

## **Abstract**

**Objective:** Measurement of patient assessment of scar following nasal reconstruction at multiple time points.

**Methods:** Prospective, nonrandomized questionnaire-based study of patients undergoing nasal reconstruction following Mohs excision of nasal cutaneous malignancy at a tertiary care center. The main outcome measure was a modified version of the Patient Observer Scar Assessment Scale (POSAS) completed by the patients (high values indicate patient dissatisfaction with scar). The scale was administered at early follow up evaluation ( $1 < x < 4$  weeks postoperative), intermediate follow up ( $4 \leq x < 12$  weeks postoperative), intermediate ( $12 \leq x < 24$  weeks postoperative) and late follow up ( $x \geq 24$  weeks postoperative). The type of reconstruction was grouped into three categories: interpolated flap, local tissue flap, and full-thickness skin graft (FTSG). A between-groups analysis was performed for type of reconstruction, as well as on patient demographic data (ANOVA and independent samples t tests used where appropriate).

**Results:** A total of 59 patients were enrolled in the study. Reconstructive surgeries included interpolated flap (14 patients), local tissue flap (17 patients), and FTSG (28 patients). Other patient demographic and defect data are listed in Table 1. There were significant differences based on type of reconstruction with respect to patient age, defect surface area, defect depth, and total number of nasal subunits involved.

For the entire cohort, scar assessment improved over the follow up period, though not dramatically (Figure 1, below). Despite the differences between defect size and extent (Table 1), there were no significant differences between patient assessment of scar. At late follow up ( $x > 24$  weeks), there was a trend ( $p = 1.51$ ) towards improved scar assessment in the local tissue flap subgroup. FTSG and interpolated reconstruction had essentially equivalent scar assessments, despite large differences in depth of defect and defect surface area. Local tissue flaps have scars that improve dramatically over the period of study, returning to near baseline levels.

**Conclusions:** Major nasal reconstruction is associated with a complex wound healing process that has been incompletely described in the surgical literature. The results of this study appear to lend support to the reconstructive algorithms currently in use. Despite significantly larger and deeper defects, patients rate the scars created by interpolated flaps (paramedian forehead and interpolated cheek) as similar to the scars associated with full thickness skin grafts. Local tissue flaps have scars that are least bothersome to patients; this is likely due, at least in part, to the fact that local tissue flaps are used to address small primary defects.

**Level of Evidence: IIa**

**Note:** this represents preliminary research data from 59 patients. We plan to continue data collection and re-analyze our data; therefore, some of the statistical results may change prior to possible presentation at the MOS conference.

**Table 2: Patient, demographic, and defect data by reconstruction type**

	Interpolated Flap (mean, %, or 95% CI)	Local Flap (mean, %, or 95% CI)	FTSG (mean, %, or 95% CI)	<i>p</i> value*
Patients	14	17	28	NA
Average defect area (cm <sup>2</sup> )	6.74 (3.77, 9.72)	1.31 (1.04, 1.59)	3.38 (0.92, 5.84)	<b>0.014</b>
Total subunits	2.29 (1.59, 2.98)	1.31 (0.94, 1.69)	1.43 (1.18, 1.67)	<b>0.003</b>
Depth of Defect				<b>&lt; 0.001</b>
Full thickness	5	1	0	
Cartilage	8	2	5	
Superficial	1	14	23	
Tumor type				
Basal cell	9	15	23	<b>0.023</b>
Squamous cell	0	2	0	
Melanoma	5	0	5	
Prior nasal recon	1 (7.1%)	1 (5.9%)	7 (25.0%)	0.128
Age at Reconstruction	61.1 (55.62, 66.67)	56.82 (50.11, 63.54)	66.43 (62.31, 70.55)	<b>0.023</b>
Gender (female)	7 (50.0%)	12 (70.6%)	22 (78.6%)	0.165
Current smoker	3 (21.4%)	1 (5.9%)	2 (7.1%)	0.277
Mood disorder	0	2 (11.8%)	5 (17.9%)	0.241
Antidepressant	0	2 (11.8%)	6 (21.4%)	0.156
Hypertension	6 (42.9%)	6 (35.3%)	12 (42.9%)	0.866
Diabetes mellitus	1 (7.1%)	0	4 (14.3%)	0.244
Anticoagulated	2 (14.3%)	2 (11.8%)	3 (10.7%)	0.945
Aspirin	4 (21.4%)	3 (17.7%)	7 (25.0%)	0.845
Systemic steroid	0	0	2 (7.1%)	0.318
Complications <sup>1</sup>	1 (7.1%)	0	0	0.195

