmed.ncbi.nlm.nih.gov/26826889/).
- Kolcz K, Kaznowska E, Reich A, et al. Trichoscopy-guided biopsy for the evaluation of scarring alopecia due to discoid lupus erythematosus. *Forum Derm*. 2023; 9(4): 167–171, doi: [10.5603/fd.98114](https://doi.org/10.5603/fd.98114).
- Griggs J, Trüeb RM, Gavazzoni Dias MF, et al. Fibrosing alopecia in a pattern distribution. *J Am Acad Dermatol*. 2021; 85(6): 1557–1564, doi: [10.1016/j.jaad.2019.12.056](https://doi.org/10.1016/j.jaad.2019.12.056), indexed in Pubmed: [31926219](https://pubmed.ncbi.nlm.nih.gov/31926219/).
- Miteva M, Tosti A. Dermoscopy guided scalp biopsy in cicatricial alopecia. *J Eur Acad Dermatol Venereol*. 2013; 27(10): 1299–1303, doi: [10.1111/j.1468-3083.2012.04530.x](https://doi.org/10.1111/j.1468-3083.2012.04530.x), indexed in Pubmed: [22449222](https://pubmed.ncbi.nlm.nih.gov/22449222/).
- Elloudi S, Gallouj S, Meziane M, et al. Alopécie frontale fibrosante: étude prospective de 20 cas [Frontal fibrosing alopecia: A prospective study of 20 cases]. *Ann Dermatol Venereol*. 2017; 144(6–7): 409–414, doi: [10.1016/j.annder.2017.01.014](https://doi.org/10.1016/j.annder.2017.01.014), indexed in Pubmed: [28258757](https://pubmed.ncbi.nlm.nih.gov/28258757/).
- Salas-Callo CI, Carvalho Quintella D, Saceda-Corralo D, et al. Follicular melanocytes in frontal fibrosing alopecia: an immunohistochemical study with trichoscopic correlation. *Am J Dermatopathol*. 2022; 44(4): 254–256, doi: [10.1097/DAD.0000000000002115](https://doi.org/10.1097/DAD.0000000000002115), indexed in Pubmed: [34966048](https://pubmed.ncbi.nlm.nih.gov/34966048/).
- Chuh A, Zawar V, Fölster-Holst R. Dermoscopy-guided lesional biopsy to diagnose EMA+ CK7+ extramammary Paget's disease with an extensive lesion. *J Eur Acad Dermatol Venereol*. 2018; 32(3): e92–e94, doi: [10.1111/jdv.14539](https://doi.org/10.1111/jdv.14539), indexed in Pubmed: [28846155](https://pubmed.ncbi.nlm.nih.gov/28846155/).
- Kaur I, Chowdhry S, D'Souza P, et al. Intra-Operative dermoscopy in assessment of melanonychia and as a guide for biopsy. *Indian Dermatol Online J*. 2020; 11(2): 171–176, doi: [10.4103/idoj.IDOJ\\_94\\_19](https://doi.org/10.4103/idoj.IDOJ_94_19), indexed in Pubmed: [32477974](https://pubmed.ncbi.nlm.nih.gov/32477974/).
- Navarrete J, Cabrera R, Bunker CB, et al. Dermoscopy of penile sclerosing granuloma. *BMJ Case Rep*. 2021; 14(3), doi: [10.1136/bcr-2020-239846](https://doi.org/10.1136/bcr-2020-239846), indexed in Pubmed: [33653855](https://pubmed.ncbi.nlm.nih.gov/33653855/).
- Bet DL, Reis AL, Di Chiacchio N, et al. Dermoscopy and onychomycosis: guided nail abrasion for mycological samples. *An Bras Dermatol*. 2015; 90(6): 904–906, doi: [10.1590/abd1806-4841.20154615](https://doi.org/10.1590/abd1806-4841.20154615), indexed in Pubmed: [26734877](https://pubmed.ncbi.nlm.nih.gov/26734877/).
- Robinson JK. Use of digital epiluminescence microscopy to help define the edge of lentigo maligna. *Arch Dermatol*. 2004; 140(9): 1095–1100, doi: [10.1001/archderm.140.9.1095](https://doi.org/10.1001/archderm.140.9.1095), indexed in Pubmed: [15381550](https://pubmed.ncbi.nlm.nih.gov/15381550/).
- Liu Z, Huang S, Li F, et al. The efficacy of dermoscopy in defining the surgical margins of cutaneous squamous cell carcinoma: a retrospective study. *Front Oncol*. 2023; 13: 1141820, doi: [10.3389/fonc.2023.1141820](https://doi.org/10.3389/fonc.2023.1141820), indexed in Pubmed: [37188196](https://pubmed.ncbi.nlm.nih.gov/37188196/).
- Paoli J. Predicting adequate surgical margins for cutaneous squamous cell carcinoma with dermoscopy. *Br J Dermatol*. 2015; 172(5): 1186–1187, doi: [10.1111/bjd.13727](https://doi.org/10.1111/bjd.13727), indexed in Pubmed: [25963210](https://pubmed.ncbi.nlm.nih.gov/25963210/).
- Carducci M, Bozzetti M, de Marco G, et al. Preoperative margin detection by digital dermoscopy in the traditional surgical excision of cutaneous squamous cell carcinomas. *J Dermatolog Treat*. 2013; 24(3): 221–226, doi: [10.3109/09546634.2012.672711](https://doi.org/10.3109/09546634.2012.672711), indexed in Pubmed: [22390630](https://pubmed.ncbi.nlm.nih.gov/22390630/).
- Caresana G, Giardini R. Dermoscopy-guided surgery in basal cell carcinoma. *J Eur Acad Dermatol Venereol*. 2010; 24(12): 1395–1399, doi: [10.1111/j.1468-3083.2010.03652.x](https://doi.org/10.1111/j.1468-3083.2010.03652.x), indexed in Pubmed: [20384678](https://pubmed.ncbi.nlm.nih.gov/20384678/).
- Carducci M, Bozzetti M, De Marco G, et al. Usefulness of margin detection by digital dermoscopy in the traditional surgical excision of basal cell carcinomas of the head and neck including infiltrative/morpheaform type. *J Dermatol*. 2012; 39(4): 326–330, doi: [10.1111/j.1346-8138.2011.01449.x](https://doi.org/10.1111/j.1346-8138.2011.01449.x), indexed in Pubmed: [22150641](https://pubmed.ncbi.nlm.nih.gov/22150641/).
- Litaïem N, Hayder F, Benlagha I, et al. The use of dermoscopy in the delineation of basal cell carcinoma for mohs micrographic surgery: a systematic review with meta-analysis. *Dermatol Pract Concept*. 2022; 12(4): e2022176, doi: [10.5826/dpc.1204a176](https://doi.org/10.5826/dpc.1204a176), indexed in Pubmed: [36534540](https://pubmed.ncbi.nlm.nih.gov/36534540/).
- Chuh A, Zawar V, Fölster-Holst R. The first dermoscope-guided excisional biopsy for optimal clinical and cosmetic outcomes – a procedure performed in a primary care setting in Hong Kong, *HK Pract* 2020; 42: 3–6.