Case Report

An uncommon presentation of segmental Becker's nevus involving the T4 dermatome

Arvind M N[1], Avinash H. Rajanna[1], Mahesh S. Kanth[2], Aditya Chandrashekar[2]

[1]Department of General Medicine, Shri Atal Bihari Vajpayee Medical College and Research Institute (SABVMCRI), Bengaluru, Karnataka, India, [2]Department of General Medicine, Bangalore Medical College and Research Institute (BMCRI), Bengaluru, Karnataka, India

Abstract

This case report explores a rare manifestation of Becker's nevus, where the patient exhibited an unusual dermatomal distribution featuring a hyperpigmented, irregular patch with associated hypertrichosis on the T4 segment. While Becker's nevus is a well-known dermatological condition typically observed in the upper back region, instances of dermatomal distribution are exceptionally uncommon. This case presents a unique occurrence of segmental Becker's nevus, highlighting the atypical presentation of this condition.

Keywords: Becker's nevus, dermatopathological lesions, hyperpigmentation

Introduction

Becker's nevus, also known as Becker's melanosis, is a commonly occurring hyperpigmented, nonlinear lesion.[1] Becker's nevus (BN) is a benign cutaneous hamartoma characterized by the presence of epidermal or dermal components.[2] Becker's nevi can be found at birth, although the majority are discovered during puberty.

The time of the occurrence, as well as the male-to-female ratio of 5:1, the noticeable rise in the number of terminal hairs within numerous lesions, and the reports of acne vulgaris specifically localized to Becker's nevi have led to the consideration of androgenic stimulation as a potential underlying cause in their development.[3] Studies show that mutations occurring in the beta-actin gene (ACTB) within the pilar muscles are linked to Becker's nevus.[4]

A Becker's nevus classically manifests unilaterally on the shoulder and upper trunk as a tan to brown patch or thin plaque. Less often, lesions occur on the lower trunk, thigh, or in other sites. The margins typically exhibit irregularity and fragment into "islands" at the periphery; the mean diameter exceeds 10 cm. Hypertrichosis is observed in around 50% of instances,[5] and it may be accompanied by a smooth muscle hamartoma (which can be clinically detected by perifollicular papules that become more prominent when rubbed).

Associated developmental abnormalities, such as hypoplasia of the ipsilateral breast or pectoralis major muscle, occur infrequently. BN is commonly associated with extracutaneous abnormalities, then termed BN syndrome,[6] which can involve underlying structures, namely, aplasia or hypoplasia of the underlying breast tissue, or pectoralis major muscle or lipoatrophy. Other extracutaneous associations described are ipsilateral limb growth disturbance, supernumerary nipples, and scoliosis. Very rarely, BN has been described in a linear form.

Address for correspondence: Dr. Aditya Chandrashekar, Department of General Medicine, Bangalore Medical College and Research Institute (BMCRI), Fort Krishna Rajendra Rd, Bengaluru - 560 002, Karnataka, India.
E-mail: adityac002@gmail.com

Received: 07-10-2023 **Revised:** 03-01-2024
Accepted: 04-01-2024 **Published:** 22-04-2024

Access this article online

Quick Response Code:

Website: http://journals.lww.com/JFMPC

DOI: 10.4103/jfmpc.jfmpc_1646_23

How to cite this article: Arvind MN, Rajanna AH, Kanth MS, Chandrashekar A. An uncommon presentation of segmental Becker's nevus involving the T4 dermatome. J Family Med Prim Care 2024;13:1563-5.

Case Presentation

A 43-year-old man with a known case of retroviral disease since 3 months on the tenofovir, lamivudine and Dolutegravir (TLD) regimen and a known case of pulmonary tuberculosis on anti-tubercular therapy presented with complaints of bilateral lower limb swelling since 1 month and cough with expectoration for 4 months, which has increased since 1 month. The patient also says that he has a patch over his back, which began during his puberty, around the age of 17.

On general physical examination, the patient was found to have a unilateral 5 × 5 cm patch associated with hypertrichosis on the T4 segment [Figures 1 and 2]. The patch is irregular and has broken down into islands of macules on the periphery, but there is no scaling, thickening, or nodularity. There was no limb or breast hypoplasia or asymmetry. A dermatologist's opinion was sought, and dermoscopy revealed a continuous, well-defined pigmentation network with uniform thickness, and a skin lesion biopsy was suggested for confirmation. However, the patient did not give consent for a skin biopsy, which could not be done. The patient was managed conservatively for his systemic symptoms, and reassurance was given regarding the benign nature of Becker's nevus.

Discussion

Becker's nevus is a common dermatological condition characterised by a large, solitary lesion that fragments into smaller macules at their periphery (with or without associated hypertrichosis), particularly when located on the upper lateral trunk or when onset occurs around the time of puberty. The diagnosis of BN primarily relies on clinical evaluation; however, histological examination may be necessary to distinguish it from other hyperpigmented disorders, such as café-au-lait macules, melanocytic nevus, and post-inflammatory hyperpigmentation.[7] Dermoscopy is known to be a valuable diagnostic method for identifying BN. The key dermoscopic features associated with this condition are the presence of a network pattern, focal hypopigmentation, skin furrow hypopigmentation, hair follicles, and perifollicular hypopigmentation.[8] In our case, based on the age of onset and the clinical symptoms, the diagnosis of Becker's nevus seemed most likely; however, dermoscopy could not provide conclusive evidence.

