DERMOSCOPY OF THE MONTH

Balloon Cell Nevus – Report of Three Cases

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Abstract

The balloon cell nevus is a rare and unusual benign melanocytic lesion characterized histologically by complete or predominant presence of balloon-cell transformed melanocytes. They represent approximately 1.7% of all melanocytic nevi. Three female patients, aged 30, 14 and 7 years, with lesions located on the back and head are included in the presented report. The dermoscopic examination revealed the repetitive dermoscopic features in all three patients: white and yellowish aggregated globules. In conclusion, balloon cell nevi are clinically indistinguishable from the common nevi. Dermoscopy can be useful in their recognition since balloon cell nevi exhibit some distinct dermoscopic features in a form of aggregated white and/or yellow globules.

Key words: Nevus, Pigmented; Dermoscopy; Skin Neoplasms; Melanoma; Case Reports

Introduction

The balloon cell nevus (BCN) is a benign melanocytic lesion characterized histologically by complete or predominant presence of large transformed melanocytes known as "balloon cells" (1–4). This histological entity was first reported by Judalaewitsch a century ago, in 1901. Then in 1932 Miescher gave a comprehensive case description of BCN in a nine-year-old boy; however, in this article he erroneously considered balloon cells to be nevus cells that underwent a sebaceous transformation (2). Nowadays, it is known that balloon cells are formed by progressive vacuolisation of melanosomes in nevi cells (2, 3).

BCNs are commonly reported in patients younger than 30 years, with no gender predominance, most commonly occurring on the head or in the neck area, but also on the trunk and extremities (1, 2). They represent approximately 1.7% of all melanocytic nevi (3). Clinically, BCNs are indistinguishable from the common nevi. Those asymptomatic melanocytic lesions usually appear as a macule or papule, but also may have a polypoid appearance (1, 2). Herein, we report three female patients with dermoscopic features of BCN.

Case Reports

Case 1

A 30-year old female patient was referred to our Department for a regular mole examination. The patient had the history of a previously excised dysplastic nevus and positive family history of melanoma. The clinical examination revealed numerous melanocytic nevi without dermoscopic atypia. However, the pigmented lesion on the right central part of the back (**Figure 1 A**) showed dermoscopically multiple aggregated whitish globular structures over the pigment network (**Figure 1 B**), pathognomonic for the diagnosis of the balloon cell nevus. The patient was reassured about this benign feature and advised for a regular follow-up.

Case 2

A 14-year-old girl was admitted to our Department for the evaluation of a solitary, oval and brown pigmented lesion on the central part of the upper back (**Figure 2 A**). Her personal and family history was unremarkable. The dermoscopic examination revealed numerous whitish globules on the brown structureless background with discrete brown

Figure 1. A. Clinical image of asymmetric brown nevus on right part of the back. **B.** Dermoscopy showed multiple and clustered white globules (arrows) over brown pigment network.

Figure 2. A. Solitary brown nevus on the central part of the upper back. **B.** Brown structureless pigmentation, peripheral brown dots and globules and multiple whitish globules (arrows) were observed by dermoscopy.

dots/globules on the periphery, corresponding to the balloon cell nevus (**Figure 2 B**). A regular follow-up was scheduled.

Case 3

The third, the youngest patient, was a 7-year-old girl, who was sent by a pediatrician for the examination of a recently noticed lesion on the scalp. The clinical examination showed a brown pigmented lesion, measuring approximately 10x12 mm on the skin of the central parietal scalp (**Figure 3 A**), while the dermoscopic examination displayed a brownish coloration with multiple, grouped

whitish and some yellowish globules, typical for the balloon cell nevus (**Figure 3 B**).

Discussion

The BCN is a histopathological term used for intradermal or compound melanocytic lesions that contain a preponderance of balloon-transformed cells. Based on a percentage of involved cells, the balloon cell transformation can be subdivided into a primary and secondary phenomenon. If more than 50% of cells are affected by the change, the balloon cell transformation is considered to be a primary phenomenon, which classifies those lesions as a

Figure 3. A. Clinical appearance of brown pigmented nevus on the scalp. **B.** Multiple whitish and some yellowish globules (arrows) over brown colored background were noticed by dermoscopy.

balloon cell nevus or balloon cell melanoma. In 2% of melanocytic nevi, small foci of balloon-transformed cells can be observed, which is considered to be a secondary phenomenon (3).

