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Assisted breast reconstruction with a biosynthetic mesh and implants: a pilot study

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Introduction: Acellular dermal matrix has been widely employed in implant-based breast reconstruction; however, its application is associated with elevated complication rates. An absorbable biosynthetic mesh (GORE® BIO-A®) may theoretically exhibit lower complication rates while potentially providing functional characteristics similar to acellular dermal matrices. Nevertheless, there is a paucity of literature data regarding this material. **Objective:** To evaluate whether the use of this matrix presents fewer complications than conventional ones in breast reconstruction with prosthesis. **Methods:** A retrospective analysis was conducted on high-risk patients undergoing implant-assisted reconstruction with the biosynthetic matrix. Immediate complications, aesthetic outcomes, and capsular contracture were evaluated. BCCT.core and the Harvard scale were used to assess aesthetic outcome. Quality of life was evaluated using the EORTC QLQ-BRECON23. **Results:** Thirteen patients with 23 breasts were examined. The mean follow-up was 15.6 months (range: 3–44), and the mean age was 41.8 years (range: 31–56). Two patients presented with comorbidities (diabetes, hypertension, or obesity). The mean implant volume was 383cc (range: 330–490), with all cases being direct-to-implant except for one; 11 breasts were prepectoral. Ten breasts underwent radiotherapy. Six breasts exhibited complications: two from surgical wound dehiscence, two nipple necrosis, one infection, and one hematoma, all managed conservatively. No implant loss occurred. Regarding capsular contracture, 18 were grade I, one was grade II, and four were grade III. Among the ten breasts that underwent radiotherapy, four presented with grade III contracture (p=0.13). Based on the Harvard scale and BCCT.core, the results were deemed good/excellent in 20/23 breasts and in 9/13 cases, respectively. Evaluating quality of life (median), we observed high satisfaction with the surgery (100.0%), the breast (77.8%), and nipple preservation (100.0%), with low site-effects symptoms. **Conclusion:** This pilot study demonstrates that breast reconstruction assisted by an absorbable biosynthetic matrix may be feasible and associated with potentially low complication rates and high quality of life. Despite these promising perspectives, further case-control studies are necessary to corroborate these results.

Keywords: surgical mesh; breast implantation; mammoplasty; mastectomy; subcutaneous mastectomy; cosmetics; quality of life.