Abstract

• Reconstruction of the nasion/glabella/frontal sinus/bone, medial orbital wall and orbital roofs is highly complex following osteoma resection

• Craniofacial reconstruction procedures have drastically evolved since the development of 3D computed tomography imaging and computer-assisted programming

• Using 3D reconstruction and a single-stage approach, excellent cosmetic outcomes and restoration of normal skull and skin contour can be achieved

• We present two cases highlighting the importance of pre-operative planning in obtaining successful aesthetic reconstruction and long term results

Case 1

• Single-stage osteoma resection and craniofacial reconstruction in a 26 year-old female.

• Pre operative planning of the resection and reconstruction were performed. A “masquerade mask” like reconstructive graft was designed

• Using a titanium mesh biopolymer implant for reconstruction with a forehead flap proved advantageous with excellent aesthetic outcomes with particular attention to the nasion and glabellar region.

Results

Figure 1: Osteoma involving the nasal, glabella, frontal bone and sinus, ethmoids, cribriform with displacement of the medial rectus and optic nerve.

Figure 2: Complete total resection of the osteoma using a combined endonasal approach with bi-frontal craniotomy.

Figure 3: Combined endoscopic endonasal and bifrontal craniotomy with pre-op custom 3-D reconstruction

Figure 4: Combined endoscopic endonasal and bifrontal craniotomy with single staged custom 3-D reconstruction at 2 weeks post op

Discussion

• Complex bony deformities in the craniofacial region, nasion-glabella in particular, present significant reconstructive challenges.

• 3D imaging allows for careful reconstruction not only of bony abnormalities but also overall facial contour with the use of soft tissue buttress flaps.

• The implant grafts had less than 2mm separation between the bone aiding in rapid recovery.

Conclusions

• In these patients a “masquerade mask” 3-D reconstruction was performed in each patient providing excellent fit, symmetry, and patient satisfaction.

• This single staged approach obviated the need for further hospitalizations and operations with no infections out to 4 and 3 years post-operatively

• Single staged approach is more cost effective and avoids the psychological and physical effects of living with a craniectomy defect. It also avoids surgical risks of redo surgery among them infection, necrosis, and bleeding

References


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