

Unilateral Preoperative Chest Wall Irradiation in Bilateral Tissue Expander/Implant Breast Reconstruction with Acellular Dermal Matrix: Complications and Outcomes

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Introduction – Prior breast irradiation is known to increase rates of post-operative complications in tissue expander/implant (TE/I) reconstruction (1-3). Acellular dermal matrix (ADM) is a popular adjunct heralded to decrease capsular contracture; however, recent studies suggest possible increases in rates of early postoperative complications with its use. We aimed to evaluate complication rates, capsular contracture, and aesthetic outcomes in patients undergoing bilateral, TE/I reconstruction with ADM and prior unilateral irradiation.

Methods – A case-control study was conducted including patients undergoing bilateral, ADM-assisted, TE/I reconstruction with previous unilateral irradiation. Complication rates including infection, mastectomy skin flap necrosis, hematoma, seroma and capsular contracture were compared between irradiated and control breasts. Statistical analysis was done using Chi-squared, Fisher's method, and Student's t-tests.

Results – 23 patients met inclusion criteria with an average follow-up of 19 months (range: 4-60 months). Mean BMI was 24 kg/m² (range: 19-37.5 kg/m²). Comparing irradiated breasts to control breasts, the perioperative infection rate was 21.7% (n=5) versus 4.3% (n=1) (p=0.079). Rates of mastectomy skin flap necrosis, hematoma, and seroma were not significantly different between groups. 40% of patients had no difference in capsular contracture rates when comparing irradiated and non-irradiated breasts. 60% of patients had a contracture in irradiated breasts that was one Baker grade greater than non-irradiated breasts. BMI >25 and smoking history were significant independent risk factors for early postoperative complications in univariate analysis (p=0.01).

Conclusions - ADM use in patients undergoing implant reconstruction with previous radiation does not increase early or late complications; however, it appears to increase risks of perioperative infectious complications compared to non-irradiated ADM reconstructions. The proposed benefit of ADM to diminish rates of capsular contracture is not seen in this population. Therefore, ADM in TE/I reconstructions in patients with prior irradiation should be used judiciously especially in patients with BMI >25 and former smokers.

References

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