Does Increased Free Flap Size in the Head and Neck Region Impact Clinical Outcome?

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Purpose: There are few studies analyzing the long-term clinical effects related to increasing the size of head and neck free tissue reconstructions. The purpose of this study was to compare long-term clinical outcomes of patients undergoing very large area (≥200 cm^2) and large area (100 to 199 cm^2) free tissue reconstructions of head and neck defects.

Patients and Methods: Institutional review board approval was obtained before conducting this retrospective cohort study at the authors' university-based tertiary care hospitals. The authors analyzed the charts of consecutive patients with free flaps of at least 100 cm^2 treated from July 2000 to December 2011. Very large area flaps were arbitrarily defined as larger than 200 cm^2. Intraoperative variables, flap success rates, overall survival, and total hospital and intensive care unit (ICU) stays for the 2 groups were analyzed. Fisher exact tests or χ^2 tests were used for categorical variables and Student *t* tests were used for continuous variables. Log-rank tests were conducted to investigate whether overall survival was significantly different between the 2 groups. Statistical significance was defined as a *P* value less than .05.

Results: The charts of 121 consecutive patients were analyzed. Thirty-eight patients (31%) had very large area flaps (277.1 ± 79.4 cm^2; range, 200 to 576 cm^2) and 83 patients (69%) had large area flaps (140.1 ± 25.5 cm^2). There was no difference between flap groups in presenting T4 stage disease (*P* = .448). Ninety-eight percent of the very large area flaps and 93% of the large area flaps survived. Total hospital stays for the very large area and large area flap groups were 12.8 ± 8.2 and 12.3 ± 8.3 days, respectively (*P* = not significant). In contrast, ICU stays were increased for the very large area flap group at 7.1 ± 7.5 versus 4.0 ± 4.0 days for the large area flap group (*P* = .022). The overall median patient survival for the very large area flap group was 7.6 months (95% confidence interval, 5.7-10.0) and that for the large area flap group was 8.4 months (95% confidence interval, 5.4-12.9; *P* = .376).

Conclusion: Performing very large area flaps for head and neck reconstruction did not negatively affect clinical outcome. Comparable success rates, total hospital stays, and overall survival can be safely achieved in this difficult patient population. More studies need to be conducted on resource usage.

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In the past 20 years, free tissue transfers have become firmly established as the preferred reconstruction method for postablative head and neck defects. These flaps have allowed reconstructive surgeons the ability to reconstruct large, composite tissue defects with similar composite tissue. The variety of free tissue available for transfer ranges from osteocutaneous to large bulky myocutaneous flaps, allowing greater versatility in complex reconstructions compared with regional or pedicled flaps.[1] Flap success rates of 96% to 99% can be reliably achieved.[2,3]

There are few studies examining the impact of increasing flap size on overall clinical outcome. The purpose of this study was to compare long-term

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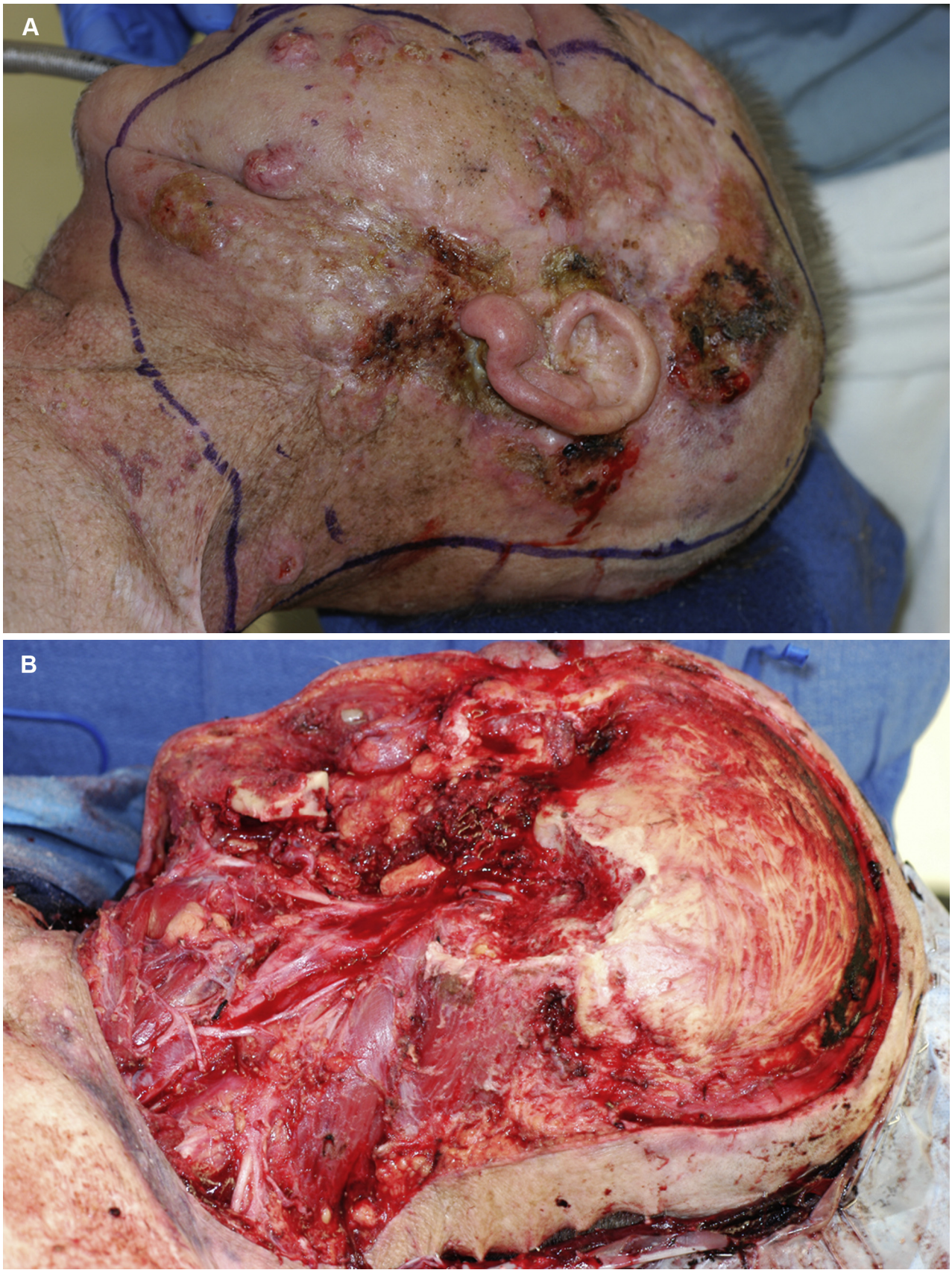

FIGURE 1. *A,* Preoperative photograph of a 66-year-old man after renal transplantation with T4N0 squamous cell carcinoma on the left side of the face shows proposed resection margins. *B,* Postablative defect (skin, lateral temporal bone, mandible ramus). **(Fig 1 continued on next page.)**

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