



Dermatology Reports

<https://journals.pagepress.net/dr>

eISSN 2036-7406



SIDCO
Società Italiana di Dermatologia
Chirurgica, Oncologica, Correttiva ed Estetica

Publisher's Disclaimer. E-publishing ahead of print is increasingly important for the rapid dissemination of science. **Dermatology Reports** is, therefore, E-publishing PDF files of an early version of manuscripts that undergone a regular peer review and have been accepted for publication, but have not been through the copyediting, typesetting, pagination and proofreading processes, which may lead to differences between this version and the final one.

The final version of the manuscript will then appear on a regular issue of the journal.

E-publishing of this PDF file has been approved by the authors.

Please cite this article as:

Vincenzo De Giorgi, Giovanni Cecchi, Sara Simi, et al. Melanocytic nevi in the genital area: dermoscopic clues to diagnosis. Dermatol Rep 2026 [Epub Ahead of Print] doi: 10.4081/dr.2026.10927

 © the Author(s), 2026
Licensee [PAGEPress](https://www.pagepress.net), Italy

Received: 26 April 2026; Accepted: 22 May 2026.

Note: The publisher is not responsible for the content or functionality of any supporting information supplied by the authors. Any queries should be directed to the corresponding author for the article.

All claims expressed in this article are solely those of the authors and do not necessarily represent those of their affiliated organizations, or those of the publisher, the editors and the reviewers. Any product that may be evaluated in this article or claim that may be made by its manufacturer is not guaranteed or endorsed by the publisher.



Melanocytic nevi in the genital area: dermoscopic clues to diagnosis

Vincenzo De Giorgi,^{1,2} Giovanni Cecchi,¹ Sara Simi,³ Elisabetta Magnaterra,¹ Gabriella Perillo,¹ Federica Fazzari,¹ Daniela Massi,³ Biancamaria Zuccaro¹

¹Section of Dermatology, Department of Health Sciences, University of Florence; ²Cancer Research “Attilia Pofferi” Foundation, Pistoia; ³Section of Anatomic Pathology, Department of Health Sciences, University of Florence, Italy

Correspondence: Vincenzo De Giorgi, MD, Department of Dermatology, University of Florence, Via Michelangelo 41, 50124 Florence, Italy. Tel.: 0039-055-6939632; Fax: 0039-055-6939632; e-mail: vincenzo.degiorgi@unifi.it

Key words: mucosa; genital lesions; dermoscopy; vulvar melanoma; melanosis; pigmented lesions.

Contributions: Vincenzo De Giorgi, conceptualization, supervision; Elisabetta Magnaterra, Biancamaria Zuccaro, Gabriella Perillo, Giovanni Cecchi, Federica Fazzari, Sara Simi: acquisition of data; Vincenzo De Giorgi, Daniela Massi: analysis and interpretation of data, critical revision of the manuscript for important intellectual content; Vincenzo De Giorgi, Biancamaria Zuccaro, Sara Simi: writing – original draft; critical revision of the manuscript for important intellectual content. All authors have read and approved the final version of the manuscript.

Conflict of interest: the authors have no conflict of interest to declare.

Ethics approval and consent to participate: the study was approved by the local ethics committee, and it was conducted according to the Declaration of Helsinki. All patients or their legally authorized representatives provided written informed consent to participate in this study and for the publication of the images.

Availability of data and materials: the datasets used and/or analyzed during the current study are available from the corresponding author on reasonable request.

Abstract

Benign melanocytic nevi on genital mucosal or semimucosal sites may show clinical and dermoscopic atypia, often leading to biopsy. We retrospectively reviewed histologically confirmed genital melanocytic nevi diagnosed at the University of Florence (Italy) between January 2005 and December 2022 in patients aged ≥ 14 years. Forty-three patients were included (14 males, 29 females; median age 34 years). Lesions were more common on vulvar than penile sites, especially the labia minora and glans. Two predominant global dermoscopic patterns were present in 40 lesions (93%): a comet pattern in 25 (58%), characterized by a darker, densely structured “head” (most commonly linear pigmentation and/or globules, sometimes with a blue hue) and a less pigmented “tail”, and a globular pattern in 15 (35%), characterized by large, well-defined blue-to-black clods/globules with uniform pigmentation; 3 lesions (7%) had a nonspecific pattern. Recognition of these benign patterns, together with attention to melanoma-associated mucosal clues, may support more confident assessment and management of genital pigmented lesions.

