

# Face-lift approach combined with a superficial musculoaponeurotic system advancement flap in parotidectomy

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## Abstract

A standard bayonet-shaped incision with no reconstruction of the parotid bed is usually used for removal of parotid tumours. Its disadvantages are often an obvious cervical scar, a conspicuous shallow contour around the angle of the mandible, and gustatory sweating. We have studied 17 patients with benign parotid tumours, who were treated by superficial parotidectomy with a combination of a face-lift approach and a superficial musculoaponeurotic system (SMAS) advancement flap. The patients were followed up every 6 months for 3 years.

All patients were satisfied with the cosmetic outcome, and the depression deformity was considerably less. This approach prevented gustatory sweating.

We think that this approach is simple and a useful tool in parotidectomy.

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## Introduction

Superficial parotidectomy is an effective treatment for benign parotid tumours, but often leaves a hollow over the parotid bed. A face-lift incision may improve the postoperative appearance by concealing the wound. However, this does not eliminate the depression deformity. Gutierrez first laid down the guidelines for gaining access to the parotid, since when tumours have generally been removed by the standard external bayonet-shaped incision without reconstruction of the parotid bed (Blair incision approach).<sup>1</sup> The disadvantages of this approach are an obvious cervical scar, particularly in women (Fig. 1), a conspicuous shallow contour at the angle

of the mandible, and gustatory sweating of the cheek (Frey's syndrome).<sup>1–8</sup>

We have attempted to overcome these problems in a series of 17 patients who had a clinically and cytologically benign discrete parotid lump, by doing a superficial parotidectomy using a combination of a face-lift approach and a superficial musculoaponeurotic system (SMAS) advancement flap to fill the parotid bed. The SMAS flap was used as a biological barrier. The patients were followed up every 6 months for the first 3 years.

The idea of achieving a better aesthetic result and of preventing gustatory sweating is not new. The combined use of a face-lift incision for parotidectomy and the use of a sternomastoid muscle flap for reconstruction were first described by Appiani.<sup>9</sup> The modified face-lift incision was subsequently reported by other authors,<sup>1,10–12</sup> and Bugis et al. reported the use of either the superiorly or the inferiorly based sternomastoid flap in 31 patients.<sup>13</sup> This flap was again

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Fig. 1. A common disadvantage of the standard external bayonet-shaped incision is an obvious cervical scar, which is particularly important in women.

described both in terms of reducing the incidence of Frey's syndrome and of improving the concavity.<sup>5,14–16</sup> Our aim was to allow good exposure, to make the resulting scars invisible, and to prevent gustatory sweating.

### Patients and methods

Seventeen patients aged 51–67 years, fulfilled the selection criteria of a clinically discrete parotid lump that was cytologically benign. Magnetic resonance imaging was used to establish the definitive diagnosis and identify the exact site of the tumour.

We operate with the patient supine and under general anaesthesia, the head at 45° in the sagittal plane. We begin the incision in the temporal region, keeping it well behind the hairline. The preauricular incision is placed in normal skin just in front of the ear, and in front of the tragus. It then curves around the lobe of the ear with preservation of the natural sulcus between it and the cheek. It is extended to the retroauricular region behind the ear so that it does not traverse the hairless mastoid skin. It is then extended into the postauricular hair almost parallel to the hairline. We start the subcutaneous dissection through the postauricular hair incision. The skin flap is raised with a thin layer of fat, almost as in a full-thickness graft, so a good blood supply to the skin is ensured. The posterior branch of the greater auricular nerve is preserved whenever clearance of the tumour is not compromised. We continue the dissection in the temporal region and then in the cheek. The dissection is extended across the zygoma, releasing the zygomatic ligament, and across the nasolabial fold. The dissection releases the mandibular ligament along the mandibular border. Aggressive undermining is required to separate the attachments between the SMAS and the skin. The dissection begins with a transverse incision

through the SMAS at the inferior border of the zygomatic arch, the midportion of the tragus being a useful landmark. A vertical incision is also made in the preauricular region along the posterior border of the platysma. The SMAS is raised from the parotid fascia under direct vision (Fig. 2). It is important not to buttonhole the flap or to penetrate the tumour's capsule if it is superficial.

Once the dissection is over, the parotidectomy proceeds conventionally.<sup>17</sup> We identify the facial nerve at the base of the skull, and then proceed to free it forward and outward. The tumour is removed in its entirety after the branches of the facial nerve have been separated. The resulting retro-mandibular depression is improved by using the SMAS flap. After its mobilisation the myoaponeurotic SMAS flap is advanced to create a thick layer to augment the retromandibular groove. A suction drain is inserted before closure of the wound.

Patients were followed up every 6 months for the first 3 years. Data were retrieved from their medical records and the results analysed.

