

Acellular Dermal Matrix-Assisted Direct-to-Implant Breast Reconstruction and Capsular Contracture: A 12-Year Experience

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Abstract

Background: Clinically significant capsular contracture (CC) (Baker Grade III/IV) is one of the most frequent long-term complications associated with implant-based breast reconstruction, with incidence increasing over time. Post-Marketing Approval (PMA) studies of implant manufacturers indicate an incidence ranging from 8%-25% over a 3 to 10 year follow-up.^{1,2} In reconstructions using acellular dermal matrix (ADM), the incidence appears to be lower, ranging from 0%-10% (in predominantly non-irradiated patients).³⁻⁵ Follow-up in the ADM studies was short (~2 years), however, so the long-term rate of capsular contracture in this population are unknown. The purpose of this study is to assess the cumulative incidence of CC in ADM-assisted direct-to-implant reconstruction over a 12-year period.

Methods: Patients undergoing immediate, direct-to-implant, breast reconstruction with ADM assistance from December 2001 to December 2013 at two practices were evaluated. The cumulative incidence of capsular contracture over the 12-year period was determined as diagnosed by the performing surgeon.

Results: A total of 1478 breast reconstructions (673 bilateral, 132 unilateral) in 804 patients were performed; 36% were for oncologic and 64% for prophylactic reasons. Among oncologic breasts, 106 (7.2% of total breasts) were irradiated. Mean follow-up of patients was 4.1 ± 2.6 years (range, 0.2-12.2 years); 87% of patients had at least 1 year, 74% at least 2 years, 62% at least 3 years, and 51% at least 4 years of follow-up. There were 15 cases of clinically significant CC during the follow-up period, for an overall CC rate of 1.0%. All CCs occurred within the first 2 years. CC was 3-fold higher in oncologic versus prophylactic breasts but the difference did not reach statistical significance (1.7% vs 0.6%, $P = 0.06$). When stratified by radiotherapy use, irradiated breasts had a statistically significant 7-fold higher incidence of CC versus non-irradiated breasts (4.7% vs 0.7%, $P = 0.003$).



Figure 1. 43 year old female with right breast cancer



Figure 2. 2 year follow up

Conclusions: In this long-term study spanning 12 years, the cumulative incidence of CC with ADM-assisted direct-to-implant reconstruction appears to remain low, even in irradiated breasts. All CCs occurred within the first 2 years after reconstruction and longer follow-up does not appear to increase the incidence.

References:

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