Introduction

Melanocytic lesions in the genital area are not uncommon, yet their differential diagnosis can be challenging. Dermoscopic features of genital melanoma have been described, but the rarity of the disease and the complexity of these special sites can still complicate interpretation. In contrast, comparatively less has been published on the dermoscopic appearance of benign genital melanocytic nevi and congenital melanocytic nevi.¹⁻³

The distinction between congenital and acquired melanocytic nevi in the genital area (including mucosal/semimucosal sites) remains a diagnostic and conceptual challenge. True congenital nevi on mucosal genital sites are considered rare, although their actual incidence may be underestimated due to a lack of early documentation and the frequent absence of detailed information regarding lesion onset. Clinically and dermoscopically, several benign acquired nevi in this anatomical region may display features typically associated with congenital nevi, such as large globules, deep pigmentation, and architectural asymmetry.⁴

Both congenital and acquired forms may appear clinically and dermoscopically atypical, which may lead to overdiagnosis of melanoma. In practice, lesions are often excised because clinicians may be less familiar with benign patterns on special genital sites, which differ from common sites on the trunk and extremities.⁵⁻⁷

These lesions present peculiar and often concerning clinical and dermoscopic pictures compared to other anatomical sites, and if not recognized, they can lead to overtreatment following an incorrect diagnosis of melanoma. In this study, the primary objective was to aid in recognizing these nevi

within the genital region to avoid unnecessary excisions. The key purpose of this study is to facilitate their identification and deter unwarranted removal by identifying and describing the typical dermoscopic pictures of benign genital melanocytic lesions.

Materials and Methods

This observational, descriptive, retrospective study examined patients with histologically diagnosed melanocytic nevi of the genital area (congenital or acquired) seen between January 2005 and December 2022 at the Dermatology Department of the University of Florence (Italy). The study was conducted according to the Declaration of Helsinki; all patients/legally authorized representatives provided written informed consent for image publication, and the study was approved by the local ethics committee. Genital sites included vulvar locations (labia minora, vulvar vestibule, clitoris, and labia majora) and penile locations (glans/meatus, preputial sulcus/inner prepuce).

Patients had to be 14 years of age or older to be included in the study, and patients were excluded if they had a history of vulvo-vaginal or penile neoplasia, prior radiation therapy for other malignancies, or a history of ongoing or prior immunosuppressive therapy. The patient database contained demographic information as well as clinical and dermoscopic characteristics of the genital nevi. Each lesion was documented through both clinical and dermoscopic photography. All patients/legally authorized representatives signed a consent form that granted us permission to use their photos in the study.

Dermoscopic examinations were conducted using a handheld dermatoscope (HEINE DELTA 20, HEINE Optotechnik, Herrsching, Germany). High-resolution images of the lesions were captured with a digital camera (Olympus E-520), which had a 7.1-megapixel sensor, a 3.8× optical zoom lens, a focal length of 28-105 mm in a 35-mm format, and a maximum lens aperture of f/2.8-f/5.8. Dermoscopic images were acquired using the Dermaphot Camera System (HEINE Optotechnik), which is a device that connects a dermatoscope to a camera and enables the capture of high-quality dermoscopic pictures at 10× magnification. For all lesions, complete excision was performed as part of the diagnostic process, and the lesions were sent for analysis by a pathologist with expertise in skin neoplasms.

Three investigators (V.D.G., B.Z., and E.M.) with expertise in pigmented lesions and dermoscopy independently analyzed the archived digital dermoscopic images. None of them had any knowledge of the clinical history associated with the lesions. The investigators also completed a printed questionnaire to categorize the lesions according to typical dermoscopic pattern analysis. The dermoscopic pattern and the presence or absence of dermoscopic features in a given lesion were defined through agreement by at least 2 of the 3 dermoscopists.

