

Simultaneous double free flap reconstruction in patients with advanced oral squamous cell carcinoma: A case series and analysis of patient survival

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Background: The purpose of this study was to assess the effect of free-flap reconstruction of patients with advanced stage IV oral squamous cell carcinoma following ablative tumor resection. The purpose of this study is to elucidate the reconstructive indications of the use of simultaneous double free flaps in head and neck oncological surgery.

Method: The study was based on a retrospective cohort of 76 patients with pathological stage IV OSCC patients (without distant metastasis) treated by tumor ablation with free flap reconstruction. Of the 76 patients, 49 (Group 1, Test) underwent surgical reconstruction with microvascular tissue transfer and in 27 (Group 2, Control) only local or regional flaps were used. Fibula osteo-cutaneous free flap was used in association with forearm free flap in 18 cases, fibula osseous-forearm in 7 cases, fibula osseous-rectus abdominis in 1 case, iliac crest-forearm in 1 case. Forearm free flap was used for intra-oral reconstruction in all cases. We compared patient survival and cancer recurrence rates between these two groups.

Result: Despite the unfavorably expected prognosis in group 1, both positive margin rate (12.2% in Group 1 versus 21.5% in Group 2, $P = 0.112$) and cancer recurrence rate (26.6% in Group 1 versus 28.3% in Group 2; $P = 0.671$) were not significantly different between the two groups. At the end of the follow-up period, 23 (47%) and 33 (67.3%) patients had died of oral squamous cell carcinoma in the microvascular reconstructive and control group, respectively. In the free-flap group, the mean and median survival time was 54 months. In the locoregional flap group, the mean and median survival time was 51 months respectively. No difference was seen in the survival time between the free-flap and local flap groups ($P=0.2$). Univariate Kaplan-Meier analysis revealed that positive surgical margins were significantly associated with shortened survival in the free-flap group and that recurrence was significant in both reconstructive groups. On multivariate Cox regression analysis, the status of the resection margin ($P=0.05$) and tumor recurrence ($P<0.0004$) showed a significant relationship with survival.

Conclusion: Patients with free-flap reconstruction of surgically created defects after oral cancer resection showed a trend toward better 5-year survival. Simultaneous free flap reconstruction, in massive oro-mandibular defects, represents in some selected patients, a good choice to achieve satisfactory aesthetic and functional results.

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