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RECONSTRUCTION OF THE UPPER LIP FOLLOWING DEFORMATION: CURRENT SURGICAL STRATEGIES AND AESTHETIC OUTCOMES

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Abstract
Upper lip deformities represent one of the most challenging problems in reconstructive and aesthetic facial surgery. The upper lip plays a central role in speech, facial expression, and perioral aesthetics, and its restoration requires precise anatomical, functional, and aesthetic reconstruction. This review discusses the anatomical background, classification of deformities, and modern surgical techniques used in the reconstruction of the upper lip, including local, regional, and free flap approaches. Recent advances in microsurgical reconstruction, fat grafting, and digital planning are highlighted, alongside considerations for aesthetic refinement and long-term rehabilitation.

Keywords: Upper lip reconstruction, facial deformity, local flaps, microsurgery, aesthetic outcomes, rehabilitation.

Introduction

The upper lip is a defining feature of facial harmony and expression, serving vital roles in articulation, breathing, and mastication. Deformities may arise from trauma, oncologic resections, congenital anomalies such as cleft lip, burns, or infectious necrosis. Reconstruction aims not only to restore anatomical integrity but also to achieve symmetry, mobility, and an aesthetically natural contour. Recent developments in microsurgery, digital modeling, and tissue engineering have significantly enhanced reconstructive outcomes.

Anatomical and Clinical Background

The upper lip consists of three primary layers: skin, the orbicularis oris muscle, and mucosa. Restoration must preserve or reconstruct the philtrum, Cupid's bow, and vermilion border. Damage to the orbicularis oris muscle can severely affect oral competence, articulation, and facial symmetry. The blood supply derives mainly from the superior labial arteries, branches of the facial artery, while sensory innervation arises from the infraorbital nerve.

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Upper lip deformities are generally classified as congenital (cleft-related), traumatic, post-oncologic, or iatrogenic. They may involve partial or total tissue loss, scarring, contracture, asymmetry, or distortion of the vermilion and philtrum. Functional impairment, including compromised speech and mastication, is often associated with aesthetic disfigurement.

Reconstructive Techniques

1. Local and Regional Flaps

Local flap reconstruction remains the first-line approach for small and moderate defects. The Abbe flap (cross-lip flap) is the gold standard for central upper lip reconstruction, ensuring tissue color and texture match. The Estlander flap is suitable for commissural involvement, while nasolabial flaps, including perforator-based variants, are ideal for lateral defects. Modern adaptations of these techniques emphasize preservation of the orbicularis oris function and minimal donor-site morbidity.

2. Free Microsurgical Flaps

Extensive or composite defects require microvascular free flaps such as the radial forearm flap or anterolateral thigh (ALT) flap. These allow restoration of both lining and external skin, with the possibility of including muscle or fascia for functional repair. Recent publications confirm excellent survival rates and good aesthetic outcomes when combined with secondary contour refinement.

3. Minimally Invasive and Adjunctive Techniques

Adjunctive techniques including fat grafting, dermal fillers, and autologous fascia improve lip contour and symmetry after reconstruction. Three-dimensional (3D) digital planning facilitates precise design of resection margins and flap positioning. Laser resurfacing and microneedling are commonly employed for scar remodeling in the final stages of rehabilitation.

Rehabilitation and Aesthetic Refinement

Rehabilitation after upper lip reconstruction focuses on restoring speech, oral competence, and facial mobility. Physiotherapy, myogymnastics, and neuromuscular re-education are integral to regain functional coordination. Secondary aesthetic refinements, such as vermilion tattooing or lip augmentation, may be performed after full healing.

Discussion and Future Perspectives

Current trends emphasize functional reconstruction combined with aesthetic precision. Microsurgical innovations, perforator-based flaps, and digital planning have reduced complications and improved predictability. Emerging fields like tissue engineering, 3D bioprinting, and stem cell therapy hold promise for regenerating muscular and mucosal components of the lip. A multidisciplinary approach involving plastic surgeons, maxillofacial specialists, and speech therapists is critical for optimal outcomes.

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Conclusion

Reconstruction of the upper lip following deformation requires a balance between anatomy, function, and aesthetics. Advancements in microsurgery and digital technologies have expanded reconstructive possibilities, achieving near-natural outcomes even in extensive defects. Long-term success depends on careful planning, layered repair of functional units, and individualized rehabilitation protocols.

Acknowledgments and Conflict of Interest

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References

1. Kwarcinski J., Penington A. Modern approaches to upper lip reconstruction after trauma and oncologic resection. Journal of Plastic, Reconstructive & Aesthetic Surgery. 2022;75(8):2753–2763.
2. Baker S.R. Local Flaps in Facial Reconstruction. 3rd ed. Philadelphia: Elsevier; 2021. 724 p.
3. Park J., Kim H., Lee J. Algorithmic approach to upper lip reconstruction using local flaps. Archives of Craniofacial Surgery. 2023;24(4):172–180.
4. Wang W., Chen X., Zhang Y. Three-dimensional assessment of upper lip reconstruction outcomes using digital facial analysis. Plastic and Reconstructive Surgery – Global Open. 2024;12(1):e5558.
5. Toriumi D.M., Patel S. Reconstruction of perioral defects: functional and aesthetic considerations. Facial Plastic Surgery Clinics of North America. 2020;28(2):165–179.
6. Neligan P.C. Plastic Surgery: Volume 2 – Aesthetic and Reconstructive Facial Surgery. 5th ed. Philadelphia: Elsevier; 2023. 865 p.
7. Юдина Е.В., Чернов А.В. Modern techniques for restoring the upper lip after trauma and tumor resections. Stomatology (Russian Journal of Dentistry). 2022;101(4):45–51.
8. Носов А.С., Гуров А.Н. Application of local flaps in upper lip reconstruction. Russian Journal of Plastic, Reconstructive and Aesthetic Surgery. 2023;(2):34–41.

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