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ORIGINAL ARTICLE

Thirteen years' experience with superficial partial parotidectomy as treatment for benign parotid tumours

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KEYWORDS
Parotidectomy;
Benign parotid tumours;
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Abstract
Introduction: Most authors agree that surgery is the treatment of choice for benign tumours of the parotid gland. However, the best surgical technique and the extent of surgery remain controversial. This study attempts to establish whether the implementation of a partial superficial parotidectomy (PSP) is appropriate for the treatment of benign parotid gland tumours.
Material and methods: We selected 63 patients with benign parotid gland surgery, of whom 43 had a pleomorphic adenoma and 20, a Warthin tumour. Of this group of 63 patients, 6 could not be included. We consequently studied 57 patients, 41 of them diagnosed as pleomorphic adenoma and 16, as Warthin tumours. In all of them, a PSP was performed without intraoperative monitoring of the facial nerve.
Results: Transient facial nerve paralysis, 14 patients (24.5%). Ten cases were resolved within the first month after surgery and 4 before the third month, after indicating facial physiotherapy. One patient (1.7%) had a permanent difficulty in keeping one side of the lower lip aligned under pressure-mobility, without altering commissure mobility. None of the patients studied had a recurrence (control, 3-13 years).
Conclusions: Although PSP is a technique with a few complications, it has a recurrence rate comparable to or lower than other techniques used for the treatment of pleomorphic adenomas or Warthin parotid tumours. Intraoperative facial nerve monitoring can be helpful during surgery. The lack of monitoring would not be considered a contraindication for surgery.

PALABRAS CLAVE
Parotidectomía;
Tumores benignos parótida;
Monitorización nervio facial

Trece años de experiencia en parotidectomía parcial superficial como tratamiento de neoformaciones benignas parotideas

Resumen
Introducción: La mayoría de los autores aceptan la cirugía como tratamiento de elección para los tumores benignos de parótida. La mejor técnica quirúrgica o el grado de extensión de la cirugía permanecen controvertidos. El presente estudio pretende comprobar si la parotidectomía

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parcial superficial (PPS) es adecuada para el tratamiento de los tumores benignos de glándula parótida.

Material y métodos: Seleccionamos 63 pacientes con tumor benigno, operados de glándula parótida, 43 tenían un adenoma pleomorfo y 20 un tumor de Warthin. De este grupo de 63 pacientes no se pudo incluir a 6 (3 fallecidos y 3 no localizados). Estudiamos a 57 pacientes, 41 diagnosticados de adenoma pleomorfo y 16 de tumores de Warthin. En todos ellos realizamos PPS sin monitorización del nervio facial.

Resultados: Parálisis transitoria del nervio facial 14 pacientes (24,5%). Diez se resolvieron antes del primer mes y cuatro antes del tercer mes. Un paciente (1,7%) sufrió una dificultad definitiva para mantener alineado el hemilabio inferior en la movilidad forzada, sin alteración en la movilidad de la comisura. Ninguna recidiva (control entre 3 y 13 años).

Conclusiones: La PPS es una técnica con unas complicaciones y una tasa de recidivas comparables o menores que otras técnicas empleadas para el tratamiento de adenomas pleomorfos o tumores de Warthin parotídeos. La monitorización del nervio facial puede ser una ayuda durante el acto quirúrgico. La falta de monitorización no sería considerada una contraindicación para la realización de la cirugía.

Introduction

Between 70%-80% of parotid gland tumours are benign. Of these, the most common subtype is pleomorphic adenoma (65%), followed by adenolymphoma or Warthin tumour (25%). Most authors agree that surgery is the treatment of choice for benign parotid gland tumours. Nevertheless, the best surgical technique or the degree of extent of surgery remains controversial. Table 1 shows the main surgical alternatives.

The choice of the appropriate technique can have implications for the patient in three main aspects: the possibility of transitory or definitive facial nerve injury, the possibility of appearance of Frey's symptom, and the possibility of tumour recurrence. The main argument against the most conservative techniques is an increase in the number of tumour relapses, especially in the case of pleomorphic adenomas, which could be explained by incomplete resection of the tumoral capsule and/or by extensions of the tumour that persist if the whole superficial lobe is not removed. The possibility of malignancy in pleomorphic adenomas would make even more unacceptable the high rate of relapses.

