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Case report

Treatment of a mastoid defect by free anterolateral thigh flap



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ABSTRACT

Introduction: Free anterolateral thigh (ALT) flap constitutes an alternative to latissimus dorsi and radial forearm flaps for head and neck reconstruction. The authors report a case of mastoid reconstruction in a patient with multi-operated cholesteatoma associated with tubal dysfunction.

Case report: This patient presented a fistula of the lateral semicircular canal and invagination of retroauricular soft tissues responsible for non-compensated almost complete areflexia with anacusis. She did not present any signs of cholesteatoma recurrence, but chronic inflammation of the mastoidectomy cavity. The head and neck procedure consisted of translabyrinthine labyrinthectomy: resection of the atrophic retroauricular skin, resection of the vestibular neurosensory tissue and obliteration of the mastoidectomy cavity. An ALT flap measuring 5 × 5 cm, anastomosed to the superior thyroid artery and facial vein, was used to cover the defect. Careful defatting of the flap allowed filling of the defect, while providing a sufficient quantity of appropriate tissue. The postoperative course was uneventful and the patient was considerably improved. The only donor site sequelae consisted of a thin linear scar.

Conclusion: The free anterolateral thigh flap, a reliable, polyvalent flap that can be shaped as needed and which is associated with minimal donor site morbidity, constitutes a good alternative for head and neck reconstruction.

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1. Introduction

The free anterolateral thigh (ALT) flap is increasingly used for reconstruction of the extremities [1,2]. It has sometimes been described for head and neck reconstruction as an alternative to radial forearm flap and latissimus dorsi flap [3–5]. It is a reliable, polyvalent flap associated with minimal donor site morbidity [5].

We report a case of mastoid reconstruction by free anterolateral thigh flap in a patient with multi-operated cholesteatoma and a history of tubal dysfunction.

2. Case report

A 58-year-old woman was managed for disabling vertigo related to sequelae of ear surgery. She reported a history of twelve surgical procedures for recurrent cholesteatoma in a mastoidectomy cavity. The patient presented a fistula of the lateral semicircular canal and invagination of the retroauricular soft tissues. She

was operated twice in an attempt to close the fistula by using a temporalis muscle flap, followed by placement of a titanium plate. The patient continued to experience disabling vertigo and clinical examination revealed a persistent fistulous orifice over the zone of skin retraction in the mastoid region (Fig. 1).

The patient complained of rotational vertigo, severe earache, tinnitus and right hypoacusis. Audiometry revealed right complete hearing loss. Vestibulonystagmography demonstrated almost complete, non-compensated vestibular areflexia. The fistula sign was positive with the onset of vertigo and an irritative type of right nystagmus. CT scan and MRI showed chronic inflammation of the mastoidectomy cavity with no signs of cholesteatomatous recurrence (Fig. 1).

It was decided to perform a double-team procedure, comprising a head and neck phase with translabyrinthine labyrinthectomy and a reconstruction phase by anterolateral thigh flap.

Operation: the head and neck phase consisted of resection of the atrophic retroauricular skin, identification of the third segment of the facial nerve and translabyrinthine dissection as far as the vestibule. All of this procedure was performed with facial nerve monitoring and the use of a surgical navigator. The vestibular, macular and utricular neurosensory tissue and that of the ampullae of

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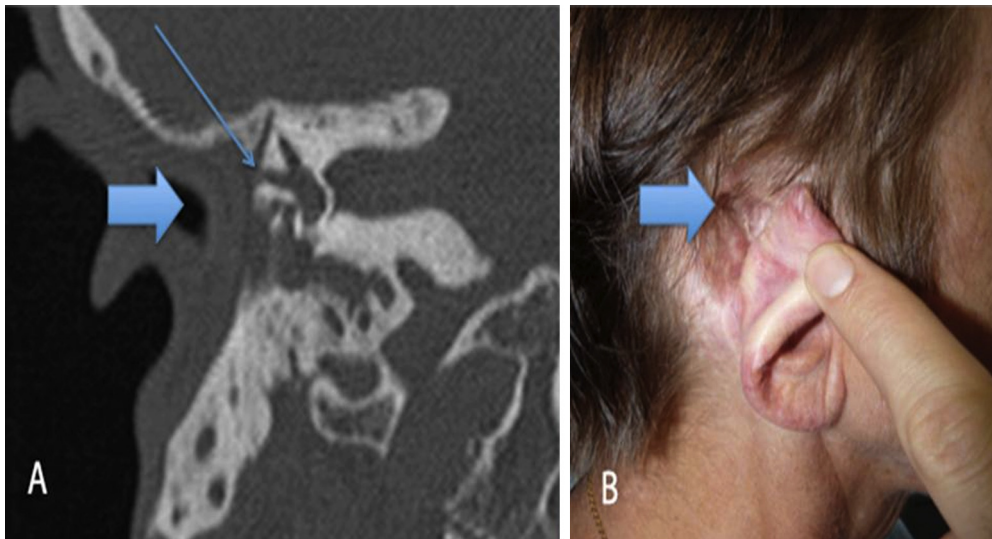


Fig. 1. Preoperative radiological (A) and clinical (B) examination. A. Fistula of the lateral semicircular canal (thin arrow) with retraction of the retroauricular skin in the mastoidectomy cavity (thick arrow). B. This retraction is also visible on the clinical photograph, associated with chronic discharge from the fistula (thick arrow).

