Revised 3-Step Dermoscopic Algorithm for the Management of Acral Melanocytic Lesions

Acral volar skin is the most prevalent site of malignant melanoma in nonwhite populations. In 2007, our group proposed a 3-step algorithm for the management of acquired melanocytic lesions affecting acral volar skin (Figure 1). We now know that almost all acral melanomas arise de novo, not in association with a preexisting acral nevus. Given that an acral nevus has virtually no risk of developing to acral melanoma, follow-up of a definitely diagnosed acral nevus is not necessary. Taking this point into account, we have revised the 3-step algorithm. In the revised algorithm, the order of the second and the third steps in the previous algorithm is reversed, and a new category without need of further follow-up is introduced.

Methods. We retrospectively applied the original and the revised algorithms to consecutive case series of acquired melanocytic lesions on acral volar skin first seen from January 2005 through December 2008. Congenital pigmented lesions, drug-induced pigmentation, volar melanocytic macules, Peutz-Jeghers syndrome, and hemorrhage were excluded. Biopsied lesions were histopathologically evaluated by expert dermatopathologists.

The revised 3-step dermoscopic algorithm (Figure 2) proceeds as follows: in the first step, if a lesion shows the parallel ridge pattern (PRP), we biopsy it regardless of the size. If the lesion does not show the PRP, we proceed to the second step in which we check whether it shows any of the typical dermoscopic patterns of benign acral nevus on the whole area of the lesion (typical parallel furrow pattern, typical latticelike pattern, or regular fibrillar pattern). If the lesion shows these typical benign patterns, there is no need of further follow-up. However, if the lesion does not show any of these typical dermoscopic patterns, we proceed to step 3, in which we measure the maximum diameter. If the lesion is more than 7 mm in maximum diameter, we recommend biopsy for histopathologic evaluation (Figure 3). If the lesion is smaller than 7 mm in diameter, we recommend periodic clinical and dermoscopic follow-up.

Results. A total of 191 acquired acral melanocytic lesions collected from 176 Japanese patients were enrolled. Numbers of lesions classified into each category of the original and revised algorithms are shown in Figures 1 and 2. A total of 17 lesions exhibited the PRP, and all 17 of these lesions were histopathologically diagnosed as acral melanoma.

In both algorithms, the same 26 lesions were categorized into the group not showing typical benign dermoscopic patterns and larger than 7 mm in diameter. Biopsy was performed in 19 of the 26 lesions, and the
remaining 7 lesions were not biopsied because of refusal by patients or physically or psychologically complicated conditions of the patients. Of the biopsied 19 lesions, 8 lesions were histopathologically diagnosed as acral melanoma. In the original algorithm, 148 lesions were categorized into the group to be followed up. In contrast, in the revised algorithm, 101 lesions of the 148 lesions (68.2%) were categorized into the group without need of further follow-up, and the remaining 47 lesions (31.8%) were categorized into the group to be followed up periodically. In actuality, biopsy was performed in 28 of the 148 lesions categorized into the follow-up group in the original algorithm, and all of them were melanocytic nevi. The remaining 120 lesions were followed up for a median of 48 months (approximate follow-up range, 21-68 months). No significant changes in dermoscopic features were observed in any of these 120 lesions during the follow-up period.

Comment. In the original 3-step algorithm for the management of acquired acral melanocytic lesions, criteria for biopsy were clearly established, but all the other lesions were categorized into the group to be followed up. The relationship between acquired melanocytic nevi and malignant melanoma is still controversial. However, if limited only to acral melanoma, morphologic and molecular findings support de novo development without preexisting nevus.1,2 Dermoscopically, the typical pattern of early acral melanoma is the PRP, whereas that of acral nevus is the parallel furrow pattern or its variants.3 Although some temporal changes in dermoscopic features are detected in acral nevi, transition from the benign dermoscopic patterns to the PRP has been never observed.5,7 These findings support the de novo origin of acral melanoma. Thus, in our opinion, periodic follow-up is not necessary for definitively diagnosed acquired acral melanocytic nevus because it carries no risk of development to melanoma.

By using the revised algorithm, physicians can substantially reduce the number of lesions that need follow-up without missing early acral melanoma. We advise most patients in the follow-up category to visit us once or twice a year, though there is no evidence to specify adequate frequency of follow-up. Furthermore, we ask them to come back soon if the lesion enlarges to more than 7 mm.

In this revised 3-step algorithm, the most confusing point may be evaluation in the second step. Accurate identification of the typical dermoscopic patterns is essential in this step. To avoid missing early acral melanomas, if a lesion does not show stereotypical benign patterns, it should be classified into the category not conforming to the typical benign patterns.

