



## Use of dermis-fat grafts in the prevention of Frey's syndrome after parotidectomy



Sven Holger Baum<sup>\*</sup>, Roman Pfortner, Friederike Ladwein, Claus Schmeling, Gunnar Rieger, Christopher Mohr

Department of Oral and Maxillofacial Surgery, University Essen, Kliniken-Essen-Mitte, Henricistr. 92, 45136 Essen, Germany

### ARTICLE INFO

#### Article history:

Paper received 25 July 2015

Accepted 15 December 2015

Available online 23 December 2015

#### Keywords:

Dermis-fat graft  
Frey's syndrome  
Gustatory sweating  
Parotidectomy  
Reconstruction  
Facial contour

### ABSTRACT

**Objective:** To examine the role of dermis-fat grafts in preventing gustatory sweating and in the reconstruction of facial contour defects after parotidectomy.

**Patients:** Twenty-three patients with tumours of the parotid gland were enrolled in this prospective clinical study from January 2006 to February 2014. All of them were evaluated for wound complications, Frey's syndrome, satisfaction, and tumour relapse. Follow-up periods ranged from 6 to 72 months.

**Results:** Nineteen patients completed the study. Nine complications observed in six patients were assessed (two haematomas [10%], one seroma [5%], one sialocele [5%], and recurrent pain in five patients [26%]). None revealed Frey's syndrome. Satisfactory results were found in relation to scar, facial contour, and overall outcomes.

**Conclusion:** Dermis-fat grafts appear to be an effective method of preventing Frey's syndrome after parotidectomy. The stable long-term results and high patient satisfaction lead to the application of this operation technique in daily routine.

© 2015 European Association for Cranio-Maxillo-Facial Surgery. Published by Elsevier Ltd. All rights reserved.

### 1. Introduction

Soft tissue defects in oral and maxillofacial surgery arise from different causes, including post-surgical, traumatic, congenital, or degenerative diseases (Davis et al., 1995). Consequently, this results in aesthetic problems with a decrease in self-esteem as well as a reduction in the patient's quality of life. From a medical point of view, limited functionality of the affected tissue is a problem, too. Therefore, serious concepts need to be developed for the patient's rehabilitation.

Different materials and grafts are used to reconstruct these soft tissue defects. On the one hand, alloplastic materials may be used. In this case, especially silicone, polyethylene, polyacrylamide, or titanium elements are applied. On the other hand, allografts such as AlloDerm<sup>®</sup> (Govindaraj et al., 2001) can be used. This acellular dermis is processed from human cadaver skin after removing the epidermis and the cellular components of the dermis through a freeze-drying process. It is utilized particularly in reconstructive procedures such as abdominal surgery, breast surgery, and

periodontal surgery. In addition, various distant and local autologous grafts are used. The choice of a suitable transplant or implant can be difficult, because none meets the requirements of an ideal filling material. This should be, insofar as possible, biocompatible, inexpensive, always available, non-infectious, non-allergenic, non-toxic, cosmetically, variable in size, and not undergoing any resorption.

The lateral or total parotidectomy, performed normally due to a tumour of the parotid gland, also includes some special features and long-term consequences. Firstly, Frey's syndrome can occur after the resection of the parotid gland, also known as gustatory sweating. Polish neurologist Lucja Frey-Gottesman first described Frey's syndrome in 1923. In this connection, it results from the aberrant innervation of parasympathetic fibres with the sympathetic fibres of the sweat glands and leads to redness and sweating in the pre-auricular region after a gustatory stimulus. As therapy, botulinum toxin type A (Eckardt and Kuettner, 2003), glycopyrrolate preparations (May and McGuirt, 1989) and aluminium chloride hexahydrate antiperspirant (Black and Gunn, 1990) have been used in the treatment of Frey's syndrome with reported success, as well as surgical procedures such as inserting lyophilized dura or polytetrafluoroethylene implants (Dulguerov et al., 1999).

<sup>\*</sup> Corresponding author.

E-mail address: [s.baum@kliniken-essen-mitte.de](mailto:s.baum@kliniken-essen-mitte.de) (S.H. Baum).

Secondly, a visible facial contour defect after a parotidectomy is usually unavoidable. Various grafts have been used to reconstruct the symmetry of these defects, such as a superficial temporal fascial flap (Zhang et al., 2006), sternocleidomastoid muscle flap (Kornblut et al., 1974), superficial muscular aponeurotic system (SMAS) flap (Harada et al., 1993), microvascular flaps, AlloDerm® grafts (Govindaraj et al., 2001), porcine dermal collagen grafts (Papadogeorgakis et al., 2009), silicone implants, and free fat grafts. More and more autologous dermis-fat grafts are being used in the reconstruction of facial contour defects, thus fulfilling most of the requirements of an ideal graft. The first description in the literature goes back to Figi, who in 1931 was able to reconstruct an impressed frontal sinus fracture. Decades later, Smith and Petrelli established in 1978 a procedure for the augmentation of orbital defects with dermis-fat grafts (Smith and Petrelli, 1978). Subsequently, the indications of these grafts were expanded in the facial area, so that they are used today, for instance, as an orbital transplant (Heher et al., 1998), for lip corrections (Niechajev, 2000), whistle deformities in patients with cleft lip (Patel and Hall, 2004), for the treatment of facial tissue atrophy in Parry–Romberg disease (Guerrerosantos et al., 2007), and for temporomandibular joint arthroplasties (Dimitroulis, 2011). Furthermore, Chandarana showed in 2008 that dermis-fat grafts can also prevent the development of Frey's syndrome in addition to being used for facial contour balance (Chandarana et al., 2009).

