

Effect of Operative Duration on Outcomes after Autologous Breast Reconstruction

Presenter: Hunter Rogoff, BS

Co-Authors: Jocellie E. Marquez, MD; Kanad Ghosh, BA; Phoebe McAuliffe, BA; Christopher Medrano, BA; Kaitlin Monroig, BA; Christopher Jou, MD; William Marmor, BS; Tara L. Huston, MD, FACS; Jason C. Ganz, MD; Alexander B. Dagum, MD; Duc T. Bui, MD; Sami U. Khan, MD

Affiliation: Renaissance School of Medicine at Stony Brook University

BACKGROUND:

Although current literature has shown that longer operative times lead to greater morbidity in plastic surgery, there is a paucity of data specifically concerning autologous breast reconstruction. This study evaluates whether operative duration is a determinant of morbidity, with the goal of defining clinically relevant times for increased risk.

METHODS:

A single-institution retrospective chart review of autologous breast reconstructions (TRAM, DIEP, SIEA, and latissimus dorsi flaps) from 2010 to 2018 was conducted. Demographics, comorbidities, surgery duration, reoperation and complications were recorded. Reoperation was defined as any unplanned operation due to a complication. Minimum follow-up was 1 year. Bivariate analyses were performed

RESULTS:

A total of 126 autologous breast reconstructions were identified: 110 TRAM, DIEP, and SIEA flaps (Group 1) and 16 delayed latissimus dorsi flaps (Group 2). Operative duration for Group 1 ranged from 4.4-20.7 hours. Cases were stratified by duration of less than (Group 1a: n=62) or greater than (Group 1b: n=48) 10 hours. Group 1b was found to have an increased rate of wound dehiscence (16% vs. 40%, p=0.006), skin necrosis (21% vs. 42%, p=0.019), fat necrosis (19% vs. 44%, p=0.006), venous congestion/thrombosis (0% vs. 25%, p<0.001), mean number of overall complications (1.03 vs. 2.54, p<0.001) and rate of overall complications (58.1% vs. 87.5%, p<0.001), compared to Group 1a. Additionally, Group 1b showed significant

increased rates of reoperation (23% vs. 54%, $p=0.001$) and mean number of reoperations per patient (0.27 vs. 0.96, $p<0.001$) than Group 1a.

Operative duration for Group 2 ranged between 2.4-6.3 hours. Cases were stratified by duration of less than (Group 2a: $n=4$) or greater than (Group 2b: $n=12$) 3 hours. Group 2b demonstrated an increased mean number of overall complications (0.25 vs. 1.75, $p=0.005$) which reached statistical significance.

CONCLUSIONS:

Operative duration is a predictor of complications and reoperations in autologous breast reconstruction. TRAM, DIEP, and SIEA flaps are at an increased risk for complications after 10 hours of procedure time. Delayed latissimus dorsi flaps demonstrated similar trends above 3 hours. Importantly, major complications such as venous congestion/thrombus are also increased, potentially jeopardizing the viability of the flap.