Outcomes following autologous fat grafting in head and neck oncologic reconstruction

Riaz J. Karmali, BS; Alexander T. Nguyen, MD; Roman J. Skoracki, MD; Matthew M. Hanasono, MD

Disclosure/Financial Support: None

Introduction: Despite the growing popularity of autologous fat grafting in oncologic head and neck reconstruction, there remains a paucity of clinical data that sheds light on its oncologic safety. Therefore, the aim of this study was to examine the oncologic outcomes of cancer patients undergoing autologous fat grafting for head and neck reconstruction.

Methods: A retrospective review was performed of 119 consecutive patients undergoing autologous fat grafting for oncologic head and neck reconstruction from January 2005 to July 2014. Patient demographics, radiation history, surgical history, tumor pathology, operative factors, postoperative course, and oncologic assessments were analyzed. (Table 1) The primary outcome was oncologic recurrence, which was assessed by each patient's radiation oncologist or cancer surgeon.

Results: A total of 190 fat grafting procedures were performed in 116 eligible patients. Of these, 69% had received preoperative radiation with a mean time of 40.5 months to the first fat grafting operation. The mean time from a patient's cancer surgery to the first fat grafting treatment was 35.1 ± 59 months. Sixty-six percent (66%) also had prior free flap reconstruction for their cancer surgery. The average number of treatments per patient was 1.6 ± 1 (range 1 to 6) with a mean injection volume of 24.8 ± 20.2ml. The mean follow-up time from the first fat grafting procedure was 24 ± 22.3 months. Oncologic recurrence was observed in 5 patients (2 local, 1 regional, and 2 metastasis). All local and regional recurrences were at sites not in continuity with the area injected. The overall complication rate was 4% and included 2 infections, 2 fatty cysts at the injection site, and 1 overcorrection.

Conclusions: This retrospective case series suggests that autologous fat grafting in oncologic head and neck reconstruction is safe. The technique allows for the optimization of aesthetic outcomes in the reconstructive process following head and neck cancer surgery. Future prospective cohort studies are needed to determine long-term oncologic outcomes in head and neck cancer patients.

Figure Legend:
Table 1: Patient and Tumor Characteristics

Table 1. Patient and Tumor Characteristics

Male:Female (n=116)	45:71 (39%:61%)
Age, yrs	55.9 (± 15)
BMI, kg/m^2	26.7 (± 5.7)
Preoperative XRT	81 (69%)
Postoperative XRT	2 (1.7%)
Osteoradionecrosis	8 (7%)
Active Smoker	11 (9.0%)
Tumor Pathology	
Benign	13 (11%)
Malignant	103 (89%)