Letter to the Editor

Small-Diameter Melanomas: Diameter Does Not Matter

Dear *Cutis*®:

In 1992, the ABCD mnemonic for the detection of suspicious pigmented lesions was discussed at the National Institutes of Health (NIH) Consensus Development Conference on Diagnosis and Treatment of Early Melanoma. The letters refer to clinical characteristics of pigmented lesions: asymmetry, border irregularity, color variegation, and diameter greater than 6 mm.[1] This mnemonic has been expanded to include E, an evolving or changing lesion.[2] Dermatologists and other physicians use these criteria to select pigmented lesions for biopsy and pathologic evaluation. Preventive health programs teach patients how to apply these criteria. Patients are told that if they have a mole satisfying 1 or more of the ABCDE criteria, then they should consult a dermatologist to determine if a biopsy is necessary. However, the Norwegian Melanoma Project[3] and others[4-6] demonstrated that a relevant percentage of melanomas were 6 mm in diameter or smaller and some small-diameter melanomas resulted in death.

We performed a ministudy to determine the role that diameter plays in the diagnosis of melanoma. We reviewed medical records from our laboratory for all melanomas diagnosed in the first 6 months of 2007 (January 1–June 30). During this time, 84 melanomas were diagnosed: 37 (44%) in women and 47 (56%) in men. Patients were aged 34 to 94 years. Most of those lesions (79 [94%]) occurred in patients older than 50 years. The melanomas did not show a tendency to involve a specific site. Thirty melanomas arose on the skin of the head, scalp, and neck region, whereas 24, 21, and 9 melanomas arose on the skin of the upper extremities, trunk, and lower extremities, respectively. Fifty-four (64%) of the melanomas were confined to the epidermis (melanoma in situ) and 30 (36%) involved the dermis. Twenty-two (26%) of all melanomas measured 6 mm in diameter or smaller: 15 (68%) in the epidermis and 7 (32%) in the dermis.

At the NIH consensus development conference, the panelists opined[1]:

> The public should . . . ask their primary care physicians and nurses for periodic skin examinations. . . . They also should be taught warning signs concerning melanoma, that is, the ABCD signs. . . . Mass media campaigns, educational posters, and brochures should all be utilized to disseminate information about the importance of regular self- and professional-initiated skin examinations.

The NIH consensus development conference emphasized the role of patients in self-diagnosis.[1] Patient education on the nature of melanomas and how to perform self-examinations became an important public health tool. Patients learned how to apply the ABCD criteria to pigmented lesions. The consensus development conference also was aimed at making physicians and physician extenders more aware of the potential lethality of melanomas, the importance of diagnosing melanoma early, and the role of the ABCD criteria in the diagnosis of melanoma. The net effect of the consensus development conference is that patients consult dermatologists for full skin examinations earlier and biopsies are performed sooner on suspicious pigmented lesions.[1]

In 2004, Abbasi et al[7] reviewed the literature from 1980-2004 to determine the relevance of the ABCD mnemonic. They summarized their findings[7]:

> Invasive melanomas 6 mm or less in diameter are uncommon . . . infrequently cause metastatic disease since they are generally removed at early stages . . . [W]e do not believe that lowering the diameter criterion . . . will increase sensitivity of melanoma diagnosis . . . Costs, scarring . . . and patient anxiety must be considered . . . with lowering of the D criterion.

Their article concluded that "no change to the existing diameter criterion is required at this time."[7]

Abbasi et al[7] noted that the costs and complications of biopsies performed on small lesions would have negative public health implications. This concern is impractical and dangerous because waiting for a melanoma to reach 7 mm in diameter before removal is obviously courting disaster. Larger melanomas are more likely to result in morbidity and mortality than smaller ones. Small pigmented lesions require small biopsies with minimal scarring. If these lesions prove to be melanomas, exhaustive

and expensive testing at a later date will be averted. In addition, patient satisfaction and perception of their quality of care would be enhanced.

These authors also are aware that invasive melanomas 6 mm in diameter or smaller can be fatal. They consider the number of fatal small-diameter melanomas to be insignificant and conclude that the 7-mm diameter criterion should remain.[7] Their logic is flawed. The goal of screening is to prevent melanoma-related morbidity and mortality in both small and large lesions. Screening is meant to be extremely sensitive. It is the function of the biopsy to be specific. The best time to diagnose a melanoma is before it invades the dermis and before it develops the potential to metastasize. Melanomas are particularly unforgiving and must be diagnosed and treated early. Any delay in treatment may result in fatal progression of the melanoma. Therefore, early and prompt diagnosis is essential to decrease melanoma-related morbidity and mortality.

