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# The postauricular fasciocutaneous flap with an adipofascial extension: A case report



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## ABSTRACT

**INTRODUCTION:** A complex defect on the anterior surface of the ear requires flap cover; such as the postauricular skin flap. The postauricular skin flap has never been used with an adipofascial extension.

**PRESENTATION OF CASE:** A 5-year old boy was involved in a car accident resulting in an exposed cartilage of the upper part of the right ear. The defect was covered with a post-auricular fasciocutaneous flap with an adipofascial extension. The adipofascial part of the flap was covered with a skin graft.

**DISCUSSION:** The adipofascial extension serves two purposes: Firstly, it allows easier primary closure of the donor site. Secondly, it is less bulky and hence it does not observe the definition of the ear cartilage.

**CONCLUSION:** Our case is the first case reported in literature using the post-auricular fasciocutaneous flap with an adipofascial extension.

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## 1. Introduction

The postauricular flap (also known as the retroauricular flap) is a well-known technique for reconstruction of the anterior surface of the ear and other parts of the face [1]. The flap may be based superiorly or inferiorly, transposed as a pedicle or island flap [2], or harvested as a free flap [3]. The flap has been raised as a fasciocutaneous [4], a myocutaneous (including the posterior auricular muscle) [5], or a chondrocutaneous (including the conchal cartilage) [6] flap. To our knowledge, the postauricular skin flap has never been used with an adipofascial extension.

We report a case in which the postauricular skin flap was with an adipofascial extension. The work has been reported in line with the SCARE criteria [7].

## 2. Presentation of case

A 5-year old boy was involved in a car accident resulting in an exposed cartilage of the upper part of right ear. Coverage was planned using a postauricular flap. The defect was wide and it was thought that designing the flap as partly fasciocutaneous and partly as adipofascial flap would allow easier primary closure of the donor site. A fasciocutaneous flap was designed from the mastoid area with an adipofascial extension from the posterior surface of the

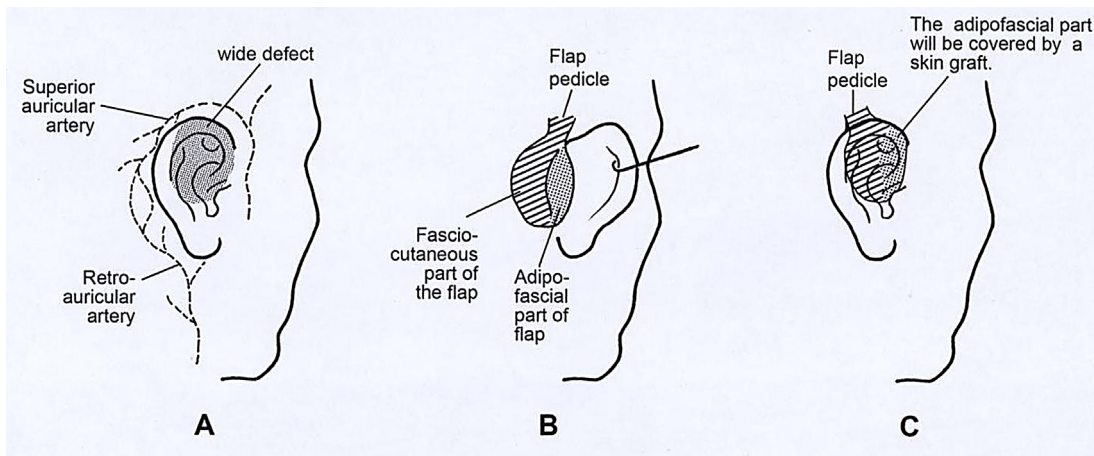
ear. The total width of the fasciocutaneous and adipofascial components were designed slightly wider than the defect. The flap was raised as a superiorly based flap. Skin incisions were made inferiorly; including the mastoid fascia; to ensure the inclusion of the retroauricular neurovascular bundle. The skin incision towards the retroauricular sulcus was made only to the subdermal layer and the skin was elevated from the underlying adipofascial tissue for the appropriate extra width required to cover the defect. This adipofascial tissue was included as an extension to (i.e. in-continuity with) the fasciocutaneous flap. The flap was then brought to the anterior surface the ear for coverage of the defect. The adipofascial part covered the excised inferior crus/antihelix cartilages. Following suturing of the flap to the edges of the defect, the adipofascial part was covered with a split skin graft harvested from the scalp. The postauricular donor site was closed primarily. The flap pedicle was divided at 3 weeks. There were no postoperative complications and the parents were satisfied with the result. The surgical technique is demonstrated in Fig. 1 and the clinical pictures in Fig. 2.

