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CASE REPORT

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A collision tumour of basal cell carcinoma and melanocytic nevus mimicking a melanoma — a case report and review of the literature

Magdalena Żychowska[1], Kinga Kołcz[1, 2], Ewa Kaznowska[3]

[1]*Department of Dermatology, Institute of Medical Sciences, Medical College of Rzeszow University, Rzeszów, Poland*
[2]*The Doctoral School, University of Rzeszow, Rzeszów, Poland*
[3]*Department of Pathology, Institute of Medical Sciences, Medical College of Rzeszow University, Rzeszów, Poland*

ABSTRACT

A collision tumour is characterized by the presence of at least two different skin neoplasms in the same lesion. Collision skin tumours develop quite rarely. The case presents a 58-year-old woman in whom an asymmetric skin lesion of undetermined duration was noted during routine dermoscopy. The skin lesion consisted of two clinically distinct components. The patient remained under a 4-month follow-up. At the next visit, a change in the appearance of the previously present lesion was observed. The lesion was excised and submitted for histopathological examination, which was consistent with the diagnosis of a collision tumour composed of dysplastic nevus and basal cell carcinoma. This article discusses the characteristics and diagnostic difficulties in the diagnosis of collision tumours based on the available English literature. Furthermore, highlighted is the value of a non-invasive imaging modality which is dermoscopy in diagnosing not only melanoma and non-melanoma skin cancer but also complex lesions such as collision tumours.

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Keywords: collision tumour, basal cell carcinoma, dysplastic nevus, dermoscopy

CASE REPORT

A 58-year-old Caucasian male, with a negative family history of melanoma, was referred to the Dermatology Clinic in March 2021 for a routine nevi check-up. Under dermoscopy, attention was drawn to an asymmetric lesion of unknown duration located in the lumbar region. The lesion consisted of two components — the left part showing under dermoscopy typical brown pigment network, and the right part composed of an unspecific pink structureless area (Fig. 1A). The patient was invited for a follow-up visit in July 2021 (Fig. 1B). Digital dermoscopy showed growth of the pink structureless area and development of punctate erosions (Fig. 1C). In addition, short fine serpentine vessels became apparent (Fig. 1D). The collision lesion was not taken into consideration, and malignant melanoma was the main suspicion. The whole lesion was surgically excised with a 3-mm margin. Histopathology was consistent with the diagnosis of a collision tumour composed of dysplastic nevus with cytologic low-grade atypia (left part) and basal cell carcinoma (right part) — Figure 2.

DISCUSSION

Collision skin tumours develop quite rarely, and largely because of that, pose a diagnostic challenge. Thus, only a small number of descriptions of them can be found in the English-language literature [1–15]. They are characterized by the presence of at least two different skin neoplasms in the same lesion [1]. They were found to be histopathologically diagnosed and not suspected based on clinical examination in 51.2% of cases [1]. A collision tumour may be composed of benign associations, malignant associations, or benign-malignant associations. The confusing terminology that has been present in the literature so far was finally systematized by Satter et al. [2], who distinguish four types of lesions: collision tumours (composed of originally separate neoplasms with a tendency for merging),

Address for correspondence:
Kinga Kołcz, MD, Department of Dermatology, University of Rzeszow, Szopena 2, 35–055 Rzeszów, Poland, e-mail: kingakolcz@gmail.com

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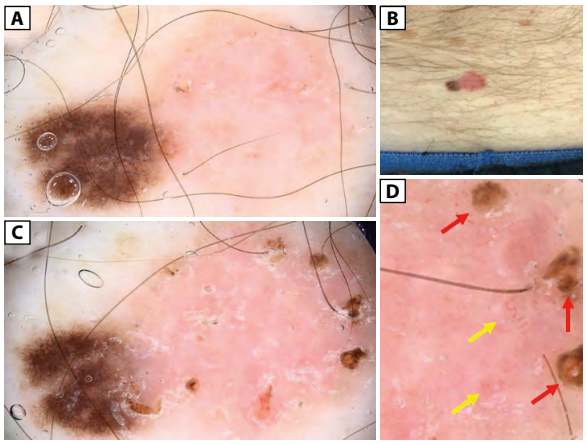

Figure 1. Dermoscopy of the lesion at initial consultation showing regular brown pigment network on the left and pink structureless area with single fine linear vessels on the right (**A**); clinical presentation of the lesion at follow-up visit after 4 months — peripheral spreading of the right component and single crusted erosions were present (**B**); dermoscopy at the follow-up visit showed evident erosions and linear vessels on pink background (**C**); video dermoscopy (×30) showing multiple linear vessels (yellow arrows) and crusted erosions (red arrows) (**D**)