### Results

There were 5 men and 12 women, mean age 59 years (range 51–67). In all patients the final histopathological diagnosis was pleomorphic adenoma (mixed tumour). All patients were discharged on the second postoperative day after the drain had been removed on the first postoperative day. We had no particular technical difficulties. The extra operating time required for transposition of the SMAS flap was only 9–11 min. There was no postoperative haematoma and no evidence of injury to the accessory or auricular nerve. The hollow was not apparent and the symmetry of the cheeks had been restored. No patients complained of gustatory sweating, and they were

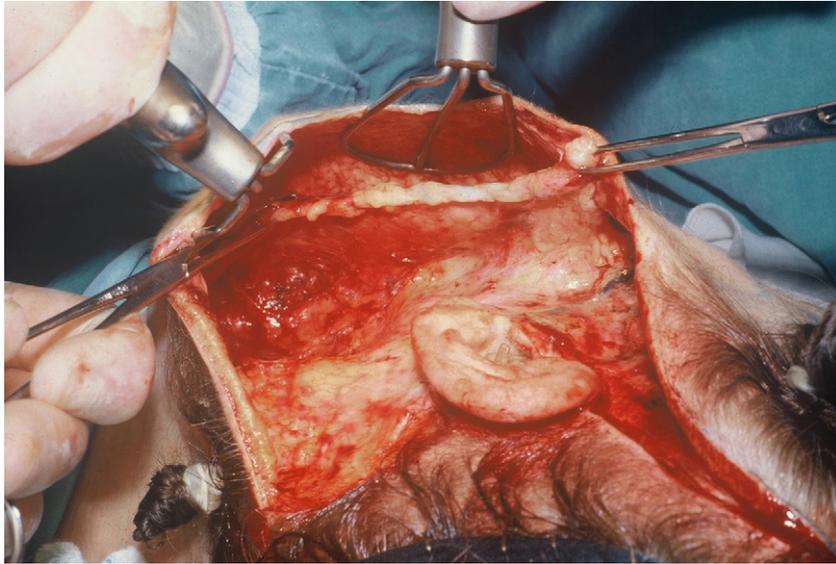


Fig. 2. The SMAS is raised off the parotid fascia under direct vision.



Fig. 3. Preoperative view (left) and postoperative view (right).

all satisfied with the aesthetic outcome (Fig. 3) and would choose the same procedure again.

### Discussion

Superficial parotidectomy is a well-established treatment for benign tumours. Gutierrez first described an incision for parotidectomy in 1903, and since then many attempts have been made to modify the incision and to deal with hypertrophic scars (particularly in women),<sup>1,6,9,10,18</sup> a permanent noticeable hollow over the cheek,<sup>3,5–8</sup> and gustatory sweating.<sup>2,4,6</sup>

Cosmetic considerations after resection of benign parotid tumours are important. Hussain and Murray reported a better aesthetic outcome when they preserved the superficial lobe of deep parotid tumours.<sup>19</sup> Endoscopy-assisted parotidectomy for benign tumours has also been reported.<sup>20</sup> Appiani first described a rhytidectomy incision to expose the parotid gland.<sup>9</sup> The facelift incision is an important innovation, which improves the postoperative appearance by avoiding the obvious cervical scar.<sup>1</sup> Its advantage is that it leaves no visible scars, and it permits good exposure not only of the parotid area but also of the submandibular region and the sternocleidomastoid muscle, like the incision described by Ferreria et al in 1990.<sup>10</sup> Tissues including branches of the facial nerve are identified and visualised clearly, and can be dis-

sected sharply and efficiently. There is good exposure of all divisions of the facial nerve, though sometimes variation and distribution of its branches are unpredictable, and the course of each branch is not easy to follow. The best method of protection and preservation of the facial nerves is direct dissection and identification of the full course of each branch from its exit through the stylomastoid foramen to the peripheral border of the parotid gland. This is essential as paresis or paralysis of the facial nerve is the most common complication of the operation. If a radical neck dissection is required after conservative parotidectomy, the face-lift incision will not affect the vascularity of the flaps or alter their aesthetic characteristics. Differences in colour and texture are less obvious, and the scar will look like a reflected highlight.

With no other surgical manoeuvres the isolated facelift incision does not prevent the depression deformity. The SMAS advancement flap seems to be ideal because it alleviates this unsightly facial depression: it is a simple means of filling the depression and preserving facial symmetry. Edward reported that the harvest of a full-thickness long flap would need meticulous attention to the identification of the spinal accessory nerve, and would create a donor site defect or deformity in the upper neck.<sup>21</sup> None of our patients complained of this, but the duration of follow up is only 3 years. Further studies will be necessary to validate the potential benefit. Honig recently reported a technique of rolling and folding the SMAS at the posterior border of the parotid bed with similar findings.<sup>22</sup>

For decades, Frey's syndrome has been recorded as a fairly common, troublesome side effect of parotidectomy.<sup>2</sup> It is a complex of flushing, sweating, and discomfort anterior to the ear in the region over the parotid bed during mastication. It is caused by an anastomotic communication between the facial sweat glands and parasympathetic secretomotor nerve fibres intended for the excised parotid gland. The pathophysiology of the syndrome has not been precisely clarified. It is difficult to avoid, even if, during the operation, the secretory nerve is excised. Many treatments have been suggested.<sup>2-5,7,8</sup> Tumours of the parotid gland are generally removed by the standard external bayonet-shaped incision without reconstruction of the parotid bed.<sup>1</sup> The face-lift incision combined with a SMAS advancement flap may be ideal to alleviate the unsightly facial depression and prevent conspicuous formation of scar tissue and gustatory sweating. Even though we had few cases, our results were encouraging. By combining the SMAS flap with the face-lift incision a good aesthetic outcome may be obtained.

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