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Age and site-specific variation in the dermoscopic patterns of congenital melanocytic nevi

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The identification of distinct dermoscopic features of congenital melanocytic nevi (CMN) may provide an important diagnostic tool for distinguishing between CMN and other pigmented lesions. Recognition of age, gender, and site-specific variation in the dermoscopic patterns present in CMN may further facilitate not only accurate diagnosis but also assessment of changes found on follow-up dermoscopy. The purpose of this study was to: (1) describe the dermoscopic features of CMN and (2) assess whether the predominant dermoscopic patterns present in CMN are related to an individual's age (age $<$ 12 yrs vs age $\geq$ 12 yrs), gender, or lesion site (trunk vs extremities). Patients with one or more CMN (n = 74) were recruited from the outpatient clinic at Memorial Sloan-Kettering Cancer Center. The diagnosis of CMN was established by clinical history, examination, or biopsy. Lesions were photographed to document clinical and dermoscopic appearance. The images were subsequently evaluated for the presence of specific dermoscopic structures, and each lesion was classified based on predominant dermoscopic pattern. The distribution of dermoscopic patterns was then explored by age, gender, and anatomic site. The majority of lesions exhibited one of the following predominant dermoscopic patterns: reticular (23.0%), globular (16.2%), reticulo-globular (16.2%), diffuse background pigmentation (4.1%), and other (6.8%); no predominant pattern was present in 33.8% of lesions. A globular pattern was present in 22.2% of lesions of individuals under 12 years old, but only in 14.3% of older individuals. A reticular pattern was seen exclusively in older individuals. A globular pattern was present in 26.7% of truncal lesions, compared to only 7.7% of extremity lesions; a reticular pattern was present in 38.5% of extremity lesions, compared to only 6.7% of truncal lesions. Predominant dermoscopic pattern did not vary significantly based on gender. The most commonly observed dermoscopic features were globules (79.7%), reticular networks (70.3%), hypertrichosis (68.9%), milia-like cysts (52.7%), and perifollicular hypopigmentation (32.4%). The results of this study suggest that the predominant dermoscopic patterns of CMN vary according to age and lesion site. These age and site-related differences in dermoscopic patterns may inform future studies on the pathogenesis of CMN.

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Dermoscopic pattern is correlated with nevus size and location in children

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Nevi are risk markers and potential precursors for melanoma. Childhood and adolescence are critical periods for the appearance and evolution of nevi. Dermoscopy has allowed for a detailed classification of nevi based on global pattern. Globular dermoscopic pattern has been observed more frequently at a younger age, whereas reticular and homogenous patterns were more commonly seen in nevi that appear later in life. The aim of the present study was to describe the prevalence of dermoscopic patterns of nevi using the baseline cross-sectional data from a prospectively followed population-based cohort of children. We obtained overview digital photography of the back and face of consenting fifth graders (age 10-11) from all 10 schools in the Framingham, MA school system. From each participant, dermoscopic images of up to 5 nevi were also obtained, both the largest mole and a randomly-selected mole on the upper back, a corresponding pair of moles from the lower back, and if present, a facial mole. The study included 443 children, 61% males and 39% females, with a total of 1203 back nevi and 272 face nevi analyzed. For the back lesions, primarily globular pattern was seen in 37.4% of nevi, primarily reticular pattern in 12.9%, homogenous pattern in 43.6%, reticular-globular in 1% and multi-component pattern in 3.7%. Some differences were observed in the distribution of globular vs. reticular patterns. On the upper back, 44% of the nevi had a globular pattern and 11% had a reticular pattern, whereas on the lower back 28% of the lesions were globular and 15% reticular ($P < .001$). A correlation was seen between dermoscopic pattern and nevus size. Nevi with globular pattern had a mean size of 3.1mm, larger than the mean for reticular and homogenous nevi, 2.6 mm and 2.7 mm, respectively ($P < .0001$). The mean size of nevi on the upper back was 3.1 mm versus 2.8 mm on the lower back ($P = .05$). The distribution of dermoscopic patterns of nevi may be informative for the pathogenesis and evolution of nevi. The dermoscopic evolution of individual nevi is being prospectively evaluated in this cohort.

