Excision margins for primary melanomas: A controversial issue

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Surgical excision is the principal treatment for primary cutaneous melanoma[1]. The selection of optimal excision margins is crucial to maximize outcomes and minimize morbidities[1–5]. Insufficient resection may lead residual tumor cells to disease recurrences[6,7]. However, unnecessarily tissue excisions might cause greater morbidities, along with bad functional and cosmetic results[8–10]. The determination of melanoma excision margins has been an important issue since the earliest descriptions of melanoma[9]. In 1907, Handley stated that the excision of cutaneous melanoma should include a 5–10 cm-wide excision margin[11]. The doctrine of extensive resection margins for melanomas was not challenged until the 1970s, when the studies showed that narrower excision margins (3–5 cm) presented no difference in melanomas survival[9].

Randomized clinical trial conducted in 1991 by the WHO Melanoma program on 3-cm and 1-cm excision margins showed 1 cm as a safe excision margin for primary cutaneous melanomas not thicker than 1 mm[9]. Another study on 2-cm versus 1-cm excision margins for patients with 1–2 mm melanomas showed that a 1-cm resection margin was associated with an increase in local recurrence, but with a similar overall survival[3].

In order to narrow the resection margins for cutaneous melanoma thicker than 2 mm treatment, a randomized clinical trial in 2004 compared 3-cm and 1-cm resection margins, where a 1-cm excision margin was correlated with a significantly greater risk of regional recurrences that did not impact overall survival[12]. However, another randomized controlled trial on 4-cm versus 2-cm resection margins suggested 2 cm as a sufficient and safe resection margin for cutaneous melanomas thicker than 2 mm[2]. Furthermore, a recent study comparing 3-cm versus 1-cm excision margins for primary cutaneous melanomas thicker than 2 mm declared that a 1-cm excision margin is inadequate for such cutaneous melanomas on the trunk and limbs[13]. Nevertheless, another cohort study on melanomas thicker than 2 mm, which underwent tumor excision with either 2-cm or 1-cm safety margin, could not detect any statistically significant differences in melanoma outcomes[10].

In spite of existing controversies in the various guidelines, a summary of guidelines regarding margin size based on tumor depth is provided in Table 1. All in all, these controversies cause heterogeneity among surgeons regarding width of excision margins for cutaneous melanomas. As a result, further multicenter clinical trials are demanded to assess the efficacy of these various guidelines in the reduction of recurrences and improvement of survival while minimizing the morbidities of treatment[11].

Table 1. Recommended clinical margin for excision of primary melanomas*

<table>
<thead>
<tr>
<th>Breslow's depth</th>
<th>Recommended excision margin (cm)*</th>
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<tbody>
<tr>
<td>In situ</td>
<td>0.5–1.0</td>
</tr>
<tr>
<td>Thin melanoma</td>
<td>1.0</td>
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<tr>
<td>(less than 1-mm thick)</td>
<td></td>
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<tr>
<td>Intermediate melanoma</td>
<td>1.0–2.0</td>
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<tr>
<td>(1–4-mm thick)</td>
<td></td>
</tr>
<tr>
<td>Thick melanoma</td>
<td>2.0</td>
</tr>
<tr>
<td>(more than 4-mm thick)</td>
<td></td>
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</tbody>
</table>

*Table summarizes current existing guidelines

References

5. Hudson LE, Maithel SK, Carlson GW, Rizzo M, Murray DR,


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