The Journal of Laryngology & Otology
August 2003, Vol. **117,** pp. 624–629

Patients' perspectives on the short- and long-term outcomes following surgery for benign parotid neoplasms

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Abstract

Surgery for benign parotid gland salivary neoplasms is associated with sequelae: scar and divot defect and complications, facial nerve paresis/paralysis and Frey's syndrome. These potential sequelae and complications are discussed with all patients prior to operation. We contacted 212 patients who had undergone surgery for benign parotid disease during 1988–1997, by postal questionnaire. We enquired about their perception and recollection of the information they had received pre-operatively and to document and comment upon what problems they had experienced in the early and late post-operative period. The usable return rate was 75.5 per cent (173/212). Most patients (90 per cent) were satisfied with the information they had received pre-operatively. The complication and/or sequelae rates for facial nerve palsy (temporary 26.3 per cent, permanent 1.9 per cent), Frey's syndrome (12.5 per cent) and sensory deficit about the cheek and ear (30.6 per cent), are comparable to other published studies.

Key words: Parotid Neoplasms; Treatment Outcome; Informed Consent

Introduction

The incidence of benign salivary gland neoplasms is difficult to estimate. The figure quoted in the UK for malignant neoplasms of the parotid gland is 0.6 per 100 000 population.[1] It is accepted that the ratio of the incidence of benign to malignant parotid gland neoplasms is 80 to 20 per cent respectively.[2] This would infer a national incidence of benign parotid neoplasms of 2.4 per 100 000 population.

There is no registration of benign salivary neoplasms, which makes the estimation of true local incidence difficult. However, in Nottingham the incidence of benign parotid salivary gland neoplasm is 6.2 per 100 000 of population per annum.[3] This figure has been calculated by an analysis of histopathological records of the only two hospitals that served a fixed population of 608 000, in Nottingham, England over a 10-year period.

There are differing beliefs as to the best surgical procedure for the removal of benign parotid neoplasms. Many different surgeries have been described in the past, and all have their advocates, enucleation,[4,5] partial superficial parotidectomy,[6–8] total superficial parotidectomy,[9] and total parotidectomy with facial nerve preservation.[10,11] In any surgical procedure for a benign neoplasm of the parotid gland the objective is the complete removal of the disease with minimal surgical morbidity and no tumour recurrence.[12] There are recognized morbidities from these procedures and they include facial nerve damage (either temporary or permanent), parasthesia or numbness of the ear lobe and cheek, wound scarring in the facial area and the subsequent risk of developing Frey's syndrome or gustatory hyperhydrosis.

It is agreed by oncology clinicians that the preferred treatment of a benign or malignant parotid neoplasm is complete excision, to include a 'safe margin' of tissue to minimize the possibility of tumour recurrence. Whole organ sectioning of superficial parotidectomy specimens containing a pleomorphic adenoma, has demonstrated that all specimens have exposed areas of the tumour capsule and that up to 25 per cent may have a capsular tear, implying that the technique of extra capsular dissection cannot be avoided completely. The findings on serial sectioning of 'close margins' is dependent on the location and position of the tumour in the gland.[13] These findings support the surgical principle that 'limited exploration' and complete removal of the tumour with facial nerve preservation is all that is required for benign parotid neoplasms. This treatment rationale has been supported by several reported series that a partial superficial parotidectomy, as opposed to complete superficial parotidectomy, in appropriately selected patients, has similar or better patient outcomes when

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Accepted for publication: 14 May 2003.

comparing post-operative facial nerve function, the incidence of Frey's syndrome and the risk of tumour recurrence.[5,14] In Nottingham, partial superficial parotidectomy has been the procedure of choice, when appropriate, since the mid 1980s.

The aim of this study was to seek the opinion of patients, specifically related to their concept as to the seriousness of the disease, to their satisfaction with the degree of information given before surgery and to evaluate their resultant early and late sequelae and complications arising out of the surgery performed. Patients were also asked to comment on their overall satisfaction with the treatment process and as to whether or not they had any suggestions for change or improvements of future patients' care in the surgical management of benign parotid tumours.