The existence of new data on the evolution and biology of the main benign tumours is changing current trends towards more conservative treatments. The present study aims to verify whether carrying out a partial superficial parotidectomy is suitable as a first treatment option for benign parotid gland tumours, based on their rate of relapse and postoperative complications.

Table 1 Types of parotidectomy

	Superficial lobe	Deep lobe
Facial preservation	SP-PSP	CTP
Facial sacrifice		TP-ETP

CTP indicates conservative total parotidectomy; ETP, extended total parotidectomy; PSP, partial superficial parotidectomy; SP, superficial parotidectomy; TP, total parotidectomy.

Material and methods

We selected all the patients presenting a positive definitive biopsy of benign parotid tumour from the pathology service archive, from the period between 1 January 1995 and 31 December 2005, to obtain a control of patient evolution for a minimum of 3 years. From these, we extracted the patients with pleomorphic adenoma (PA) and Warthin tumour (WT). As an additional criterion for inclusion, patients had to have undergone a review in the previous year. All patients who had not had such a review were called in for consultation.

These criteria included 63 patients who had undergone surgery for benign tumours of the parotid gland. Of these, 43 suffered pleomorphic adenoma and 20, Warthin tumour. From this group of 63 patients, 6 were excluded (3 who died from causes unrelated to their parotid condition and 3 who could not be located). Consequently, we studied 57 patients: 41 diagnosed with pleomorphic adenoma and 16 with Warthin tumours.

Results

All patients underwent partial superficial parotidectomy (PSP), defined as a surgical procedure that exposes at least the main branch of the facial nerve, includes less parotid tissue than a superficial parotidectomy, and removes the tumour with a margin of at least 5mm.[1] Intraoperative monitoring of the facial nerve was not used. Transitory paralysis of the facial nerve was found in 14 patients (24.5%). Of these, 8 were resolved before the first postoperative month and 4 before the third month, requiring facial physiotherapy carried out by the Rehabilitation Service at our centre. One patient (1.7%) suffered a definitive difficulty in maintaining the half of the lower lip in forced mobility, with no alteration in the mobility of the corner of the mouth. The electrophysiological study of the facial nerve displayed some degree of neuropraxia with a good prognosis, but the patient did not recover after 12 months of rehabilitation treatment. None of the patients studied suffered a relapse of their pathology (control between 3 and 13 years). No reliable data were obtained regarding the incidence of

Table 2 Facial paralysis in patients undergoing superficial parotidectomy due to a benign tumour

Author	Patients	Transient FP	Definitive FP
Rehberg E (1998)[2]	59	22%	3.3%
Guntinas-Lichius O (2004)[3]	150	23%	8%
Marchesi M (2006)[4]	59	10.3%	0%
Zernial O (2007)[5]	28	17.9%	0%

FP indicates facial palsy.

Table 3 Facial paralysis in patients undergoing partial superficial parotidectomy due to a benign tumour

Author	Patients	Transient FP	Definitive FP
O'Brien CJ (2003)[6]	363	27%	2.5%
Roth J (2007)	52	11.5%	0%
Giannone N (2008)[7]	34	2.9%	0%
García-Purriños (2009)	57	24.5%	1.7%

FP indicates facial palsy.

Table 4 Recurrence after surgery for pleomorphic adenoma

Author	Patients	Follow-up, years	Technique	Recurrence
Rehberg E (1998)[2]	26	1-24	SP	0%
Zernial O (2007)[5]	28	2-20	SP	0%
O'Brien CJ (2003)[6]	254	6	PSP	0%
Roth J (2007)	52	2-5	PSP	0%
Giannone N (2008)[7]	34	10	PSP	0%
García-Purriños (2009)	29	3-13	PSP	0%

PSP indicates partial superficial parotidectomy; SP, total superficial parotidectomy.

Frey's syndrome, as the study was retrospective and there was no specific data in the patients' clinical histories.

Discussion

The results obtained support our hypothesis; it is not necessary to remove all the superficial portion of the parotid gland initially for the treatment of a pleomorphic adenoma or Warthin tumour. The rates of transitory or definitive facial paralysis, as well as those of their recurrences, were similar to or less than those in other published series (Tables 2-5).