The balloon cell transformation has been described in both benign and malignant melanocytic lesions. Furthermore, balloon cell changes have also been reported in other non-melanocytic lesions including dermatofibroma and adnexal tumors (5, 6). The vacuolated appearance of the cells in BCN is attributed to the altered melanogenesis that results in accumulation of melanin precursors in premelanosomes (2–4).

Dermoscopy of BCN consists of multiple aggregated whitish or yellowish globular structures that histopathologically correspond to balloon cell transformed nests (1, 7–10). The coloration of globules (white or yellow) depends on the degree of the melanosome degeneration (8). Considering that balloon cells nests are admixed with normally pigmented melanocytes on histopathology, it is not surprising that pigment network, globules/dots or brown structureless pigmentation can be observed dermoscopically (7–10). All three cases in this report displayed multiple aggregated whitish and yellowish globules which undoubtedly confirmed the diagnosis of BCN.

The yellowish globules should be differentiated from those seen in sebaceous lesions, including sebaceous hyperplasia, naevus sebaceous or sebaceous adenoma, as well as in juvenile xanthogranuloma (8). In contrast, white

globules should be differentiated from milia-like cysts, which are most commonly seen in seborrheic keratosis (9, 10). However, the differentiation between BCN and seborrheic keratosis should not be a challenge if there are other dermoscopic clues for seborrheic keratosis (sharp demarcation, comedo-like openings, mouth-eaten border or fingerprint-like areas). In addition milia-like cysts are not equally well observed by the employment of nonpolarized and polarized dermoscopy. Namely, by applying the polarized dermoscopy, milia-like cysts are less conspicuous. In contrast, globules seen in balloon cell nevi are similar regardless of which of the two types of dermoscopy is applied (9, 10).

Balloon cell melanoma (BCM) is a rare type of melanoma with a high mortality rate. Clinically, BCM cannot be distinguished from other types of melanoma. Owing to the rarity of this form of melanoma, dermoscopic features have not been well characterized. In a review of the relevant literature, typical white and yellow globules seen in BCN have not been reported in the dermoscopic description of BCM. Apparently, histopathologic diagnosis of BCM is more challenging considering morphologic similarity of cells in both BCM and BCN. The presence of cytological atypia, greater nuclear pleomorphism, higher Ki 67 mitotic index, and a lack of maturation of melanocyte towards the base of the lesion should help in differentiating those lesions from BCN (2, 11).

Conclusion

The balloon cell nevus is a rare and unusual benign melanocytic lesion. Despite the fact that the presence of the balloon cell transformation has no intrinsic clinical significance, dermatologists should be aware of this occurrence. In addition, both benign and malignant lesions can display the balloon cell transformation, which increases the possibility of a misdiagnosis. Dermoscopy can be useful in the recognition of this transformation since balloon cell nevi exhibit some distinct dermoscopic features in the form of aggregated white or yellow globules.

Abbreviations

BCN – balloon cell nevus

BCM – balloon cell melanoma

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Balloon cell nevus – prikaz tri pacijenta

Sažetak

Nevus sa balonskim ćelijama je retka i atipična benigna lezija koju histološki karakteriše potpuno ili predominantno prisustvo melanocita koji su transformisani u balonske ćelije. One čine približno 1,7% svih melanocitčnih nevusa. U ovom radu prikazujemo tri pacijentkinje, 30, 14 i 7 godina starosti, sa lezijama na koži leđa i kapilicijuma. Dermosopska evaluacija pokazala je kod

sve tri pacijentkinje repetitivni obrazac: bele i žućkaste grupisane globule. U zaključku, Nevus sa balonskim ćelijama se ne može klinički razlikovati od običnog nevusa. Dermoskopija može pomoći u dijagnozi ovih nevusa prepoznavanjem specifičnih dermoskopskih karakteristika u vidu grupisanih belih i/ili žutih globula.

Ključne reči: Pigmentni nevus; Dermoskopija; Kožne neoplazme; Melanom; Prikazi slučajeva

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