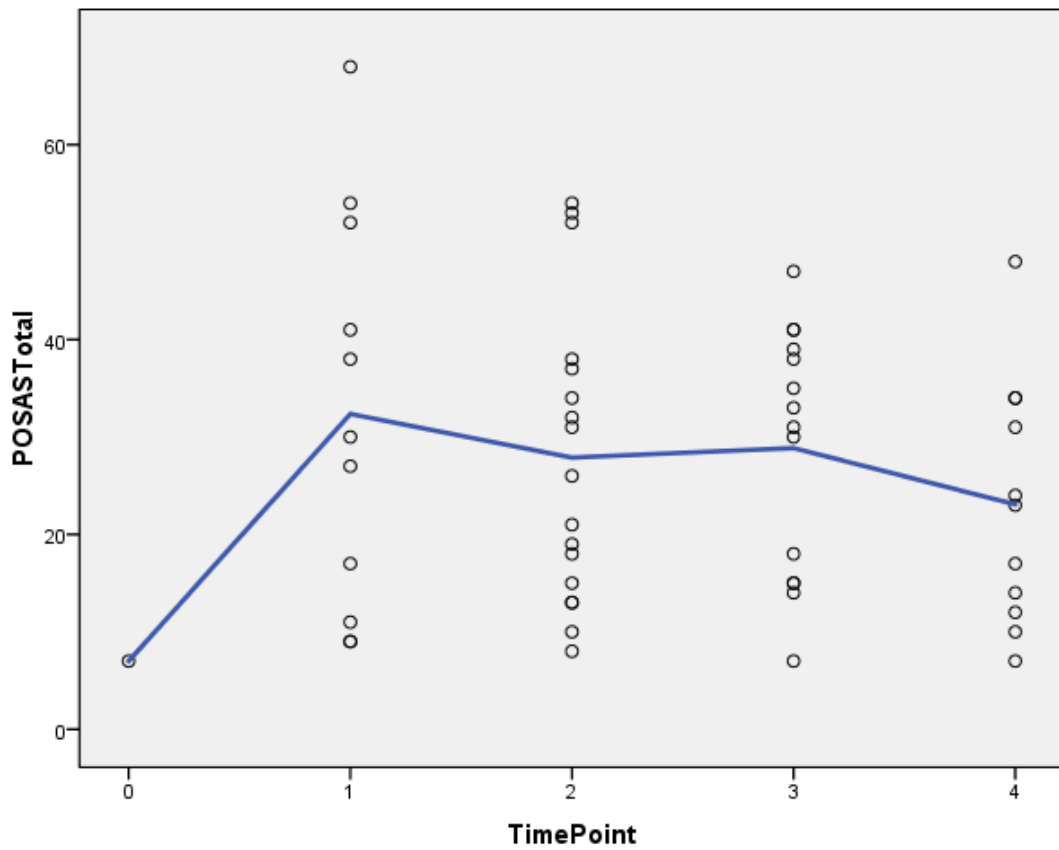


Figure 1: patient assessment of scar at multiple time points after surgery, with superimposed line of best fit. Time point key: 1 = 1-4 weeks postoperative; 2 = 4-12 weeks postoperative; 3 = 12-24 weeks postoperative; 4 = > 24 weeks postoperative.

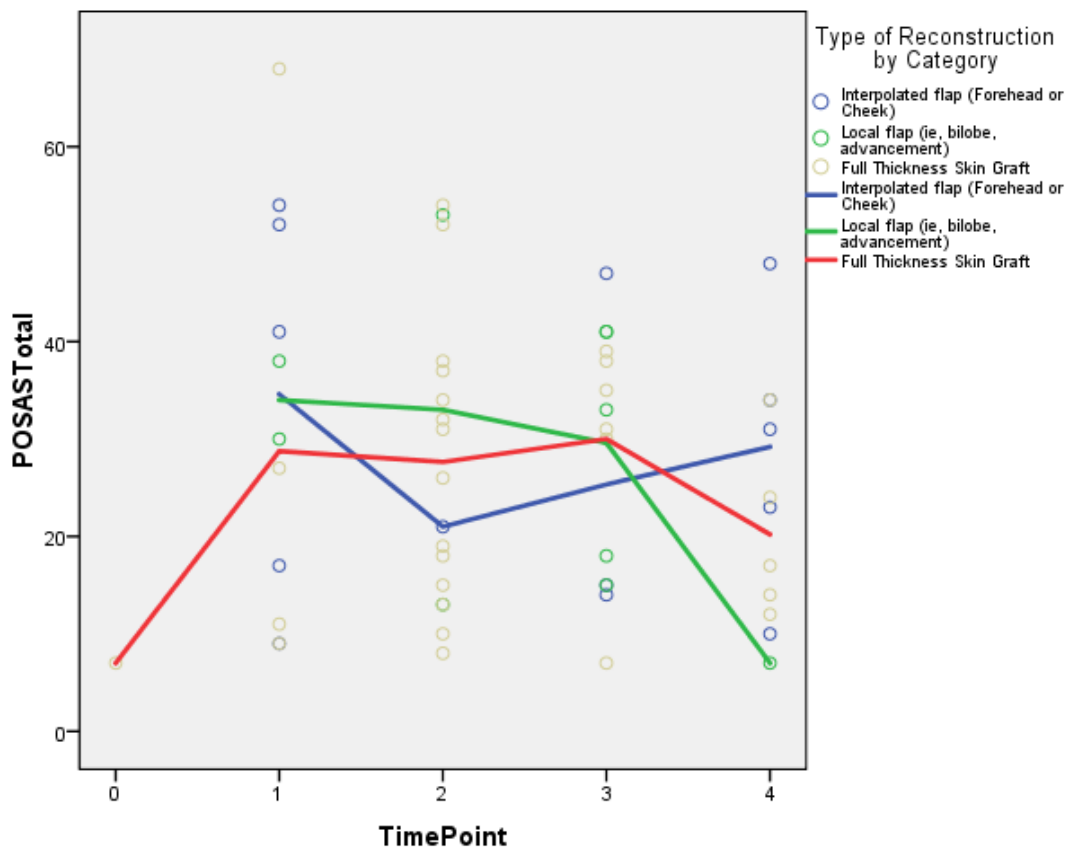


Figure 2: patient assessment of scar at multiple time points after surgery, stratified by type of reconstruction with superimposed line of best fit. Time point key: 1 = 1-4 weeks postoperative; 2 = 4-12 weeks postoperative; 3 = 12-24 weeks postoperative; 4 = > 24 weeks postoperative.