Results

This study investigated the dermoscopic patterns of melanocytic nevi in the genital area in a series of 43 patients (14 males and 29 females), with a median age of 34 years (range: 16 to 60 years). Lesions involved vulvar and penile sites, with a higher frequency in vulvar locations. The most frequently recorded location was the glans among males (7 cases, 50%) and the labia minora among females (17 cases, 59%).

Clinically, all lesions were pigmented, and 60% were asymmetrical with uneven color distribution, making them clinically suspicious. No achromic lesions were detected. Dermoscopically, a typical pigment network and melanoma-associated peripheral streaks/pseudopods were not observed in this series. Irregular structureless pigmentation areas were present in 80% of cases, and 50% had globules. Blue/blue-black areas were detected in thicker and more intensely pigmented lesions. Because images were obtained in routine practice across different genital sites and acquisition settings, vascular features were not analyzed systematically.

We identified two main dermoscopic patterns. The first, observed in 58% of cases, showed an eccentrically located, intensely pigmented blue/blue-black “head” with clustered internal linear pigmentation and/or globules, fading into a less pigmented brown structureless “tail”, giving a comet-like silhouette (Figure 1). We propose the term “comet pattern” as a descriptive label for this configuration. The comet pattern was observed in both vulvar and penile sites. A unique pattern occurred in 35% of cases and involved well-defined, bluish to black, large, round or oval clods or globules with uniform pigmentation. These globules often had an asymmetric or concentric pattern, and some showed a central hypopigmented area. This pattern has been called the “globular pattern” (Figure 2). The remaining 7% of cases (3 patients) had a nonspecific dermoscopic pattern with no prevailing structures. No sex differences were detected in the distributions of the described patterns (Table 1).

Discussion

Dermoscopic criteria for genital mucosal melanoma have been progressively clarified, with particular emphasis on the diagnostic value of colors (notably combinations including red, white, blue, and grey) and on whitish-blue structureless areas, which may be present even in thin lesions.¹⁻³

Genital pigmented lesions can be diagnostically challenging because their clinical and dermoscopic appearances may differ from common cutaneous sites. Clinical history is often limited, and some classic cutaneous dermoscopic structures may be absent or less evident on genital special sites. In

addition, vascular assessment may be difficult to standardize on these locations, especially in retrospective image archives.

From a practical standpoint, the key issue is recognizing benign dermoscopic architectures rather than determining whether a lesion is congenital or acquired. A descriptive framework of recurring benign patterns may support more consistent assessment of genital melanocytic nevi, which can otherwise appear atypical and lead to a low threshold for excision (Table 1).

Two recurring dermoscopic configurations were recognized in 93% of cases: the “comet pattern” and the “globular pattern.” Both sexes showed these patterns similarly.

Both patterns can appear alarming due to asymmetry, heterogeneous pigmentation, and frequent blue-black components. However, they differ from dermoscopic descriptions typically emphasized for genital mucosal melanoma, particularly conspicuous whitish-blue structureless areas and a broader multicolored palette that often includes red, white, blue, and grey.⁸ In this series, lesions exhibiting comet or globular patterns lacked those melanoma-associated color cues.

The comet pattern (58%) is characterized by an eccentrically located, densely pigmented blue/blue-black “head” with clustered internal linear pigmentation and/or globules that fades into a lighter brown “tail”. The globular pattern (35%) consists of large blue-black globules/clods, sometimes arranged asymmetrically or concentrically with occasional central hypopigmentation. Importantly, the linear elements in the comet pattern were internal and clustered within the dark “head”, rather than peripheral melanoma-associated streaks/pseudopods.

Although prominent globules and blue-black pigmentation may appear concerning at first glance, in our histologically confirmed series these configurations corresponded to benign nevi. In the representative comet-pattern lesion (Figure 1), histology showed bland melanocytes with a superficial dermal component rich in melanin, consistent with the blue/blue-black “head”. In the representative globular-pattern lesion (Figure 2), histology showed a dermo-epidermal melanocytic proliferation with abundant melanin and scattered melanophages, plausibly accounting for the blue-black globules/clods. These clinicopathologic observations should be considered hypothesis-generating and require validation in larger series.

