Reconstructive Approach to an Acquired Absence of Multiple Facial Components: A Case Report

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Summary: The subject of our case report is a young girl who was attacked by a raccoon when she was 5 months old. She lost the majority of her nose, her entire right ear, and part of her upper lip. She had previous attempts at reconstructive surgery with poor results. Our collective goals were to provide lifelong reconstruction without the use of synthetic implants and to organize the steps in a way that provided psychological benefit early on while allowing her to continue education and childhood activities with minimal disruptions. We approached the patient’s many problems in stages by starting with the most obvious deformity and progressing to the least severe deformity. A radial forearm free flap and a forehead flap with rib cartilage were used in stages for nasal reconstruction. An Abbé flap was utilized for lip reconstruction, and a prelaminated radial forearm free flap with a costal cartilage frame was selected to form a new ear. She had neither lasting complications nor any morbidity from her donor sites. She and her family report a drastic improvement in her self-confidence and in her interactions with her peers. A stepwise approach to reconstruction of acquired absence of multiple facial components achieves the benefit of early positive psychological results with necessary breaks from surgery to allow her normal childhood activities and education. Judicious utilization of free flaps negates the need of synthetic implants for lifelong reconstruction. (Plast Reconstr Surg Glob Open 2016;4:e1083; doi: 10.1097/GOX.0000000000001083; Published online 28 October 2016.)

METHODS

We evaluated the absent facial components and found the nose to be the most severe, followed by the lip and then the ear. We then prioritized the surgeries to address most severe deformity to the least. We began the first stage of nasal reconstruction on August 15, 2012 with a radial forearm free flap to create the nasal lining and columella with microsurgical anastomosis to the left facial artery and vein, which has been well described in the literature.1–3 The raw surface was temporarily covered with a full-thickness skin graft. On October 4, 2012, she underwent the second-stage nasal reconstruction with a forehead flap, rib cartilage grafting for nasal framework, and a full-thickness skin graft.

Disclosure: The authors have no financial interest to declare in relation to the content of this article. The article Processing Charge was paid for by the authors.

Supplemental digital content is available for this article. Clickable URL citations appear in the text.
On November 2, 2012, she underwent the third-stage nasal reconstruction with flap debulking and thinning of the entire flap aside from the columella. Simultaneously, we began her upper lip reconstruction with the first stage of an Abbé flap. The fourth stage of her nasal reconstruction with debulking of the columella, second stage of the lip reconstruction with division and inset of Abbé flap, and a right-sided commissuroplasty were performed on November 16, 2013. On November 30, 2012, she underwent the fifth-stage nasal reconstruction with division and inset of the forehead flap and fat grafting to the right cheek. This was followed by a composite graft of skin and cartilage from the left helical root to reconstruct the retraction of the right alar base, fat grafting to the cheek, and upper lip scar revision on July 26, 2013. After this surgery, her lip, nose, and face were mostly done aside from minor revisions, leaving only the ear for completion.

For the ear, we could not use the temporals fascia for coverage because of loss of the temporal artery. Therefore, we formed a prelaminated radial forearm free flap with costal cartilage framework on April 16, 2014, which was recently first described. On July 12, 2014, she underwent the second stage of ear reconstruction by transferring the prelaminated radial forearm flap to right temporal region with microvascular anastomosis to the right facial artery and vein. Please see Video 1 for progression through all of the stages of reconstruction (See video, Supplemental Digital Content 1, which provides consecutive photographs throughout the reconstructive process with commentary. This video is available in the “Related Videos” section of the full-text article on PRSGlobalOpen.com or available at http://links.lww.com/PRSGO/A280).

RESULTS

The patient is currently doing well and enjoys her new nose and new ear. She has had no further wound complications and is able to wear an earring on her new ear. She complains of no morbidity from her donor sites and exhibited this by performing cartwheels down our clinic hallway. Her adopted parents report a great increase in her confidence and she is much more outgoing. The option of further surgery to correct scars, soft-tissue defects, etc., remains open for her, but currently she is content with her appearance (Fig. 3).

DISCUSSION

The subject presented difficult issues that needed to be addressed in her reconstruction. One of the problems was that she had 3 major areas that needed reconstruction, 2 of which were to be done without the use of prosthesis or synthetics and required microvascular tissue transfer. Each of these presents with the potential for donor site morbidity from costal cartilage and bilateral radial forearm free flap harvesting and scarring from raising a forehead flap. When considering utilizing these techniques for reconstruction, it is important to recognize the patient’s and his/her family’s goals, motivation, and their expectations for the final results of both the areas of reconstruction and their tolerance of donor site appearance. All of the options that would meet the patient’s and her family’s expectations came with the potential of major morbidity, yet she handled these risks well and the...
family understood the consequences from the beginning. Her psychological distress is what that drove us into this surgery, yet it was her mental maturity that enabled us to achieve the desired result. Her appearance is not and will never be perfect, but we have reached a point where she is very satisfied for the time being, and until she wishes for further improvement, we are satisfied as well.

**SUMMARY**

Traumatic facial injury with loss of defining facial features leaves the patient severely disfigured and insecure because of their appearance. When there are multiples areas of deformity, a stepwise approach, beginning with the worst deformity, should be implemented, which helps motivate the patient to keep moving forward with reconstruction. Our organization and timing also allowed her to have some normalcy during her childhood. The extent of surgeries should be dictated by what the patient desires and is able to tolerate.

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**PATIENT CONSENT**

*Parents or guardians provided written consent for the use of the patients’ image.*

**REFERENCES**

1. Winslow CP, Cook TA, Burke A, et al. Total nasal reconstruction, utility of the free radial forearm fascial flap. *Arch Facial Plast Surg*. 2003;5:159–163.

2. Henry EL, Hart RD, Mark Taylor S, et al. Total nasal reconstruction: use of a radial forearm free flap, titanium mesh, and a paramedian forehead flap. *J Otolaryngol Head Neck Surg*. 2010;39:697–702.

3. Sinha M, Scott JR, Watson SB. Prelaminated free radial forearm flap for a total nasal reconstruction. *J Plast Reconstr Aesthet Surg*. 2008;61:953–957.

4. Collar RM, Byrne PJ. Images in clinical medicine. Prelaminated free flap for auricular reconstruction. *NEngl J Med*. 2013;369:1151.