Another possible problem in using this algorithm is differentiation between acquired and congenital acral nevi because the algorithm is designed only for acquired melanocytic lesions. Our group has recently reported dermoscopic patterns characteristic of congenital acral melanocytic nevi,8 which will help identify and exclude congenital acral nevi. However, it may be impossible for us to identify all the congenital acral nevi as such. Therefore, some congenital acral nevi are possibly evaluated with this revised 3-step algorithm. We believe that this does not cause a serious problem because the number of congenital acral nevi, particularly those classified into the category to be biopsied, may be very small.

In conclusion, we believe that the revised 3-step algorithm greatly aids clinicians in efficiently managing acquired melanocytic lesions on acral volar skin.

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5. Saida T, Miyazaki A, Oguchi S, et al. Significance of dermoscopic patterns in
kin pigmentation and sun sensitivity vary widely among US Hispanics, whose median number of nevi (the strongest melanoma risk factor) is somewhat lower than in whites yet higher than in Asians or blacks. The correlation between number of nevi and age is stronger in Hispanics and non-Hispanic whites than in other ethnic racial groups. Among Hispanics, acculturation to the United States might lead to decreased sun safety practices. Nationwide data from 1992 through 2007 reveal that melanoma incidence among Hispanics increased by more than 22%. Hispanics display higher rates of thick melanoma at diagnosis, and in the absence of cure, targeted prevention might be the best strategy for countering the epidemic. Hence, our objective was to synthesize the evidence about skin cancer screening among US Hispanics.

**Cutaneous Melanoma and Other Skin Cancer Screening Among Hispanics in the United States: A Review of the Evidence, Disparities, and Need for Expanding the Intervention and Research Agendas**

Methods. We identified observational population-based US studies on melanoma or other skin cancer screening that evaluated participants of Hispanic descent, without any age, time, or language restrictions. Hispanic or Latino ethnicity was defined as Mexican, Puerto Rican, Cuban, or Central or South American heritage regardless of race. Screening techniques included skin self-examination (SSE), clinical skin examination (CSE), dermoscopy, and biopsy. We conducted an extensive literature search through October 2010 using MEDLINE (from 1950), EMBASE (from 1974), CancerLit (from 1963), and Lilacs (from 1982) and reviewed the bibliographies of all relevant articles. The following keywords and indexing terms were used: melanoma, skin neoplasms, self-examination, early detection of cancer, and mass screening. From the 1029 retrieved articles, we excluded duplicates, reviews, non-US studies, and those with patient or survivor samples, selecting 138 articles for detailed review. Studies with missing ethnорacial data were excluded. Nine studies met all inclusion criteria, and from each we extracted the age range, population type, health care access status, setting, number and/or percentage of Hispanics with reported melanoma or other skin cancer screening, year of assessment and measurement method.

**Results.** The reviewed articles are summarized in the Table. Heterogeneity was observed in sample size and composition, SSE and CSE definitions, and screening reference periods. An estimate of the relative odds ratio for CSE by ethnicity was available in only 1 study, indicating that Hispanics were almost 40% less likely to report a recent CSE than non-Hispanic whites. Overall, SSE was reported by 14% to 50% of Hispanics, while CSE was reported by 7% to 17%. Only 1 study showed screening rates by sex, with 18.2% of Hispanic women and 8.3% of Hispanic men reporting SSE within the past 2 months. Research with nationally representative samples documented a decreasing trend in CSE prevalence, possibly attributable to measurement modification in the most recent assessment. Specifically, 5.6%, 5.7%, and 3.7% of Hispanics reported a recent CSE in 1992, 1998, and 2000, respectively (the corresponding percentages among whites were 11.4%, 12.5%, and 8.9%). No studies on dermoscopy or skin biopsies by Hispanic ethnicity were found; also none pertained to melanoma screening among children or adolescents. All 9 studies relied on self-reports, and none documented CSE validation. The paucity of research along with considerable heterogeneity in sample characteristics and screening measures prevented subgroup analyses or meta-analyses.

**Comment.** The US Hispanic population is rarely the focus of melanoma screening research despite sufficient epidemiologic evidence that this population merits increased attention. Our review suggests that Hispanics’ high rate of advanced melanoma could be attributed to insufficient prevention initiatives, lack of SSE instruction or awareness about signs or symptoms, delay in seeking follow-up care for suspect lesions, and decreased risk awareness among individuals and physicians. Our review further suggests that health care access might not be the strongest enabling factor in melanoma screening of Hispanics.

A limitation of this review was the inability to make skin color or skin sensitivity distinctions among Hispanics because such data were not provided in the studies. One of the reviewed studies noted that Hispanics were less likely than non-Hispanic whites to report oral cancer screening, whereas another study observed a significant link between CSE and breast, colorectal, or prostate cancer screening. Recent research highlights the lack of relevance of skin cancer to Hispanics, whose knowledge about the disease is not derived primarily from physicians but rather from the media, which has also been identified as a reason for SSE. However, applicability of the ABCDE rule for Hispanics remains to be clarified. Research notes that physicians’ experience with non-Hispanic whites and melanoma diagnosis patterns might not be relevant to Hispanics. The extremely high costs for thick melanoma management further...