Dermal Autograft as a Substitute for Acellular Dermal Matrix (ADM) in Tissue Expander Breast Reconstruction: A Prospective Comparative Study

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Abstract

Background: The use of acellular dermal matrix (ADM) in tissue expander breast reconstruction has several advantages but increased complications have been reported. Dermal autografts may offer a safer and more cost-effective alternative. The purpose of this prospective study was to compare the outcomes of tissue expander breast reconstruction using dermal autografts with ADM-assisted reconstruction.

Methods: Patients undergoing tissue expander breast reconstruction with either ADM or dermal autografts were enrolled. Autografts were harvested from the lower abdomen. At each follow-up visit, patients were surveyed on a seven point scale for scar and overall satisfaction. Biopsies taken at the time of device exchange were evaluated histologically with CD34 staining to assess tissue integration and vessel ingrowth. Expansion parameters, complications, procedural costs, and operative times were compared.

Results: Forty-eight patients were enrolled (76 breasts). Twenty-seven patients received ADM, and twenty-one patients received dermal autograft. Wound healing complications were significantly higher in the ADM group (14.8% versus 4.8%, p=0.03), as were major complications (18.5% versus 0%, p<0.01). Histologic vessel counts in the autograft group
averaged 21 vessels/mm², compared to 7 vessels/mm² in the ADM group (p<0.01). There was no difference between the two groups in scar satisfaction or overall satisfaction.

**Conclusions:** Patients receiving dermal autograft had a lower incidence of major complications and delayed wound healing than patients who received ADM. Despite harvest time, the overall cost of the ADM-assisted expander placement was higher. Dermal autograft-assisted breast reconstruction offers many of the benefits of ADM, but with a lower cost and improved safety profile.

**Table 2. Postoperative Complications**

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<thead>
<tr>
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<th>AlloDerm® (%)</th>
<th>Dermal Autograft (%)</th>
<th>p-value</th>
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<tbody>
<tr>
<td>No. of Total Complications</td>
<td>16 (59.2)</td>
<td>4 (19.0)</td>
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<tr>
<td>Wound Complications</td>
<td>4 (14.8)</td>
<td>1 (4.8)</td>
<td>0.03</td>
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<td>Infectious Complications</td>
<td>7 (25.9)</td>
<td>3 (14.3)</td>
<td>0.06</td>
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<td>Major Complications</td>
<td>5 (18.5)</td>
<td>0 (0.0)</td>
<td>&lt; 0.01</td>
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**References**