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Visualization of infant skin structure and morphology using in vivo confocal microscopy

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Skin surface features, such as skin dryness and roughness, have been extensively studied, as well as the impact of skincare products on such features. A greater understanding of how skin physiology changes with age has clinical importance. The study of infant skin structure and morphology in situ has been limited because of the need for invasive methods. In vivo scanning laser confocal microscopy was used to visualize and study structural elements within infant skin and to compare them to those within adult skin. The skin of 20 healthy mothers (ages 25-43) and their biological children (aged 3 mos-2 yrs) were studied. Starting at the stratum corneum (SC), optical sections were imaged every 3.1 μm, progressing down through the epidermal layers, dermal−epidermal junction, and the top layers of the dermis. These images were used to make 0.5 mm $\times$ 0.5 mm three-dimensional reconstructions of infant and adult skin. After removing skin cells with tape, the size and shape of surface corneocytes were also studied by visualization under light microscopy. Image analysis revealed many structural differences between infant and adult skin. Surface features showed differences in glyph density, depth, and surface area. Infant SC and epidermis were found to be thinner than adult. Infant cell size of both corneocytes and granular cells were smaller as compared to adult. Dermal papillae size, density, and distribution also differed. A change in reflected signal intensity at ~100 μm into the skin was seen, indicating differences in collagen cross-linking between infants and adults. Using this method, we measured the depth where the transition between the papillary and reticular dermis occurs in infant and adult skin. In conclusion, we report the visualization of infant skin structure in situ and demonstrate quantitative structural and morphological differences in the skin of infants. Surprisingly, we found infant skin to have a distinct, direct structural relationship between the SC morphology and the dermal papillae that is reflected all the way through the epidermis and into the dermis.

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Retapamulin ointment for the treatment of impetigo in adults and children: Results of a phase III, placebo-controlled, double-blind trial

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Background: Retapamulin is a member of the pleuromutilin class of antibacterial drugs with a novel mechanism of action, and in vitro studies have demonstrated that it has a low propensity for the development of drug resistance. Retapamulin ointment 1% has been formulated for the topical treatment of uncomplicated skin infections, including impetigo. It is highly active in vitro against the major skin pathogens *Staphylococcus aureus* and *Streptococcus pyogenes*, including strains resistant to existing antibacterial drugs.

Methods: The efficacy and safety of retapamulin ointment 1% twice daily for 5 days in the treatment of impetigo was studied in a superiority, placebo-controlled, randomized (2:1), double-blind, phase III trial, conducted in 17 centers across 4 countries (the Netherlands, India, Peru, and Mexico). The placebo was a neutral base ointment.

Results: A total of 213 subjects with impetigo were enrolled, with 210 being evaluable for analysis, 139 of whom received retapamulin. Subjects' ages ranged from 9 months to 73 years, and 83% (175/210) were aged $<$18 years. At baseline, approximately 82% of patients in each group were culture positive with $\geq$1 pathogen recovered, most commonly *S aureus* and *S pyogenes*. Clinical success rates 7 days after the start of therapy were significantly greater in the retapamulin intent-to-treat group (85.6% [119/139]) than in the placebo group (52.1% [37/71]; success rate difference 33.5% [95% CI: 20.5, 46.5], $P < .0001$ by Fisher's exact test). Among subjects aged $<$18 years, clinical success rates were also greater for retapamulin (86.5% [96/111]) than placebo (50.0% [32/64]; success rate difference 36.5% [95% CI: 22.7, 50.3]). Overall, clinical success rates by baseline pathogen were notably higher for retapamulin compared with placebo, with treatment differences of 35.5% and 50.7% for *S aureus* and *S pyogenes*, respectively. Clincial success was also higher for retapamulin against fusidic acid-resistant *S aureus* (RSA) (10 retapamulin patients, 6 placebo patients; treatment difference of 56.7%). No patients in either treatment group had methicillin-RSA or mupirocin-RSA isolated at baseline. Retapamulin ointment was well tolerated throughout the study, the most common treatment-related adverse event being application site pruritus (6.5% [9/139]).

Conclusions: Retapamulin ointment 1% twice daily for 5 days offers a highly effective treatment option against the key pathogens involved in impetigo, including resistant strains.

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