Editorial

Surgical Margins for Melanoma: Simple Excision?

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You are adorned with a gown, mask, and gloves. The nurses assemble your surgical tray. With purple marker in hand, you approach your patient's cleansed surgical site on the upper arm to design your excision. He presents with a biopsy-proven superficial spreading melanoma of 0.65-mm depth and he is here for reexcision.

Have you ever found yourself in this situation, privately embarrassed because mid pen stroke you had to pause? Why? Because (*gasp*) you had to review the guidelines in your head. "If the melanoma is less than or equal to 1 mm in depth, then you should provide a 1-cm marginal width of normal skin around the lesion."[1] Are you sure? Is that the very latest guideline? Does it depend on body site? How deep should the excision go? What is the evidence for the recommended margins?

If this situation sounds familiar, then your next step was likely a second look at the pathology report and a PubMed search; although you can obtain the latest melanoma excision margin guidelines through the National Comprehensive Cancer Network®, you may not be satisfied with the evidence behind the implementation of these margins or with the answers to the rest of your questions.

Melanoma only accounts for 5% of skin cancers but is the cause of 75% of skin cancer deaths. It is more common in young to middle-aged populations compared to most other malignancies and is classically refractory to medical therapy.[2,3] Its incidence increases annually, particularly for thin melanomas, which is possibly attributable to increased screening and earlier patient presentation and detection over time.[4-7] Although the depth of melanoma is widely accepted as the most important determinant of prognosis, mortality even for thin melanoma (the subtype usually unilaterally managed by dermatologists) may be bolstered if the primary lesion recurs and is not diagnosed and reexcised in a timely fashion.[8]

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The author reports no conflict of interest.

The recommendations by Handley,[9] published in 1907 and based on merely a single case of metastatic melanoma on autopsy, were recapitulated for decades and advocated 5-cm excisional margins. The work of Clark et al[10] and Breslow[11] refined our understanding of histologic features and melanoma prognosis, and over time the margin recommendations were tailored to lesion depth, reflecting our current guidelines.

Since 1907 the notion that a larger surgical margin is congruent with increased survival has been challenged and patient morbidity as well as poor cosmesis with larger excisions were taken into consideration; however, the evidence for specific surgical guidelines remains largely arbitrary. In perusing the literature, several reviews exist on this topic; the most comprehensive is a 2009 review in which meta-analysis was performed on 5 randomized controlled trials including the World Health Organization among other international study groups. None of the trials or the meta-analysis exhibited a statistically significant difference in overall survival between narrow (1–2 cm) and wide (3–5 cm) excision for invasive melanoma.[12]

Prior to this study, similar reviews were performed in the dermatology and surgery literature and the overall survival conclusions were the same.[13,14] To address disease-specific survival, however, a recent meta-analysis by Mocellin et al[15] showed that although there was no overall survival difference, there may be a slightly increased risk for locoregional disease recurrence and death by disease when narrow margins (1–2 cm) are implemented for melanoma less than 2 mm in depth, calling into question or at least lending evidence toward further investigation of current guidelines. However, these reviews indicate inconsistencies when comparing data, such as differences in melanoma stage between trials, variant follow-up periods, insufficient statistical power, incongruent statistical parameters, disparate definitions of recurrence, and dissimilar measurements of wide versus narrow margins.

Other studies took a practical individualized approach to margin control, such as Zitelli et al[16] who determined melanoma margins based on Mohs micrographic surgery. They concluded that most melanomas could be cleared with 0.9- to 1.2-cm surgical margins (97%), but melanomas with large

diameter (>2 cm) or in specific anatomic sites (head/neck and acral regions) required wider margins.[16] These findings were then extrapolated into new excision guidelines but were not implemented into widely accepted official parameters. What about surgical depth? No controlled prospective studies have compared excision to subcutaneous fat versus fascia, and practices differ between physician groups.[17]

Not only is there a lack of evidence to guide your surgical hand, but there are statements in the guidelines such as "[m]argins may be modified to accommodate individual anatomic or functional considerations" that create confusion.[1] Guidelines vary from country to country and the approach differs from surgeon to surgeon, not to mention controversial confounding factors when choosing surgical margins, such as high-risk histologic features and the choice to perform sentinel lymph node biopsy. What is a dermatologist to do?

We wait. Until personalized therapy regimens are implemented based on molecular targets that subcategorize our patients' melanomas into more specific risk groups, we must balance conventional guidelines with considerations of morbidity (ie, reconstruction, disfigurement, wound complications) with wider margins and recurrence as well as possible increase in mortality with narrower margins. We use current recommendations as a guide and our own visceral judgment as our compass. As ambiguous as the evidence may be, guidelines have been established using as much available experience and data as possible. For better or worse, the 2009 National Comprehensive Cancer Network surgical parameters include the following: (1) in situ, 0.5 cm; (2) less than or equal to 1.0-mm tumor thickness, 1.0 cm; (3) 1.01- to 2-mm tumor thickness, 1 to 2 cm; (4) 2.01- to 4-mm tumor thickness, 2.0 cm; and (5) greater than 4-mm tumor thickness, 2.0 cm.[1]

You again pick up your purple marker and draw a simple ellipse with 1-cm width on either side of the prior biopsy site. You perform simple excision to the subcutaneous fat and approximate the wound appropriately. While explaining the wound care and periodic melanoma skin check follow-up plan to the patient, you hope for the best.

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