Available online at www.sciencedirect.com
ScienceDirect
British Journal of Oral and Maxillofacial Surgery xxx (2017) xxx–xxx
BRITISH Journal of Oral and Maxillofacial Surgery
www.bjoms.com

Indications for partial parotidectomy using retrograde dissection of the marginal mandibular branch of the facial nerve for benign tumours of the parotid gland

K. Suzuki *, H. Iwai, M. Yagi, T. Fujisawa, A. Kanda, M. Konishi, Y. Kobayashi, K. Tomoda, T. Yamashita

Department of Otolaryngology, Head and Neck Surgery, Kansai Medical University Hospital

Abstract

The aims of this study were to evaluate the efficacy of partial parotidectomy using retrograde dissection of the marginal mandibular branch of the facial nerve for benign tumours of the parotid gland and to establish the indications for its use. We examined 106 consecutive patients with previously untreated benign tumours in the lower portion of the parotid gland who were treated by parotidectomy. The first group (anterograde group, n=52) consisted of those who had standard anterograde parotidectomy. The remaining patients, who underwent retrograde parotidectomy, were further divided into two groups: those in whom the upper edge of the tumour was located below the mastoid tip (below mastoid group, n=46) or those in whom it was above the mastoid tip (above mastoid group, n=8). The operating time was significantly shorter in the below mastoid group (141.2, 127.5, and 98.1 minutes, respectively) as was intraoperative blood loss (41.1, 53.0, and 24.4 ml, respectively), compared with the other two groups. There was a higher incidence of facial nerve dysfunction in the above mastoid group postoperatively (4/8) than in the other two groups. The results suggested that the presence of a tumour of any size located below the mastoid tip is a good indication for parotidectomy using retrograde dissection of the marginal mandibular branch of the facial nerve.

Keywords: parotid tumour; retrograde parotidectomy; marginal mandibular branch; facial nerve dysfunction; mastoid tip

Introduction

Complete excision of the tumour is the goal of parotidectomy, but preservation of the facial nerve is equally important, particularly for benign parotid tumours. Some authors have reported that retrograde dissection of the marginal mandibular branch of the facial nerve is superior to standard parotidectomy with anterograde dissection for tumours in the lower portion of the parotid gland.[1–6]

Although the efficacy of partial parotidectomy using retrograde dissection of the marginal mandibular branch of the facial nerve has been reported to have advantages in terms of a better cosmetic outcome, shorter operating time, and lower morbidity compared with anterograde resection for benign parotid gland tumours[1,3,5] only a few studies have focused on the indications for retrograde parotidectomy.[6]

The aims of the current study were to compare the outcomes of consecutive patients who had partial parotidectomy by the anterograde and retrograde approaches for benign parotid gland tumours and to establish the indications for parotidectomy using retrograde dissection.

To classify the site of the tumour we used the two landmarks: the tip of the mastoid and the anterior end of the auricular lobule (Fig. 1). Iwai and Yamashita[6] previously

* Corresponding author at: Department of Otolaryngology, Head and Neck Surgery, Kansai Medical University Hospital, 2-3-1 Shinmachi, Hirakata, Osaka 573-1191, Japan. Tel.: +81 72 804 0101, Fax: +81 72 804 0131.
E-mail address: suzukken@hirakata.kmu.ac.jp (K. Suzuki).

https://doi.org/10.1016/j.bjoms.2018.08.002

Please cite this article in press as: Suzuki K, et al. Indications for partial parotidectomy using retrograde dissection of the marginal mandibular branch of the facial nerve for benign tumours of the parotid gland. *Br J Oral Maxillofac Surg* (2017), https://doi.org/10.1016/j.bjoms.2018.08.002

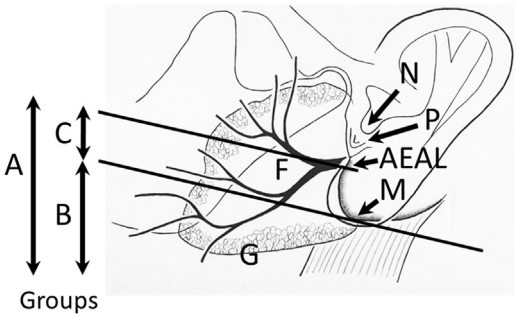

Fig. 1. Classification of the three groups and two landmarks. The trunk of the facial nerve can be seen inside the anterior end of the auricular lobule or about 1cm from the end of the intertragal notch (N) formed by the tragus and antitragus in the direction pointed by the notch through the pointer (P). Patients were divided into three groups using the landmarks of the mastoid tip (M) as assessed on magnetic resonance images and the auricular lobule assessed on inspection (F=facial nerve; G=parotid gland).

stated that the trunk of the facial nerve appears at a point about 1 cm from the end of the intertragal notch that is formed by the tragus and antitragus in the direction pointed by the notch through the pointer of the trunk of the facial nerve.[7] In this study we used the anterior end of the auricular lobule to estimate the site of the trunk of the facial nerve under the skin (Fig. 1), and regard its level to be the border between the upper and lower portions of the parotid gland.

