



Modified facelift approach combined with a superficial musculoaponeurotic system flap in the treatment of benign parotid tumors



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ARTICLE INFO

Article history:

Paper received 21 April 2015

Accepted 30 June 2015

Available online 10 July 2015

Keywords:

Parotidectomy

Parotid gland

Rhytidectomy

Musculoaponeurotic system flap

Frey's syndrome

Treatment outcome

ABSTRACT

Purpose: The purpose of this study was to investigate the adequacy of a modified facelift incision combined with an SMAS flap for the resection of benign parotid lesions in terms of cosmesis and incidence of Frey's syndrome.

Materials and methods: A hundred patients who underwent superficial parotidectomy were divided into 2 groups according to approach: Blair incision (57 cases) and modified facelift incision (43 cases). In the latter group, 36 patients were reconstructed with a superficial musculoaponeurotic system (SMAS) flap. During follow-up, patients were asked to rate their satisfaction with their postoperative appearance using a 1 to 3 scale.

Results: Clinical Frey's syndrome was present in 8.5% of patients with SMAS flap, and in 19% patients without SMAS flap ($p = 0.16$). The average cosmetic outcome score for patients who underwent a modified facelift approach combined with an SMAS flap was 2.87, whereas patients whose tumors were approached through a Blair incision reported a lower score of 2.1 ($p < 0.005$).

Conclusion: A modified facelift incision combined with an SMAS flap improved the cosmetic appearance of patients who underwent extrafacial or superficial parotidectomy. In addition, this flap seems to reduce the occurrence of Frey's syndrome.

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1. Introduction

The first case of parotid tumor resection was reported by Bernard (1823). Since then, the incisions used to approach the parotid gland have changed and evolved. With the guidelines for accessing the parotid introduced by Blair (1918); Adson and Ott (1923), and Gutierrez (1924), the standard incision for parotidectomy was the cervicomastoidfacial (known as Blair's, bayonet-shaped or lazy-S) incision (Terris et al., 1994), which extended from the pre-auricular region to the lateral neck, passing through the retro-auricular region, without reconstruction of the parotid bed. This access provides a good surgical exposure and is relatively

easy to perform, but it poses two main drawbacks: although the facial component of this incision heals with an almost imperceptible scar, a noticeable scar is often left in the neck, even with meticulous closure; and a deep hollow dorsal to the ascending ramus of the mandible which leads to a contour deformity around the angle of the mandible following the resection of the parotid gland, mainly in the case of larger tumors. Subsequently, to overcome these disadvantages and obtain an aesthetically pleasing scar, different surgeons have used the facelift (rhytidectomy) incision, first described for a parotidectomy by Appiani (1967), using a retro-auricular incision and positioning the cervical cut posteriorly, near the hair line to avoid the most visible part of the scar. In 1994, Terris et al. (1994) proposed a modified facelift incision to approach the parotid gland and since then, it has gained increasing popularity for its cosmetic benefits.

The superficial lobe comprises about 70%–80% of the parotid gland, and superficial parotidectomy is widely considered to be the

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reference standard for benign tumors located in the superficial lobe of the parotid gland due to the possibility of extracapsular extension of these tumors. The esthetic results must be considered a major goal of parotid surgery, particularly for young patients with benign tumors. The design of the incision is paramount to achieve this goal, and consequently, the historical evolution of surgical approaches to the parotid region has been characterized by a posterior displacement of the neck incision up to the hair line. However, many surgeons (Nouraei et al., 2006; Upile et al., 2010) remain concerned with an incision that limits exposure for parotidectomy, and they believe that the modified facelift incision should be indicated only for small, mobile tumors of the parotid gland located in the tail or in the superficial portion of the gland. These surgeons are unwilling to use the modified facelift incision for anterior or superior tumors of the parotid gland because these tumors are closer to the facial nerve branches, increasing the risk of nerve damage, especially in a bloody operative field. Regarding the second aforementioned drawback, and in a quest to obtain superior cosmetic results, various methods have been advocated to replace the soft tissue volume following parotidectomy: temporoparietal fascia flap (Jost et al., 1999), dermal-fat grafts (Harada et al., 1993), and superficial musculoaponeurotic system (SMAS) flap (Bonanno and Casson, 1992), among others.

Frey's syndrome is a disorder characterized by gustatory sweating accompanied by vasodilatation in the skin innervated by cutaneous branches of the great auricular and auriculotemporal nerves. The prevalence of this syndrome, as sequela to parotidectomy, varies from 2% to 100% (Liu et al., 2012), and a theory of aberrant regeneration has been proposed as a possible etiology (Gardner and McCubbin, 1956). The SMAS flap involves dissecting the SMAS in the parotid region and using this flap to cover the postoperative defect after parotidectomy. By doing this, the contour deformity is limited or even prevented; moreover, the SMAS flap seems to prevent Frey's syndrome (Meningaud et al., 2006).