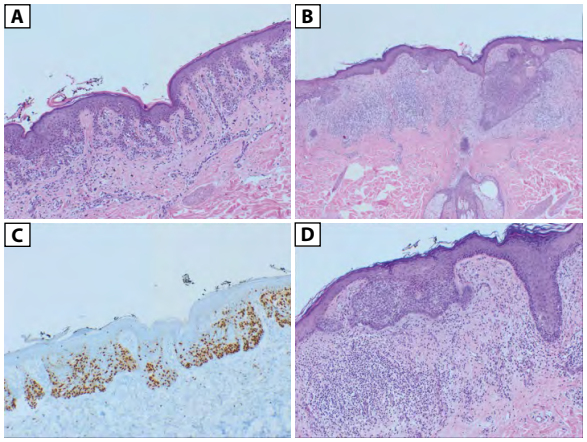

Figure 2. Histopathological examination showing both features of (**A**, **C**) melanocytic nevus (left part of the collision lesion) and (**B**, **D**) basal cell carcinoma (right part of the collision lesion); lentiginous hyperplasia and irregular nests of melanocytes with cytologic low-grade atypia (haematoxylin & eosin, ×100) (**A**); positive SOX10 staining (SOX10, ×100) (**B**); basaloid lobules projecting from the lower margin of the epidermis with peripheral palisading (haematoxylin & eosin, ×40) (**C**); basaloid lobules with peripheral palisading (haematoxylin & eosin, ×100) (**D**)

combined tumours (composed of intimately admixing cell populations), colonized tumours (composed of one cell population has a tendency for colonizing an underlying second cell population), and biphenotypic tumours (composed of cell populations arising from a common precursor but undergoing divergent differentiation) [3]. If a malignant component is present, correct diagnosis is crucial for proper management [1].

In the study of 41 collision tumours by Fikrle et al. [1], over half of the lesions were misdiagnosed clinically and dermoscopically. Twenty-eight out of 41 collision lesions consisted of at least one malignant component. However, only 3 cases were a collision of two malignant tumours. Melanoma was found to collide most frequently with seborrheic keratosis [1]. Therefore, older patients with multiple seborrheic keratosis undoubtedly require thorough dermoscopic examination in order not to miss melanoma.

Basal cell carcinoma (BCC) was also found to frequently collide with seborrheic keratosis [1]. In the study by Zaballos et al. [4], a collision of BCC and seborrheic keratosis constituted 37.9% of histopathologically proven malignant collision tumours. In the same study, collision tumours composed of BCC and melanocytic nevus accounted for 19.9% of cases [4]. In the study by Fikrle et al. [1], collision tumours composed of BCC were predominantly located on the head and neck area (58.3%).

Three larger histopathological studies on collision tumours have been published to date, all showing a very low rate of collision tumours among biopsied lesions [3, 13, 14]. In the study by Boyd and Rapini, the collision of BCC and melanocytic nevus was found to be predominant [3].

It should be taken into consideration that collision lesions, consisting of benign components in particular, are encountered in daily clinical practice much more frequently than estimated. Most of these lesions, such as a collision of seborrheic keratosis and cherry angioma, are easy to diagnose with the naked eye and they are never biopsied. Therefore, a thorough examination, including dermoscopy, is so important in order not to miss the malignant component, which may be overshadowed by the dominant benign part of the collision lesion.

Dermoscopy facilitates the detection of collision tumours [4, 6, 11]. In the study by Fikrle et al. [1], dermoscopic structures corresponding to the histopathological diagnosis were present in all 41 cases of collision tumours [1]. Therefore, routine use of dermoscopy for evaluation of all skin tumours and close examination of all quadrants of the lesion in order not to miss a minor colliding tumour is recommended [1]. Reflectance confocal microscopy (RCM) has also proved to be of help in the early recognition of collision tumours [15]. Cooperation with histopathologists is crucial. In the above-mentioned study by Fikrle et al. [1], six collisions were initially missed in histopathology. Enough clinical and dermoscopic information should be provided to the pathologist to avoid even a minor element of the collision tumour being unrecognized.

CONCLUSIONS

In conclusion, thorough physical examination, detailed dermoscopic analysis of all four quadrants of the lesion, RCM in case of equivocal lesions, and good cooperation with the dermatopathologist are necessary to increase early clinical diagnosis of collision tumours.

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Author contributions

All named authors meet the International Committee of Medical Journal Editors (ICMJE) criteria for authorship for this article, take responsibility for the integrality of the work as a whole, and have given their approval for this version to be published.

Conflict of interest

The authors of this publication declare no conflicts of interest.

Ethics statement

Informed consent was obtained from the patient for participation in the study and publication of the article, including publication of clinical photographs.

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Supplementary material

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