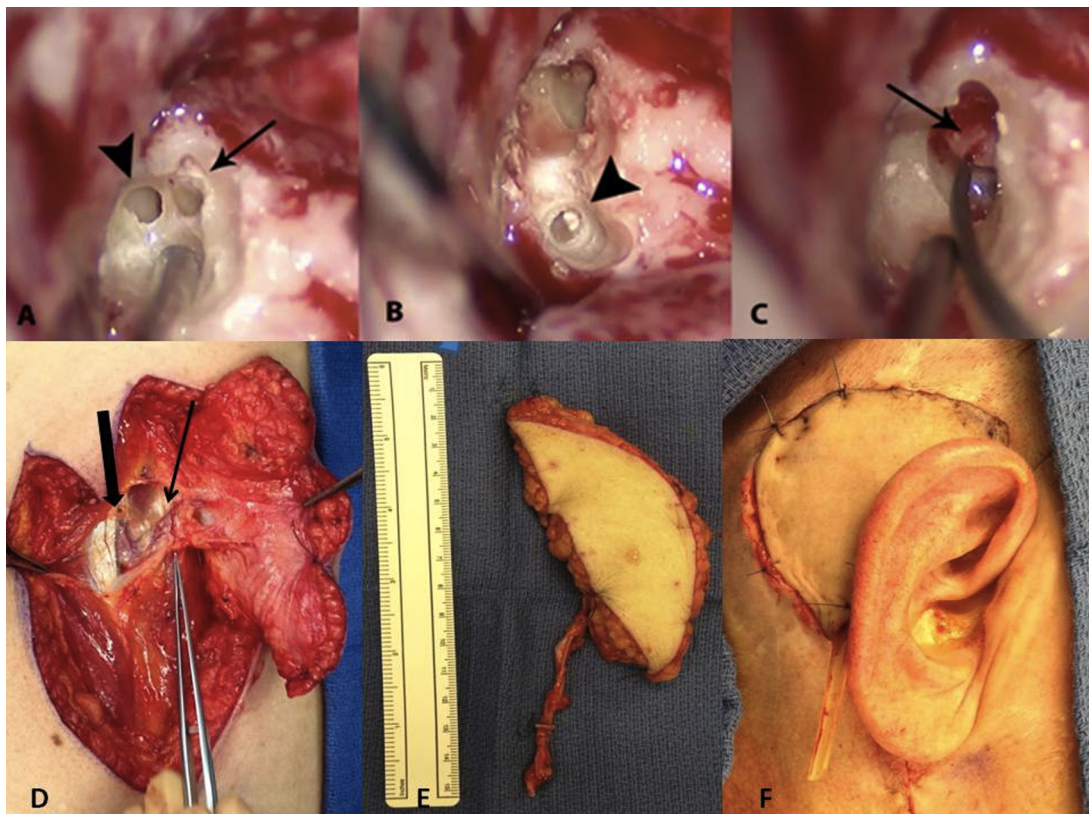


Fig. 2. Intraoperative view. A, B, C. Translabyrinthine labyrinthectomy. A. Opening of the ampullae of the superior (arrow) and lateral (arrowhead) semicircular canals. B. Opening of the common crus to access the ampulla of the posterior semicircular canal (arrowhead). C. Resection of ampullary, utricular and macular neurosensory tissues (arrow). D. Dissection of the pedicle. Thick arrow: descending branch of the lateral circumflex femoral artery; thin arrow: perforating vessel derived from this branch. E. Harvested flap (9 cm pedicle). F. Transfer of the flap to the recipient site.

the 3 semicircular canals were resected. Vestibular cavities were filled with bone powder and fibrin sealant (Fig. 2A, B, C).

The reconstruction phase was performed in parallel by raising a free anterolateral thigh flap from the contralateral thigh. The skin paddle, measuring 5 × 5 cm, was pedicled on the septo-cutaneous perforator, previously identified on CT angiography (Fig. 2D). The pedicle derived from the descending branch of the lateral circumflex femoral artery was 9 cm long (Fig. 2E). The flap was transferred

after meticulous defatting in order to repair the 2 cm deep mastoid defect (Fig. 2F). End-to-end vascular anastomoses were performed on the superior thyroid artery and facial vein and the donor site was closed directly.

The postoperative course was uneventful with no signs of flap ischaemia. The patient was considerably improved immediately postoperatively with resolution of earache and vertigo over several days.

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