Materials and methods

Two hundred and fifty-eight consecutive patients in the Nottingham area were identified as having had a surgical procedure for a benign parotid condition, over the period January 1988 to December 1997. They were identified from the senior author's personal database.

Of these 258 only 212 were appropriate to be included in this study. Forty-six cases were excluded because the patient was known to be dead (n = 40) or there was no contact address in the medical records (n = 6).

All patients studied had a histologically proven benign parotid salivary gland neoplasm excised with a macroscopic cuff of normal salivary gland tissue when possible, i.e. partial superficial parotidectomy. All operations were performed or supervised by the senior author (PJB).

All 212 patients thus identified were sent a questionnaire (Appendix). This letter was sent with a covering letter asking for patient participation in the study and a pre-paid stamped addressed envelope was enclosed for easy reply.

The questionnaire consisted of 11 questions requiring a simple yes or no, to be ringed. There was also space for free text response. Each patient was asked to state their known diagnosis, if known, or presenting problem, the date of their surgery, the adequacy of information given prior to surgery, to comment on any specific problems following surgery and their duration in time of these problems. The patients were also asked if they had any operation related to the parotid gland and to classify their perception of the operation that they had undergone into simple, intermediate or major and also as to whether or not they would change anything, of the information given or the treatment process, if they were 'allowed' to.

In our department the patients are counselled and consented in the out-patients' department at the time when they are listed for surgery. The patients are told that they probably have a benign tumour of their parotid gland. They are specifically warned about the possibility of facial nerve damage (temporary or permanent), the location and size of their scar and the likely loss of sensation to the earlobe and cheek. When the patient is admitted to the ward on the day of surgery, this pre-operative information is again repeated, by the admitting nursing staff, and further explanations are offered if the patient does not fully comprehend the consequences of the surgery planned.

Results and analysis

Two hundred and twelve questionnaires were sent and 173 were returned, a response rate of 75.5 per cent. Thirteen of the returned questionnaires were unusable, and 11 patients questionnaires were returned, as they no longer lived at the recorded address in the medical records. One patient was unable to fill in the questionnaire and one form was returned with an attached note that 'no-one at that address had undergone any such surgery'!

The 212 patients, whose questionnaires were returned and used in this report, had a single salivary tumour of the following histological type; 145 pleomorphic adenomas, 60 adenolymphoma, three basal cell adenomas, two cystic adenomas, one myoepithelioma and one monomorphic adenoma.

The short- and long-term (more than one year) complications/sequelae of the surgery are shown in Table I and Figure 1. Fifty-nine per cent of patients reported their diagnosis was a tumour, whilst 33 per cent said they had a lump or swelling. Ninety-nine per cent of patients knew the exact day and date of their surgery. Only 14 per cent of patients were still attending the clinic. Eighty-five per cent of patients felt the pre-operative information helped them prepare for what happened, whereas 10 per cent felt it did not help and five per cent did not respond to this question.

TABLE I
EARLY AND LATE SEQUELAE/COMPLICATIONS FOLLOWING PAROTID SURGERY

Complication	% of patients with short-term problems	% of patents with long-term problems
No problem	16.9	52.5
Sensation about the ear/cheek	66.2	30.6
Painful wound	22.5	3.1
Sweating on the face when eating	22.5	12.5
Altered shape of face/skin/ear	26.9	3.1
Difficulties with shoulder	9.4	3.1
Facial weakness	26.3	1.9

https://doi.org/10.1258/002221503768199960 Published online by Cambridge University Press