Becker's nevus typically manifests on the back, shoulder, or chest and is commonly accompanied by hypertrichosis in 50% of individuals. The sporadic appearance and asymmetrical distribution of most of Becker's nevus suggest cutaneous mosaicism.[9] It is hypothesized that this condition is influenced by androgens, as it is primarily observed in males and is associated with an increased likelihood of acne and hypertrichosis.[3] Histopathologically, there is an elevated concentration of melanin in the basal layer of the epidermis, accompanied by acanthosis, varied hyperkeratosis, and elongation of rete ridges.[10]

Becker's nevus (BN) is a benign melanocytic skin condition with rare malignant transformation, with reassurance being the mainstay of treatment.[11] Treatment options in the past included mechanical abrasion, surgical excision, or cryotherapy, but often resulted in defective scarring or repigmentation.[12] Topical agents, such as flutamide with its anti-androgenic effect, have been shown to reduce hyperpigmentation but with no effect on hypertrichosis.[13] The progress made in laser technology, particularly with pigment-specific systems, such as Alexandrite, neodymium-doped-yttrium aluminium garnet (Nd-YAG), and Ruby lasers, has resulted in effective therapy with minimal long-term side effects. Nonetheless, the reappearance of pigmentation might happen as a result of the continued presence of melanocytes in deeper layers of the adnexa.[14] Long-pulse Ruby and Alexandrite lasers have shown a reduced risk of recurrence.[15]

Conclusions

Although Becker's nevus is a common dermatological condition and is most commonly seen in the upper back region, there are very few incidences of Becker nevus having dermatomal distribution, and hence this case of segmental Becker's nevus is being reported.

Figure 1: BN showing T4 dermatomal distribution

Figure 2: Irregular island-like distribution

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form, the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

Financial support and sponsorship

Nil.

Conflicts of interest

There are no conflicts of interest.

References

1. Ingordo V, Gentile C, Iannazzone S, Cusano F, Naldi L. The 'EpiEnlist' project: A dermo-epidemiologic study on a representative sample of young Italian males. Prevalence of selected pigmentary lesions. J Eur Acad Dermatol Venereol 2007;21:1091-6.
2. Williams VC, Lucas J, Babcock MA, Gutmann DH, Bruce B, Maria BL. Neurofibromatosis type 1 revisited. Pediatrics 2009;123:124-33.
3. Person JR, Longcope C. Becker's nevus: An androgen-mediated hyperplasia with increased androgen receptors. J Am Acad Dermatol 1984;10:235-8.
4. Cai ED, Sun BK, Chiang A, Rogers A, Bernet L, Cheng B, *et al.* Postzygotic mutations in beta-actin are associated with Becker's nevus and Becker's nevus syndrome. J Invest Dermatol 2017;137:1795-8.
5. Tymen R, Forestier JF, Boutet B, Colomb D. Naevus tardif de Becker. A propos d'une série de 100 observations [Late Becker's nevus. One hundred cases (author's transl)]. Ann Dermatol Venereol 1981;108:41–6.
6. Happle R, Koopman RJ. Becker nevus syndrome. Am J Med Genet 1997;68:357–61.
7. Alfadley A, Hainau B, al Robaee A, Banka N. Becker's melanosis: A report of 12 cases with atypical presentation. Int J Dermatol 2005;44:20–4.
8. Ingordo V, Iannazzone SS, Cusano F, Naldi L. Dermoscopic features of congenital melanocytic nevus and Becker nevus in an adult male population: An analysis with a 10-fold magnification. Dermatology 2006;212:354–60.
9. Lambert JR, Willems P, Abs R, van Roy B. Becker's nevus is associated with chromosomal mosaicism and congenital adrenal hyperplasia. J Am Acad Dermatol 1994;30:655-7.
10. Lapeere H, Boone B, De Schepper S, Verhaeghe E, Van Geel M, Ongenae K, *et al.* Chapter 75. Hypomelanoses and hypermelanoses. In: Goldsmith LA, Katz SI, Gilchrest BA, Paller AS, Leffell DJ, Wolff K, editors. Fitzpatrick's Dermatology in General Medicine. 8th ed. McGraw Hill; 2012. Available from: https://accessmedicine.mhmedical.com/content.aspx?bookid=392&sectionid=41138777.
11. Khatami A, Seradj MH, Gorouhi F, Firooz A, Dowlati Y. Giant bilateral becker nevus: A rare presentation. Pediatr Dermatol 2008;25:47-51.
12. Mouly R. Position du chirurgiendevantun naevus. Ann Chir Plast 1962;7:95-102.
13. Taheri A, Mansoori P, Sandoval LF, Feldman SR. Treatment of Becker nevus with topical flutamide. J Am Acad Dermatol 2013;69:e147-8.
14. Kopera D, Hohenleutner U, Landthaler M. Quality-switched ruby laser treatment of solar lentigines and Becker's nevus: A histopathological and immunohistochemical study. Dermatology 1997;194:338-43.
15. Choi JE, Kim JW, Seo SH, Son SW, Ahn HH, Kye YC. Treatment of Becker's nevi with a long-pulse alexandrite laser. Dermatol Surg 2009;35:1105-8.