In this study we evaluated the adequacy of a modified facelift incision combined with an SMAS flap for the resection of benign lesions of the parotid gland, irrespectively of their size or location within the superficial lobe gland, to achieve a better cosmetic result compared with the conventional cervicomastoidfacial approach, as well as their influence on the incidence of Frey's syndrome.

2. Material and methods

We undertook a retrospective case–control study including all patients ($n = 100$) undergoing a superficial parotidectomy between June 2004 and December 2014. Only those patients with benign tumors of the superficial lobe of parotid gland, and with a minimum follow-up of twelve months after the surgery were selected. Four surgeons performed the interventions on the patients without SMAS flap, whereas the surgeries involving the SMAS flap were executed by three surgeons, most of them by one of the authors (JCV). The decision of whether to make an SMAS flap or not was individually made by the surgeon treating each patient. In combination with the SMAS flap, a modified facelift incision was used in almost all cases. The mean age was 52.6 years (range, 15–86 years). Before surgery, all patients underwent fine-needle aspiration cytology and magnetic resonance imaging or computed tomography of the parotid region. Only histologically confirmed parotid benign conditions were considered for this study. During follow-up, the patients were asked about their satisfaction with their postoperative appearance. The following variables were assessed: gender, histopathological diagnosis, facial nerve palsy, incidence of local complications (hematoma, seroma, wound dehiscence, and skin necrosis) and Frey's syndrome as sequelae to parotidectomy. The patients were followed up every 3 months for the first year and

then annually until 3 years. Patients were asked to provide a cosmetic satisfaction score. Their satisfaction with any scar and retromandibular contour was scored at an outpatient follow-up visit, on a scale from 1 (not satisfied with the aesthetics of the parotid surgery due to an obvious scar and/or deep depression) to 3 (highly satisfied with the cosmetic result, due to lack of post-operative contour deformity or conspicuous scar). This study was approved by the Medical Ethics Committee of the Central University Hospital of Asturias.

2.1. Surgical technique

Surgery was performed with the patients in the supine position under general anesthesia, and with the head turned to the maximum extent contralaterally. The area was draped in such a way that the ear, corner of the eye, corner of the mouth and neck were exposed. In 57 cases a classic Blair incision was performed, whereas in the remaining 43 cases a modified facelift incision was used. Here, we only describe the modified facelift (MFL) approach (Fig. 1) because the Blair incision (BI) was performed with no variations. This incision, previously drawn with methyl violet, was made with a number 15 blade; it started from the upper limit of the helix close to the temporal scalp and continued caudally following a natural preauricular fold. At the level of the tragus, using fingertips or a forceps, a subtle eversion and stabilization of the tragus was obtained. Then, the incision was continued in the inner surface of the tragus taking care to avoid accidental cartilage laceration. Alternatively, in aged patients, the preauricular incision could be applied in front of the tragus to hide the scar. The incision was then extended contouring the ear lobe and gently stretched behind the auricle in the auriculomastoid groove to the occipital hair and finally descended adjacent to the hairline for a distance of about 2–3 cm. This last part of the incision could be a bit longer in the case of anteriorly or superiorly located tumors, but in the remaining cases, it was never longer than 3 cm. The mastoid skin flap was raised antero-inferiorly from the surface of sternocleidomastoid muscle (SCM). At this point we searched for the branches of the great auricular nerve (GAN) where they enter the ear lobe

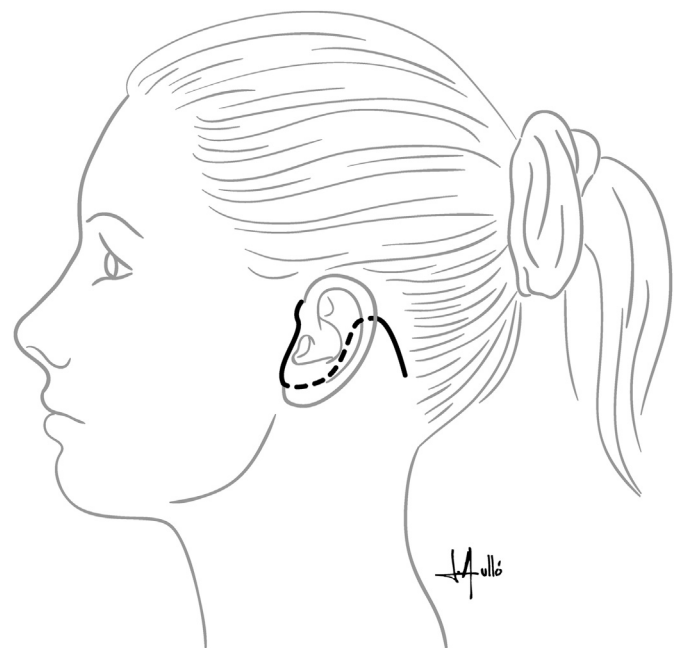


Fig. 1. Schematic diagram illustrating the course of the modified facelift incision.

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