Conversely, lesions without a clear benign global pattern (as in the nonspecific group, 7%) remain candidates for biopsy/excision, reflecting the need for histologic confirmation when dermoscopic interpretation is indeterminate.

This study has several limitations. The retrospective, single-center design limits standardization of image acquisition and may introduce selection bias. The sample size is modest, although genital nevi requiring histological assessment are relatively uncommon. Importantly, no genital melanomas or other pigmented genital mimickers were included as comparators; therefore, we cannot estimate the

diagnostic specificity of the described patterns. Prospective comparative studies including melanoma and common mimickers (*e.g.*, melanosis) are needed.

Conclusions

We describe two frequent dermoscopic patterns – comet and globular – in a histologically confirmed series of genital melanocytic nevi. Familiarity with these recurring configurations may support more consistent interpretation of atypical-appearing genital nevi on special sites. Further comparative work is required to determine how these patterns perform against genital melanoma and other pigmented lesions in routine practice.

References

1. de Giorgi V, Massi D, Salvini C, et al. Thin melanoma of the vulva: a clinical, dermoscopic-pathologic case study. *Arch Dermatol* 2005;141:1046-7.
2. Cengiz FP, Emiroglu N, Hofmann-Wellenhof R. Dermoscopic and Clinical Features of Pigmented Skin Lesions of the Genital Area. *An Bras Dermatol* 2015;90:178-83.
3. Lacarrubba F, Borghi A, Verzi AE, et al. Dermoscopy of genital diseases: a review. *J Eur Acad Dermatol Venereol* 2020;34:2198-207.
4. Alikhan A, Ibrahim OA, Eisen DB. Congenital melanocytic nevi: where are we now? Part I. Clinical presentation, epidemiology, pathogenesis, histology, malignant transformation, and neurocutaneous melanosis. *J Am Acad Dermatol* 2012;67:495.e1-17;quiz512-4.
5. Krengel S. Nevogenesis--new thoughts regarding a classical problem. *Am J Dermatopathol* 2005;27:456-65.
6. Kroon S, Clemmensen OJ, Hastrup N. Incidence of congenital melanocytic nevi in newborn babies in Denmark. *J Am Acad Dermatol* 1987;17:422-6.
7. Kinsler VA, Birley J, Atherton DJ. Great Ormond Street Hospital for Children Registry for congenital melanocytic naevi: prospective study 1988-2007. Part 1-epidemiology, phenotype and outcomes. *Br J Dermatol* 2009;160:143-50.
8. De Giorgi V, Gori A, Salvati L, et al. Clinical and Dermoscopic Features of Vulvar Melanosis Over the Last 20 Years. *JAMA Dermatol* 2020;156:1185-91.

Table 1. Dermoscopic patterns of genital melanocytic nevi.

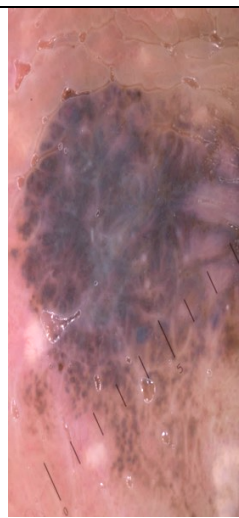
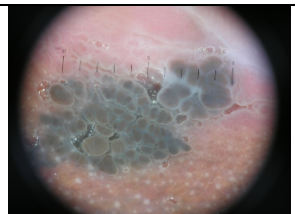
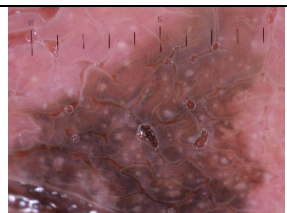
Pattern	Dermoscopic Description	Prevalence (%)	Representative model	Figure
Comet	Eccentric densely pigmented blue/blue-black “head” with clustered internal linear pigmentation and/or globules, fading into a lighter brown structureless “tail” (comet-like silhouette)	58% (25/43)		
Globular	Large blue-black round or oval globules, often arranged concentrically or asymmetrically	35% (15/43)		
Nonspecific	Irregular pigmentation without a defined structure or prevailing dermoscopic parameters	7% (3/43)		

