Virtual Rhinoplasty Becomes Reality: Intra-Operative Monitoring with 3D Photography

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Purpose: Photography plays an important role in rhinoplasty yet is limited as a true anatomic reference. Three-dimensional photography is becoming increasingly recognized as a superior method for viewing and analyzing the facial contour. Understanding the complex anatomy and subtle changes inherent to rhinoplasty benefit from 3D photography and computer analysis.

Methods: Patients undergoing rhinoplasty had 3D photographs taken pre-operatively (n=16). A virtually rhinoplasty was simulated during the pre-operative consult (Canfield Vectra H1), and displayed with pre-operative 3D in the operating room for reference. Intra-operative 3D photographs were then captured at one or more of the following: 1. Dorsal hump reduction, 2. Tip modification, 3. Correction of septal deviation, and overlayed with baseline to visualize changes and highlight regions requiring further modification. Immediate post-operative 3D photographs were captured, and families were given the option to view the result.

Results: Interval 3D photographs were most useful to guide dorsal hump reduction and tip rotation. Post-operative 3D-photographs captured the result with minimal swelling. All families wanted to see the 3D photos after surgery and reported they found the experience positive, alleviating their concerns regarding the aesthetic outcome.

Conclusion: 3D photography and simulation aligned aesthetic goals and expectations before surgery. Overlay between intra-operative photographs and the simulation highlighted adherence to previously defined aesthetic goals. All patients/families to date reported viewing the immediate 3D post-operative image as a positive experience.