The Impact of Premastectomy Versus Postmastectomy Radiation Therapy on Outcomes in Prepectoral Implant-Based Breast Reconstruction

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PURPOSE
• To compare the impact of premastectomy versus postmastectomy radiation therapy on outcomes after prepectoral implant-based breast reconstruction.

BACKGROUND
• Prepectoral implant breast reconstruction is being increasingly performed over subpectoral reconstruction because of the reduced invasiveness, postoperative pain and risk of animation deformity.
• Radiation therapy is a well-known risk factor for complications in implant-based breast reconstruction.
• However, the effect of premastectomy versus postmastectomy radiation therapy on outcomes after prepectoral breast reconstruction has not been well-defined.

METHODS
A retrospective chart review was conducted of all patients who underwent prepectoral implant-based breast reconstruction during the study period. 305 patients (493 breasts) did not receive radiation therapy. 26 patients (28 breasts) received premastectomy radiation and 45 patients (71 breasts) received postmastectomy radiation. 369 patients (592 breasts) underwent prepectoral implant-based breast reconstruction during the study period.

RESULTS
• 369 patients (592 breasts) underwent prepectoral implant-based breast reconstruction during the study period.
• 26 patients (28 breasts) received premastectomy radiation and 45 patients (71 breasts) received postmastectomy radiation.
• 305 patients (493 breasts) did not receive radiation therapy.
• Premastectomy radiation patients had higher rates of seroma, minor infection, implant loss and local recurrence compared to non-radiated patients (p<0.05).
• Postmastectomy radiation patients had higher rates of major infection, implant loss, capsular contracture and local recurrence compared to non-radiated patients (p<0.02).
• Premastectomy radiation was associated with a higher rate of seroma compared to postmastectomy radiation (14.3% vs. 0%; p<0.005).
• Outcomes after prepectoral breast reconstruction were otherwise comparable between premastectomy and postmastectomy radiation groups.

CONCLUSIONS
• Pre- and postmastectomy radiation therapy were associated with higher rates of infection and implant loss compared to non-radiated prepectoral implant reconstruction patients.
• Premastectomy radiation therapy was associated with a higher rate of seroma compared to postmastectomy radiation in prepectoral implant reconstruction.