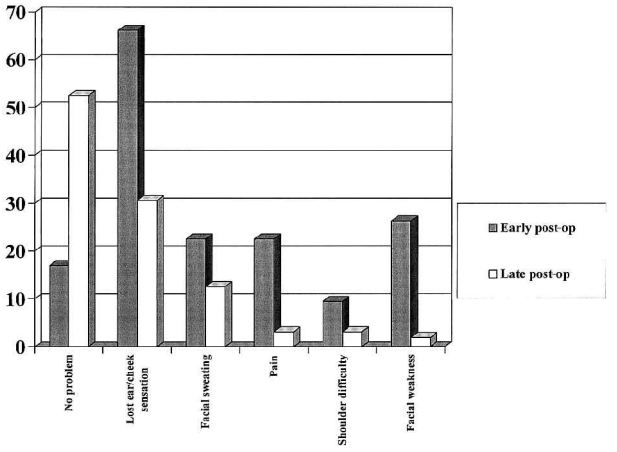

FIG. 1
Percentage of complications (y-axis) against early and late post-operative complications.

No patients reported any subsequent operation on their parotid gland. Only 10 per cent felt they could have been given more information prior to surgery, whilst 90 per cent did not. Twelve per cent would have welcomed any additional information at the time they were listed for surgery, as opposed to 50 per cent who would not and 38 per cent who did not comment. The operation was classified as major by 25 per cent, intermediate by 61.2 per cent and simple by 13.8 per cent.

In response to the question of 'what would you change', 58.8 per cent said nothing, 18.1 per cent did not comment. Eight per cent requested more information both 'in general' and specifically relating to the scar, facial sweating, altered sensation and altered facial appearance. Seventeen per cent of patients gave various additional suggestions including: 'I would not have had the tumour in the first place' and 'I would like my own nurse for the day!'

Discussion

The majority of patients (85 per cent) felt the information (informed consent) given before surgery helped them prepare for surgery. Only 10 per cent of those who responded to the survey felt that they could have been given more information and only 12 per cent would have welcomed this information at the time they were listed for surgery. This indicates that the majority of patients treated felt that they had been adequately informed and warned prior to the performed procedure. However, it is well known that a patient's recall of complications of operations following consenting interviews is highly variable. Hekkenberg *et al.*[15] noted that the overall recall rate of potential complications of patients undergoing three head and neck operations (including parotidectomy) was 48 per cent in the first eight weeks following consent. Specifically for parotidectomy 93 per cent recalled facial nerve damage, the figures for greater auricular nerve damage, resultant scar and Frey's syndrome were 60 per cent, 27 per cent and 27 per cent respectively. The recall of pre-operative information in our patient group, some of whom had the procedure nine years prior to receiving the questionnaire, may have been poor but they felt that they could complete the questionnaire and expressed little dissatisfaction when allowed space by free text to respond or comment.

In this series 26.3 per cent of patients reported a weakness of their facial muscles in the early period following surgery, but only 1.9 per cent remarked that this remained a long-term problem (Table I). It can therefore be reported that the transient or temporary facial nerve paresis rate was 24.4 per cent and the permanent palsy rate to have been 1.9 per cent. This figure is consistent with other authors who have published their results. McGurk *et al.*[16] noted a transient palsy rate of 11 per cent and a permanent rate of two per cent in a series of 380 patients who underwent a partial superficial parotidectomy for benign parotid neoplastic disease. He also recorded that the rate from a series of 95 'complete' or 'classical' superficial parotidectomies were 32 per cent (transient) and one per cent (permanent). Mehle *et al.*[17] reviewed the results from the Cleveland Clinic Foundation of 256 consecutive patients who underwent parotid surgery for benign neoplasia over a 15-year period. The immediate facial nerve dysfunction was recorded in 46.1 per cent, with a permanent facial nerve dysfunction reported as 'uncommon' at 3.9 per cent. Woods[9] in a series of 86 superficial parotidectomies had a transient palsy rate of 44 per cent. Wennmo *et al.*[14] compared 57 'complete' superficial parotidectomies, permanent palsy seven per cent, transient palsy 16 per cent, with 33 partial superficial parotidectomies whose equivalent rates were 0 per cent and 8.5 per cent respectively.