Traditionally, superficial parotidectomy has been recommended as the technique of choice for the treatment of parotid pleomorphic adenoma. The main argument against less radical surgical techniques is the supposedly high rate of recurrences, which could be explained by the non-existence of a capsule covering the tumour completely and by the shape into which these tumours grow by means of pseudopodia, which could remain in the gland if the lateral lobe is not completely removed. To the contrary, the more radical techniques are supposed to have a higher potential for complications, especially with regard to damaging the facial nerve. Nevertheless, reviewing the literature, it can be appreciated that both the rates of complications and of relapses are similar for any technique used. The rate of postoperative transitory facial paralysis oscillates between 10.3% and 22% for total superficial parotidectomy. For partial

Table 5 Recurrence after surgery for Warthin tumour

Author	Patients	Follow-up	Technique	Recurrence
Yu (1998)[8]	106	Not specified	PSP	5%
Ethunandan (2006)[9]	19	Not specified	PSP	0%
Klussmann (2006)	185	Not specified	PSP	13%
García-Purriños (2009)	16	3-13	PSP	0%

PSP indicates partial superficial parotidectomy.

superficial parotidectomy, the rate of transitory paralysis is between 2.9% and 27%. The majority of authors consider a range between 10% and 30% as acceptable for both techniques. Excluding the Giannone series, presenting exceptional results not reproduced by other authors, most of the published series obtain similar results.[7] However, the rate of definitive paralysis of the facial nerve reaches 8% according to some series in the case of superficial parotidectomy, never reaching more than 2.5% when performing a partial superficial parotidectomy. Although the difference is not significant, this is probably due to the number of cases studied, which was too small. The difference may nonetheless lead us to choose the safest technique, especially when observing that the rate of relapse is 0 no matter which technique is used for the removal of pleomorphic adenomas, with a follow-up of up to 24 years.

In the case of Warthin tumour, several studies describe its multifocal nature in between 10% and more than 50% of patients, depending on which level is considered: macro- or microscopic. It is also possible for it to be bilateral in 4%-10% of cases.[10] These data seem to justify an increased extension of the resection. However, new genetic and biological data regarding the behaviour of these tumours even questions whether they are indeed neoplasms.[11] It is currently considered that the concept of multifocality is incorrect. This is because it is not a case of a single tumour with a multifocal growth pattern characterised by a main nodule and several satellite nodules; instead, there is a polyclonal proliferation that affects different areas of the glandular parenchyma independently and that results in multiple nodules, with no relationship between them, in the glandular parenchyma, each with a different capacity for growth and progression.[12] This leads most authors to use partial superficial parotidectomy as the technique of choice due to its low rate of definitive facial paralysis and an acceptable percentage of relapses between 0% and 13%. It must also be considered that those series presenting fewer relapses (although it would be more correct to refer to the appearance of a new tumour, rather than to a relapse) are those with a lower number of patients studied.

Regarding intraoperative facial nerve monitoring, not all authors explain whether they use it systematically. It is accepted that when the technique to be used is an extra-capsular dissection (removal of the lesion without initial location of the facial nerve trunk), such monitoring should be considered compulsory,[13] to the point of not recommending the execution of this procedure when monitoring is not possible. Other authors[14] state that intraoperative monitoring of the motor component of the 6th cranial nerve must be routine in any type of surgery entailing risk of injuring it. The rate of transitory or definitive facial paralysis in our group of patients was similar to that published by other authors. No evidence was found in the bibliography reviewed, which demonstrated a lower rate of postoperative facial paralysis when randomly comparing patients in whom the nerve was monitored or not during the removal of benign lesions. Intraoperative monitoring of the facial nerve may help in pleomorphic adenoma or in Warthin tumour surgery by partial superficial parotidectomy. The lack of scientific evidence found and the good results obtained in the studied series without monitoring lead us to think that, even though it may be helpful in the complicated anatomy on this area, it cannot be considered indispensable for the performance of the surgery.

Conclusions

Partial superficial parotidectomy is a technique that involves a set of complications and a rate of relapse equal to or lower than those found with other techniques used for the treatment of parotid pleomorphic adenomas or Warthin tumours.

Systematic intraoperative monitoring of the facial nerve may help while performing surgery. According to the results of the series reviewed, the lack of monitoring is not a contraindication for the performance of the surgery.

Conflict of interest

The author declares no conflict of interest.

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