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ABSTRACT SUBMISSION TITLE: *B1 - Rhinoplasty Ethnic Considerations: Artificial Intelligence Morphing and Cadaveric Structural Cartilage Grafts*

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Abstract Text:

PURPOSE:

Many patients who undergo a rhinoplasty procedure prefer to maintain their ethnic characteristics rather than aim toward Euro-western ideals. Effective communication of these preferences is important during the preoperative consultation. Recent Artificial Intelligence (AI) 3D morphing now offers the ability to plan rhinoplasty nasal shaping based specifically on a patient's preferences. It is not known whether these morphing tools create improved rhinoplasty outcomes. To study this, we compared patient satisfaction with and without 3D preoperative morphing to communicate desired nasal shape.

METHODS:

Rhinoplasty patients who emphasized ethnic considerations (based on a validated survey) underwent either preoperative 1) Deep Surface AI or Vectra morphing to communicate their preferences (n=210) or 2) No morphing (n=282). Structured rhinoplasty used cadaveric cartilage (MTF) for procedures because of lack of septal cartilage. Outcome assessment was based on perioperative complications, long term

stability (1-year), need for revisions, and patient-reported functional and aesthetic outcomes using the SCHNOS (6-point) validated questionnaire, as well as Patient-Reported Outcomes Measurement Information System (PROMIS) for psychosocial indicator assessment.

RESULTS:

The 2 ethnic rhinoplasty groups studied (morphing vs no morphing) had similar demographics, operative techniques, complications (2% vs 3%), and revisions (3% vs 5%). Operative techniques included variations of: Cadaveric (MTF) grafts for dorsal onlay graft (to raise radix), spreader grafts (mid-vault stability), columellar strut grafts, tip grafts (after soft tissue thinning), alar base resection, and upper vault narrowing (lateral wall osteotomy). Patients who underwent preoperative 3D 'morphing' to record patient nasal shape preferences based on their ethnic considerations and cultural ideals compared to 'no morphing' had greater improvement in outcome (SCHNOS) scores (decrease or improvement in scores by 3.2 ± 0.4 vs 2.0 ± 0.3) and a greater decrease in Psychosocial Indicators (PROMIS scores): Anxiety (58.5 ± 6.6 vs 55.2 ± 8.6), Depression (50.6 ± 7.6 vs 48.7 ± 9.4), and an increase in Meaning and Purpose (49.6 ± 7.6 vs 51.7 ± 9.4).

CONCLUSIONS:

Nasal reshaping procedures with ethnic considerations based on patient preferences have more successful outcomes with operative techniques with cadaveric cartilage grafts utilizing 3D morphing programs like Deep Surface AI.