



CASE REPORT

External Ear Reconstruction By Antia-Buch Chondro-Cutaneous Advancement Flap in a Case of Human Bite – A Case Report

Rasheeqa Gulreez^{1,*}, Mokhtar Mahmoud Abdelhamid², Nayef Abdulrahman Louri³

¹Senior Resident, Plastic and Reconstructive Surgery, Bahrain Defence Force Hospital, Riffa Bahrain

²Consultant, Plastic and Reconstructive Surgery, Bahrain Defence Force Hospital, Riffa Bahrain

³Senior Consultant, Head of Department, Plastic and Reconstructive Surgery, Bahrain Defence Force Hospital, Riffa Bahrain

*Corresponding author:

Dr. Rasheeqa Gulreez, Senior Resident, Plastic and Reconstructive Surgery, Bahrain Defence Force Hospital, Riffa Bahrain; E-mail: sirfspice@gmail.com

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Abstract

Reconstruction of the external ear is a challenging problem encountered by plastic surgeons. Causes of external ear deformities can be of various etiologies (human bites, animal bites, fights, burns, infections, accidents, or even sports injuries). Full-thickness defects, which cannot be treated by approximating the wound edges, show good results with Antia-Buch's chondro-cutaneous flaps.

A 34-year-old male presented with a history of human bite to his right external ear. The patient had brought the amputated part with him. There was complete amputation of the superior part of the helix with exposed cartilage with a 2cm defect on examination. The amputated part was an unhealthy crushed-avulsed tissue. The patient underwent debridement and washout. Reconstruction of the external ear was done by Antia-Buch helical advancement flap designed over the posterior skin. Post-operatively, the external ear reconstruction yielded good cosmetic results.

Animal or human bite defects used to be left open for fear of severe infections, and closure was planned later, but this can be complicated by fibrosis and can result in a change in the shape of the external ear.

Primary repair using an Antia-Buch flap and appropriate antibiotic treatment shortens the hospital stay and dressing changes and improves the cosmetic outcome.

Keywords: Amputation, Cartilage, External ear, Fibrosis, Human Bite, Reconstructive Surgical Procedures

Introduction

Reconstruction of the external ear is a challenging problem for most plastic surgeons. Many causes have been noted to cause external ear defects.¹ Some are animal bites, human bites, fights, burns, infections,

accidents, and even sports injuries. The resultant defects are classified into small, medium, or large to aid in planning the reconstructive procedures.² Antia-Buch flaps are usually the commonly used flaps for helical rim defects.

Antia-Buch flap is based on a chondro-cutaneous advancement flap.³ An anterior incision is taken for advancement, and the posterior skin is just raised and remains attached and maintains the blood supply.

This technique can provide primary closure of the wound instead of multi-stage operations with overall good cosmetic results.

Case Presentation

A 34-year-old male, not a known case of any illness, presented to the emergency department with an alleged history of assault after a fight with his colleague. There was an injury to his right external ear due to a human bite. The patient had brought the amputated part with him.

On examination, there was complete amputation of the superior part of the helix with exposed cartilage. The defect was about 2cms in diameter. The amputated part was a thin, friable, pale, unhealthy, crushed-avulsed tissue with some attached cartilage (Fig. 1A: The defect on presentation & Fig. 1B: Posterior view of defect on presentation). The patient was immediately taken for emergency surgery.

Thorough debridement and washout of the wound was carried out. Reconstruction of the external ear was done by Antia-Buch helical advancement flap. The flap was designed on the posterior skin while both anterior and posterior skin were incised and advanced to fill in the defect with minimal shortening (Fig. 2A: Intraoperative image of flap & Fig. 2B: Intraoperative image of reconstruction). The wound was closed with ethilone 4-0, and dressing was applied.

He received antibiotics, analgesia, and daily dressings. At the time of discharge from the hospital, the external ear was healthy, sutures were intact, and no haematoma or chondritis was present. Suture removal was done three weeks post-operatively. His wounds healed well, the scar was healthy (Figure 3A: Postoperative image), and he was on regular follow-up at the time of reporting (Figure 3B: Follow up image). Written informed consent was obtained from the patient for the purpose of publication and the use of photographs.



Figure 1A: The defect on presentation



Figure 1B: Posterior view of defect



Figure 2A: Intraoperative image of flap



Figure 2B: Intraoperative image of reconstruction



Figure 3A: Postoperative image



Figure 3B: Follow up image

Discussion

There can be many causes for auricular defects. Human bites, animal bites, fights, burns, infections, accidents, and sports injuries are a few.^{4,5} The defects can be classified as partial or full-thickness. Also, depending on the location, the defects can involve helix, superior, middle, and/or inferior third of the auricle, or lobular defects. A defect of less than 1.5cms is called a small defect; 1.5 to 2cms is medium, and more than 2cms is a large defect.⁶

Anatomy

Parts of the external ear include the conchae, antihelix, antitragus, and helical lobule. The blood supply is from the external carotid artery branches (posterior auricular and superficial temporal). The sensory nerve supply is by the auriculotemporal, greater auricular, lesser occipital, vagus, and glosso-pharyngeal nerves.⁷

Location

The external ear is located at one external ear height distance from the lateral margin of the orbital rim. It is along the alai nasi and lateral brow.⁷

The Antia Buch flap is ideal for small to medium-size defects, such as in this case. It is designed by

making an incision along the helical sulcus extending through the anterior skin and cartilage. The posterior skin is elevated over the perichondrium. The flap is advanced into the defect. For additional length, a V-Y advancement of the helical root is done.³ The resultant reduction in height and circumference of the external ear is very minimal and gives overall good cosmetic results.

Other modalities stated in the literature include auricular grafts, postauricular skin flaps, temporal fascial flaps, and tissue expanders with cartilage grafts.⁸⁻¹⁰ These are, however, complicated procedures requiring multistage reconstructions.

Conclusions

Antia Buch chondro-cutaneous flap reconstruction is a good option for various types of external ear defects. Unlike the old school of surgery, this procedure is primary, single-stage, with minimal disruption of the external ear anatomy. Antia Buch flap also provides good acceptance by patients in terms of reducing the hospital stay, dressings and also provides good cosmetic results.

Conflict of Interest

The authors have no financial or proprietary interests in any material or method mentioned.

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