The aim of this study was to evaluate whether dermis-fat grafts can lead to aesthetical corrections in these soft tissue defects after parotidectomy, whether they can prevent Frey's syndrome, what complications appear in what frequency after this operation, and whether the transplantation of these grafts negatively influences a tumour aftercare.

## 2. Material and methods

### 2.1. Patients

From January 2006 to February 2014, a total of 23 patients (aged 23–74 years) with benign and malignant parotid tumours underwent parotid surgery at the Department of Oral and Maxillofacial Surgery, Essen (Evangelische Huysens-Stiftung, Kliniken Essen-

Mitte) in a prospective study. Three patients were excluded from the study because of a follow-up period of less than 6 months and one due to non-compliance during aftercare. The remaining cohort comprised 11 female and eight male patients.

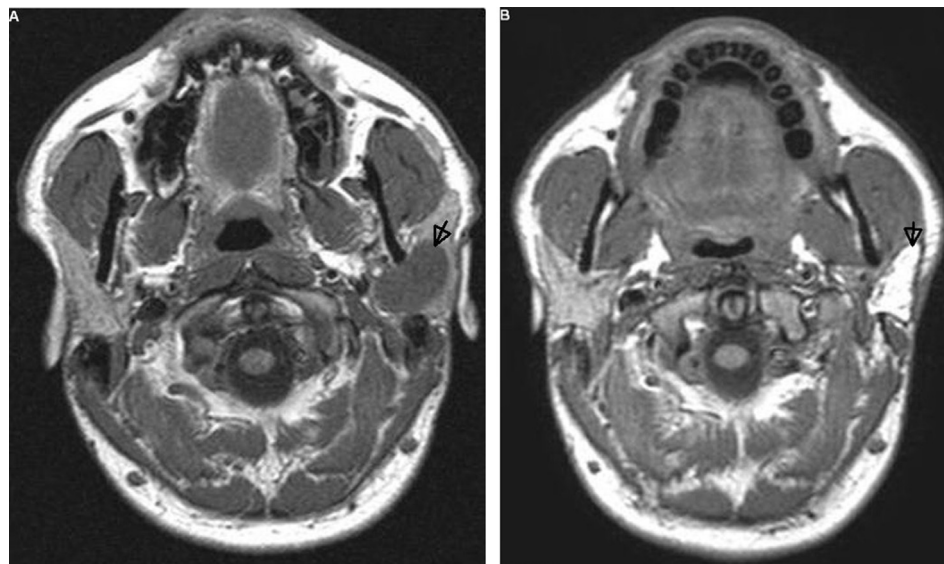
### 2.2. Staging and operation

In addition to the clinical examination, standardized ultrasonography was performed preoperatively in all patients (Siemens Acuson Antares) along with magnetic resonance imaging (Fig. 1A). The dimension of surgery depended on the origin and extent of the tumour. Overall, 17 patients underwent a standardized superficial parotidectomy with intraoperative facial nerve neurolysis, whereas two patients underwent a radical parotidectomy. A lymph node dissection was performed in three patients.

In all patients, reconstruction was done with a dermis-fat graft. It was primarily transplanted in 17 cases and secondarily in two cases. Dermis-fat grafts were harvested from a low abdominal incision around a pre-existing abdominal scar, or, in the absence of pre-existing scars, gluteal, sacral, or iliac. Initially, an elliptical incision of the epidermis with a maximum length-to-width ratio of 3:1 was done, followed by de-epithelisation with a scalpel (Fig. 2). Then the graft was harvested with a desired overcorrection of about 25–30% due to the expected resorption, and the donor site was closed in two layers. The dermis-fat graft was then tailored to the defect and sutured precisely to the capsule of the parotid gland (Fig. 3) with 4-0 Vicryl (Ethicon Deutschland, Norderstedt). Finally, the wound was closed in layers with the insertion of a drainage.

### 2.3. Clinical course

The postoperative management included physical rest and local cooling as well as a perioperative prophylactic antibiotic therapy over 5 days. Complications and their management were recorded during hospitalisation and follow-up care. The complications were divided into haematoma, seroma, infection, sialocele/fistula, liquefaction of the transplant, cyst formation, chronic or recurrent pain, graft loss, manifestation of Frey's syndrome, and persistent over- or undercorrection of the parotid region. The presence of Frey's syndrome was assessed from the subjective point of view of



**Fig. 1.** (A) Pleomorphic adenoma as seen on magnetic resonance imaging (MRI) (arrow). (B) Transplanted dermis-fat graft after lateral parotidectomy in the same patient, as seen on MRI (arrow).

Download English Version:

<https://daneshyari.com/en/article/3142085>

Download Persian Version:

<https://daneshyari.com/article/3142085>

[Daneshyari.com](https://daneshyari.com)