

Purpose

Breast reconstruction following mastectomy has traditionally consisted of a two-stage approach: immediate tissue expander (TE) reconstruction followed by expander-to-implant exchange. In contrast, single-stage reconstruction with an adjustable implant (AI) is an uncommon but promising alternative, potentially reducing patient anxiety, costs, and time spent. This study evaluates outcomes following mastectomy with and without immediate AI breast reconstruction.

Methods

Retrospective review of 897 consecutive patients (1217 breasts) undergoing mastectomy with immediate reconstruction from 4/1998-8/2008 at a single institution was performed. Demographic and operative factors, the use of AI or TE, the need for second-stage (implant exchange) and/or aesthetic, revisional (e.g. excess skin excision) surgery, and overall follow-up were recorded. Postoperative complications were categorized as minor (nonsurgical), major requiring surgical correction, or major requiring explantation or conversion to autologous tissue flap (MEF). Based on postoperative reconstructive outcome, AI patients were further subdivided: single-stage, conversion into two-stage, or failure to complete due to MEF. Chi-square, student t-test, and multiple logistic regression were used for statistical analysis.

Results

There were no differences in demographics, operative characteristics, or complication rates between AI (n=113, 162 breasts) and TE (n=784, 1055 breasts) patients except body mass index (BMI) (kg/m^2) (AI: 23.95, TE: 25.71, $p=0.0014$). Mean follow-up was 36.9 months. Only 23% (26/113) of AI patients completed single-stage reconstruction, with the remaining undergoing second-stage surgery (63%, 71/113) or having an MEF (14%, 16/113). No patient or operative factors significantly affected the likelihood of conversion into two-stage. However, two-stage patients underwent more cosmetic revisions (59/71) than single-stage (3/26) ($p<0.0001$) and required 6.4 months longer to finalize their reconstruction. Multiple logistic regression analysis, adjusted for smoking, tumescent mastectomy technique, and pre-mastectomy radiation, identified age ($p=0.0153$), BMI ($p=0.0096$), and post-mastectomy radiation ($p=0.0238$) as independent risk factors for MEF following AI reconstruction, similar to known risks for TE explantation.

Conclusions

Our review, the largest comparison of single- and two-stage breast reconstruction to date, demonstrates that immediate AI reconstruction following mastectomy is a feasible and desirable reconstructive option, saving patients significant time without additional complications. However, only a minority of patients will remain single-stage, with many undergoing second-stage procedures to improve cosmesis. Single-stage, immediate AI breast reconstruction should be reserved for a carefully selected patient population to achieve desired reconstructive outcomes while minimizing the number of procedures.