Patients and methods

Patients

We examined the casenotes of 106 consecutive patients with previously untreated benign tumours in the lower part of the parotid gland who were treated by partial parotidectomy in our hospital between January 2006 and December 2014. Tumours in the lower portion of the parotid gland were defined as those of which the upper edge was located below the anterior end of the auricular lobule.

Recurrent or malignant tumours; non-neoplastic lesions such as parotid cysts, eosinophilic granulomas, and benign lymphoepithelial lesions, were excluded. Patients whose parotidectomy had involved retrograde dissection of the buccal branch of the facial nerve were also excluded.

The 106 patients were divided into three groups: the first group had conventional anterograde dissection of the marginal mandibular branch (anterograde group, n=52). The second group consisted of those in whom the upper edge of the tumour extended to or below the tip of the mastoid and who had retrograde dissection of the nerve (below mastoid group, n=46), and the third group consisted of those who had retrograde dissection of the nerve and in whom the upper edge of the tumour was located between the anterior end of the auricular lobule and the tip of the mastoid (above mastoid group, n=8) (Fig. 1). The positional relations between the mastoid tip and the upper edge of the tumour in the second (Fig. 2a) and third (Fig. 2b) groups was defined using a horizontal line that passed through the mastoid tip on the coronal section of the preoperative magnetic resonance image (MRI).

We compared outcome measures in the three groups including operating time, operative blood loss, and size of tumour. Operating time was defined as the time taken from incision to completion of closure of the skin. Operative blood loss was quantified by measuring the amount of irrigation fluid and the weight of the surgical sponges. Histopathological diagnosis and size of the tumour were taken from the pathologist's report. Postoperative complications, such as temporary or permanent dysfunction of the facial nerve, salivary fistula, first bite syndrome, Frey syndrome, haematoma, and wound infection were also recorded. Function of the facial nerve was evaluated on the first postoperative day by at least two investigators, (usually the operating surgeon and the assistant), and any dysfunction was followed up until recovery. Slight weakness in the marginal mandibular branch was

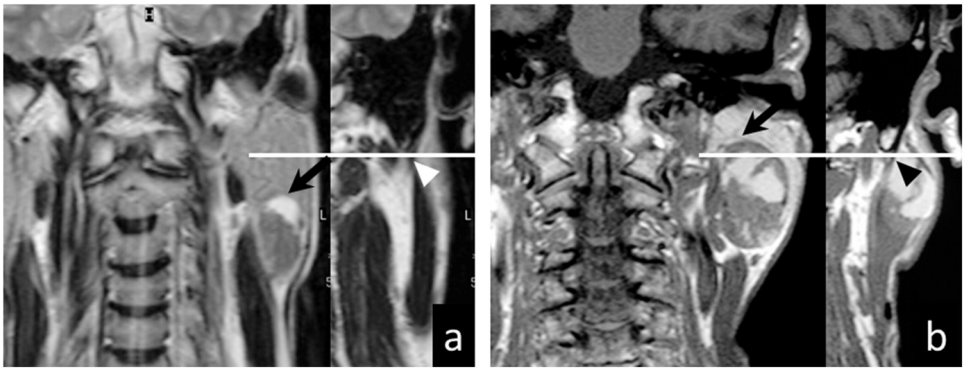

Fig. 2. (A) Location of the tumour below the mastoid tip. The upper edge of the tumour (black arrow, a) can be seen below the mastoid tip (arrow head, a). (B) Location of the tumour above the mastoid tip. The upper edge of the tumour (black arrow, b) can be seen above the mastoid tip (arrow head, b). T2-weighted coronal MR image (a, b).

Please cite this article in press as: Suzuki K, et al. Indications for partial parotidectomy using retrograde dissection of the marginal mandibular branch of the facial nerve for benign tumours of the parotid gland. *Br J Oral Maxillofac Surg* (2017), https://doi.org/10.1016/j.bjoms.2018.08.002