Figure 1. 30-year-old man, genital melanocytic nevus. **A)** Dyschromic pigmented lesion at the level of the preputial sulcus, present for approximately 10 years. **B)** Dermoscopy shows the proposed “comet pattern”, with an eccentrically located intensely pigmented dark brown to blue-black “head” that fades towards one end of the lesion into a lighter brown “tail”; within the “head”, clustered internal linear pigmentation and globular structures are appreciable. **C)** Histopathological examination shows aggregates of round-to-oval cytologically bland melanocytes in the superficial dermis (original magnification 20×, scale bar 50 μ m). **D)** At higher magnification, pigmented melanocytes predominate superficially (original magnification 40×, scale bar 25 μ m).

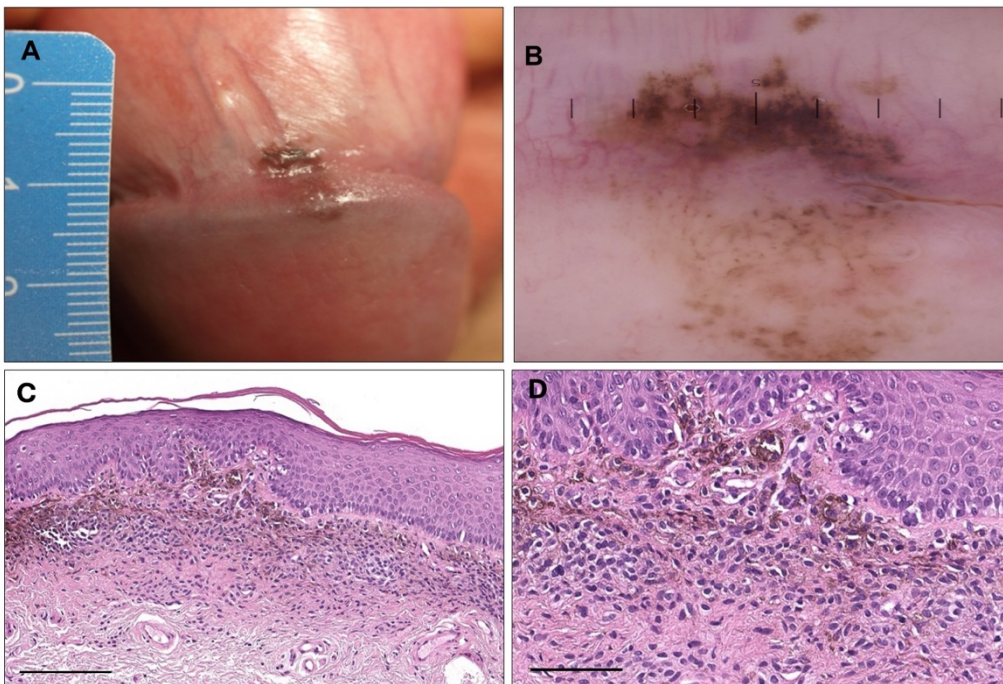


Figure 2. 45-year-old woman, genital melanocytic nevus. **A)** Dyschromic pigmented lesion with regular but blurred edges of the vulvar vestibule with unknown clinical history. **B)** Dermoscopy shows a globular pattern, made up of globules/clods of various sizes and colors ranging from shades of brown to blue-black, distributed irregularly, in the absence of additional suspicious structures. **C)** Histopathological examination shows a dermo-epidermal proliferation of epithelioid melanocytes with mild cytological atypia (original magnification 20 $\times$, scale bar 50 μ m) arranged as single units and nests; rare multinucleated melanocytes are present at the junction. **D)** At higher magnification, melanocytes show abundant cytoplasmic melanin; scattered melanophages are also observed (original magnification 40 $\times$, scale bar 25 μ m).