## 3. Discussion

The main modification done in our case was to include an adipofascial extension from the posterior surface of the ear, which was in-continuity with the standard postauricular skin flap. This helped to increase the width of the flap without having to extend the skin excision into the hairline or the posterior surface of the ear. Hence, it allowed coverage of a relatively wide defect and facilitated primary closure of the donor site. Another advantage of the

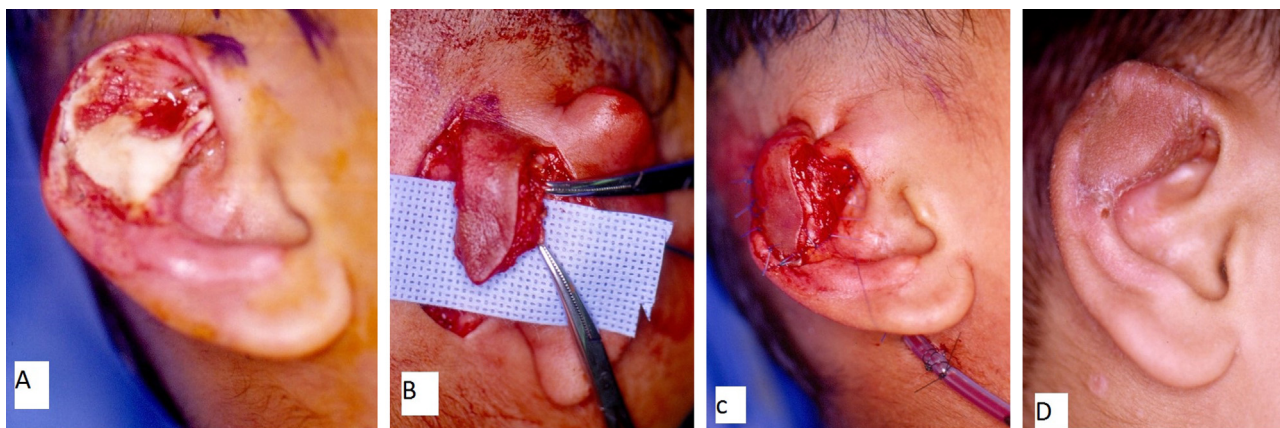
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**Fig. 1.** The surgical technique.

- a) The relatively wide anterior ear defect and the plexus of vessels in the postauricular area.
- b) The 2 components of the flap (the fasciocutaneous and adipofascial parts) are in-continuity.
- c) The flap is transposed to cover the defect. The adipofascial component will be covered with a skin graft. The pedicle will be divided at 3 weeks.



**Fig. 2.** A demonstrative clinical case.

- a) The wide anterior ear defect following a car accident in a child.
- b) The flap is raised as a superiorly-based flap. The mosquitoes hold the adipofascial component.
- c) The transposed flap. The fasciocutaneous component was used to cover the area towards the helix, while the adipofascial component was used to cover the inferior crus/antihelix cartilages.
- d) The healed flap. Note the excellent take of skin graft over the adipofascial component indicating the adequate blood supply.

adipofascial extension was related to the fact that it is less bulky than the fasciocutaneous component. Hence, it didn't obscure the definition of inferior crus/antihelix cartilages. One disadvantage of our technique is the fact that the newly reconstructed ear will have three different types of skin, 1) the native surrounding skin, 2) the pedicled skin flap and 3) the skin grafted patch over the adipofascial tissue. However, taking a larger skin paddle to reconstruct the entire defect would mean the need for skin grafting directly over the cartilage at the posterior surface of the ear; with the risk of graft failure.

The retroauricular skin and fascia are supplied by a rich plexus of blood vessels with communicating branches of the retroauricular artery (a branch of the posterior auricular artery) and the superior auricular artery (a branch of the superficial temporal artery). The plexus supplies not only the mastoid area but also the posterior aspect of the ear [8]; and hence the blood supply of our flap is reliable and this is confirmed by the excellent take of the skin graft over the adipofascial component. We have used the modified flap as a superiorly based pedicle flap, but the same technique can be applied for inferiorly based pedicle, and free postauricular flaps.

**4. Conclusion**

Our case is the first case reported in the literature using the postauricular fasciocutaneous flap with an adipofascial extension. This has the main advantage of allowing easier primary closure of the donor site.

**Conflict of interest**

None.

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**Ethical approval**

The study was approved by the Research Committee of National Hospital (Care), Riyadh, Saudi Arabia.

## Consent

Written informed consent was obtained from the parent of the child for publication of this case report and accompanying images. A copy of the written consent is available for review by Editor-in-chief of this Journal on request.

## Authors contributions

All authors contributed significantly and in agreement with the content of the manuscript. All authors participated in data collection and in writing of the manuscript. M. M. Al-Qattan did the surgery.

## Guarantor

M M Al-Qattan.

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