Bron and O'Brien[18] commented that the likelihood of transient facial nerve palsy correlated with the extent of the surgery. They recorded a transient facial palsy rate of 31 per cent for a series of 33 'near total' parotidectomies, as compared to 16.5 per cent for 92 patients who had undergone partial superficial parotidectomy. Laccourreye *et al.*,[11] in a series of 229 total parotidectomies, had a transient palsy rate of 70.2 per cent one month post-surgery, and a permanent rate of 3.9 per cent. Comoretto and Barzan[4] in a series of 165 patients who had a benign parotid neoplasm treated by enucleation, reported that in all such selected cases, no patient developed a facial nerve paralysis either temporary or permanent. These results have been repeated by Hancock[5] who compared the surgery of two groups of patients, one treated by 'elective local extracapsular dissection (enucleation)' with another group of patients treated by 'conventional nerve identification and local tumour excision'. He reported that against time, there was no recurrence of the tumour treated in either group, and that all patients who had a post-operative facial weakness, subsequently made a complete recovery.

In this reported patient series 22.5 per cent stated sweating to the troublesome on the face, when eating, in the early post-operative period, but reported a lesser problem with the reported figure decreasing to 12.5 per cent when followed for more than one year. This decrease is difficult to explain since Frey's usually presents late, usually several weeks to months after surgery. Comparing the reported rates[19] for the incidence of Frey's syndrome between different series it should be noted that the incidence within patient groups depends on the diligence with which it is sought. Patients may spontaneously offer the complex of symptoms to direct questioning, or may demonstrate positive Minors starch iodine tests even though they are asymptomatic on questioning. Series reporting specifically on the incidence of Frey's syndrome state that the symptoms increase with the increasing extent of the surgery performed and is different in patients treated by local excision compared to total parotidectomy. Comoretto and Barzan[4] and Hancock[5] who performed enucleation of the parotid tumour noted a 0 per cent incidence of Frey's syndrome. Leverstein[6] reported a rate of 6.9 per cent (n = 131) for partial superficial parotidectomy, compared to 13.1 per cent (n = 61) in patients treated by complete superficial parotidectomy. These figures support those by Wennmo *et al.*[14] who noted an incidence of six per cent and 19 per cent respectively when performing partial and complete superficial parotidectomy. McGurk *et al.*[16] reports an incidence different to the previous reports of five per cent for partial surgery and 38 per cent for complete superficial parotidectomy. The incidence of Frey's syndrome after a total parotidectomy in Laccourreye *et al.*'s[11] series was reported at 65.9 per cent.

In this series 66.2 per cent of patients commented on their sensory deficit in the cheek area and the ear during the early period after surgery, but this reduced to 30.6 per cent as a problem at one year. This reduction or improvement in sensory deficit implies either a degree of sensory nerve recovery and/or that some of the patients disregarded this symptom to be trivial, over time. In this reported series, there was no attempt to preserve the greater auricular nerve or its branches, when performing routine parotid surgery. Leverstein[6] comments that sensation to the earlobe returns quicker and more completely if the posterior branch of the greater auricular nerve is preserved. Christensen and Jobsen,[20] stated that it is possible to preserve the posterior branch in 70 per cent of cases, and report in their retrospective study, that there is a higher rate of surgical morbidity if the nerve has been cut. This is at odds with Porter and Wood,[21] who in a prospective study found that there was no difference in the sensory loss incurred if the nerve was sacrificed or preserved.

None of the patients in this series reported a recurrence of their tumour or any further operations on their parotid. McGurk *et al.*[16] recorded a recurrence rate of two per cent for both patients treated by partial superficial and complete superficial parotidectomy. Wennmo *et al.*[14] noted a recurrence rate of six per cent after partial superficial parotidectomy and 8.7 per cent after complete superficial parotidectomy. Hence the principle of 'complete' excision of the benign parotid salivary neoplasm is all that is required to achieve 'cure',[12,18] and minimize the complications and sequelae following parotid surgery.