The D criterion is not very sensitive and cannot be reliably employed to differentiate between nevi and melanomas. In 2004, Fernandez and Helm[4] found that 38.21% of a total of 383 melanomas were 6 mm in diameter or smaller. Also in 2004, the Norwegian Melanoma Project[3] demonstrated that 11.4% (18/158) of melanomas were less than 7 mm in diameter. In 1999, Bono et al[5] studied small melanomas and found that 17% (47/270) of melanomas were small and ranged from 2 to 6 mm in diameter. The authors noted that clinicians must be aware that small melanomas represent a "considerable clinical subset of all cutaneous melanomas."[5] In 1992, Shaw and McCarthy[6] found that approximately one-third (358/1150) of melanomas were 6 mm or less in maximal diameter. In our ministudy, 26% of melanomas measured 6 mm in diameter or smaller. Based on the results of these 5 studies, 11% to 38% of melanomas were 6 mm in diameter or smaller.

The goal of screening is to detect melanomas as early as possible, preferably while they are still in the epidermis (in situ). Dermatologists are specifically trained and adept at selecting suspicious pigmented lesions for biopsy. In a routine visit to a dermatologist, careful inspection of the entire integument should be performed to detect and treat melanomas at an early stage. Historically, examination of skin lesions was performed grossly or by using a hand lens. In recent years, the use of the dermatoscope has theoretically increased the diagnostic capabilities of dermatologists trained in its use. However, dermatoscopy brings its own challenges and is not universally employed by dermatologists. Furthermore, other healthcare professionals routinely examine the integument and usually are not trained in dermatoscopy. It must be noted that in our study, all melanomas were detected using gross examination with a hand lens. These simple techniques alone are valuable and sensitive in detecting melanomas. In many of these cases, a hand lens (×10 magnification) or magnifier was used to isolate these lesions. Follow-up biopsies were performed on suspicious-appearing lesions and many were much smaller than 7 mm in diameter. The lesions primarily satisfied the ABC criteria that patients, primary care physicians, and dermatologists have been trained to use. The application of these criteria was not modified by the size of the pigmented lesion. In other words, no lesions deemed "suspicious" were reclassified as "not suspicious" if they were 6 mm in diameter or smaller. These facts further emphasize the importance of screening using the ABC criteria, while noting the relative insignificance of the D criterion.

It is our contention, based on our ministudy and supported by previously published studies, that the D component of the screening mnemonic is flawed and may give false security to patients with suspicious pigmented lesions. Patients who screen themselves for melanoma as well as nondermatology physicians and physician extenders with a cursory knowledge of dermatology may focus on the D criterion, which may delay diagnosis of melanomas that are 6 mm in diameter or smaller.

The finding by Abbasi et al[7] that "invasive melanomas 6 mm or less in diameter . . . infrequently cause metastatic disease since they are generally removed at early stages of tumor progression" appears to accurately reflect the literature. Their conclusion that the existing diameter criterion does not need to be changed is illogical and wrong.[7] The small melanomas to which they refer did not cause metastatic disease because they were removed when they were small. If allowed to progress, they might have had an ominous course.

This discussion brings to light several important issues. First, patients need to be aware of the existence of small melanomas (≤6 mm) and that the D criterion for suspicious pigmented lesions can be misleading. Second, physicians and physician extenders must be aware that the D criterion is only a minor criterion in evaluating pigmented lesions. The existence of small melanomas needs to be stressed to the primary caregivers, including physician extenders, and to dermatologists. Thorough careful examination of the entire integument using the ABC and E (evolving/changing) criteria by appropriately trained physicians in a well-lit examination room should be offered to patients and recommended yearly. Third, in light of the increasing

incidence of melanomas and despite the availability of dermoscopy and other evolving expensive medical equipment, the hand lens remains a useful tool for the physician and enhances the ability to diagnose these potentially fatal lesions at an early stage.

It is widely recognized among dermatologists that the value of the D criterion is doubtful; however, it is still considered credible by some dermatologists. The American Academy of Dermatology advises that "[w]hile melanomas are usually greater than 6 mm (the size of a pencil eraser) when diagnosed, they can be smaller,"[2] and the American Cancer Society attests that a mole may be melanoma if it "is larger than about ¼ inch—about the size of a pencil eraser—although sometimes melanomas can be smaller."[8]

These organizations, important as they are in disseminating information, are unintentionally misleading the public. In our opinion, they should not emphasize that melanomas are usually greater than 6 mm in diameter, noting that they can be smaller as a postscript. Instead, they should focus on the fact that melanomas often are 6 mm in diameter or smaller and are more amenable to treatment at that time. After all, every melanoma is smaller than 6 mm in diameter early in its evolution.

In summation, we posit that the D criterion is a trap for the unwary, especially when used by nondermatologists and as an educational tool for self-screening. The D criterion is deceiving and can be dangerous and deadly if adhered to strictly. Therefore, we believe it is best discarded in its present form. If 1 or more of the A, B, C, or E criterion were satisfied, it would be more appropriate for the D criterion to suggest that a dermatologist examination is required. Furthermore, the hand lens is an effective inexpensive tool that assists the physician in determining if a lesion has asymmetry, border irregularity, and/or color variation to select lesions eligible for dermatoscopy, biopsy, and histopathologic examination. Knowing that small melanomas are not uncommon and can be cured if removed early should spur primary caregivers, including dermatologists and physician extenders, to perform a thorough hands-on examination of the integument.

Sincerely,
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The authors report no conflict of interest.

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