- **This paper is a retrospective study of the perceptions of the consenting process and of the pre-operative information provided to a cohort of 212 patients who had surgery for benign parotid neoplasia over a nine-year period**
- **The paper also presents and discusses the temporary and permanent complications of this surgery**
- **The majority of patients felt that the information they were given was satisfactory**
- **The complications rates for facial nerve damage, sensory loss and Frey's syndrome are comparable to other series**

Other symptoms recorded by this patient group, drew attention to the correct placement of the incision and the need for meticulous wound closure. Wound misplacement may have resulted in stenosis of the external auditory canal or prominence of the pinna. Difficulty with a painful wound and painful or stiffness of the shoulder joint may be related to associated conditions such as cervical arthritis or possibly existing disability with the shoulder joint. The patients have registered these symptoms, but only one patient who complained of a prominent ear, requested a review consultation after completion of the questionnaire. This patient had revision surgery to the scar and appropriate correction of the pinna to the patient's satisfaction. Prevention of scar defects is to be advocated rather than the need for corrective surgery at a later date if possible.[22] The routine use of a continuous electromyographic monitoring of facial muscles during primary parotidectomy has been shown to reduce the incidence of short-term post-operative facial paresis.[23]

In conclusion, salivary gland neoplasms are best treated surgically. The risks to the patient of performing surgery in this area include sequelae: scar and divot defect, and complications: facial nerve paresis or paralysis, and Frey's syndrome. Informed consent is currently considered mandatory before embarking on a surgical option and the patient needs to be informed realistically of the likely sequelae and/or complications that may result. These risks or incidences of these resultant sequelae and/or complications occurring needs to be based on patients' views rather than 'textbook information' or assumed reports from individual patients or even the biased view of the surgeon concerned.

https://doi.org/10.1258/002221503768199960 Published online by Cambridge University Press

In a series of 212 patients who completed a postal questionnaire on benign salivary gland neoplasm surgery, 24.4 per cent of patients experienced a transient facial nerve palsy with a resultant permanent (branch or complete) palsy in 1.9 per cent (two patients). Patients complained of sweating of the face in 22.5 per cent in the short term and 12.5 per cent in the long term. More importantly 66.2 per cent of patients complained of a sensory deficit in the cheek and around the ear in the early phase but this too decreased to 30.6 per cent in the long-term. None of the patients treated developed a recurrence of their disease in the period observed. The majority of patients were satisfied with the information they received prior to surgery and did not feel any further information was necessary.

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Mr P. J. Bradley takes responsibility for the integrity of the content of the paper.
Competing interests: None declared

Appendix Questionnaire

1) What disease did you suffer? Diagnosis?

1) When was your operation performed? Year or Date performed.

2) Since your operation;

Are you still attending the clinic? Yes No

Date last seen?

4) Did the information given to you before surgery help prepare you for what happened?

Yes No DID NOT CONCERN ME

If no please comment .....

5) Did you have any problems with:

The wound?	Yes	No
Sensation about the ear?	Yes	No
Sensation about the cheek?	Yes	No
Sweating on the face when eating?	Yes	No
Pain?	Yes	No
Altered shape of face/skin?	Yes	No
Difficulties with shoulder?	Yes	No
Weakness of muscles of face?	Yes	No
Recurrences of the lump(s)?	Yes	No

Comment on duration of symptoms: .....

6) Have you had any other operations related to the parotid gland? Yes No

Comments: .....

7) At present what long-term difficulties (more than 12 months) do you have following your surgery? (see question 5)

Comment: .....

8) Do you feel that you could have been given more information?

Yes No Comment: .....

9) Would you have welcomed this additional information at the time you were listed for surgery? Yes No

Comment: .....

10) Would you classify your operation?

SIMPLE INTERMEDIATE MAJOR

11) If you were 'allowed' what would you change?

Comment .....

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