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Impact of dysfunction of the facial nerve after superficial parotidectomy: a prospective study

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Abstract

To evaluate the impact of dysfunction of the facial nerve after superficial parotidectomy for pleomorphic adenoma of the superficial lobe, we prospectively analysed the data of 79 patients using the Facial Disability Index (FDI) and the Short-Form 36-Item (SF-36) questionnaires up to 12 months postoperatively. The function of the facial nerve was grading on the House-Brackmann Scale. Results at 1 week and 1, 3, 6, and 12 months were compared with preoperative (baseline) measurement. The maximum reduction in FDI scores coincided with the highest facial paresis values at one week. Physical values on the FDI significantly decreased during the first three months ($p = .039$ at 3 months) and psychosocial values improved significantly from then onwards ($p = .001$ at 12 months). At 12 months, there were signs of full recovery compared with the preoperative baseline, and it was even exceeded in some psychosocial items. The SF-36 questionnaire showed no significant differences at any time during the study. The FDI was a useful instrument with which to understand the impact of facial disability and wellbeing associated with physical, social, and emotional aspects after superficial parotidectomy. Unlike the SF-36 questionnaire, the FDI offers clinicians a tool with which to counsel patients and better inform them about the anticipated results of operation before superficial parotidectomy.

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Keywords: Superficial parotidectomy; Pleomorphic adenoma; Facial nerve paralysis; Facial Disability Index; Quality of life

Introduction

Superficial parotidectomy can cause not only postoperative facial nerve dysfunction with facial disfigurement and functional disturbance but also adverse social difficulties and emotional consequences.^{1,2} Patients normally demand information preoperatively about postoperative time to recovery from this potential complication. Nowadays there is considerable discussion about the true clinical impact of patient-reported outcome measures after various procedures.³ It is still not clinically routine, but recom-

mended, to use validated questionnaires when illustrating outcomes of facial nerve paresis after parotid surgery.

Few instruments are available to evaluate specifically the impact of facial dysfunction and disability on patients.⁴ The Short-Form 36-Item Questionnaire (SF-36), the European Organisation for Research and Treatment of Cancer (EORTC), and the University of Washington Quality of Life Questionnaire (UW-QoLQ) are quality of life instruments that allow comparisons to be made for different diseases, but are ineffective in the discrimination of specific problems that arise from dysfunction of the facial nerve.^{5–8}

The Facial Disability Index (FDI) and the Facial Clinometric Evaluation Scale (FaCE) are validated, patient-reported, outcome instruments used to grade specifically the non-

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motor disabilities of patients with facial paralysis.⁹ The FDI, which was first described by VanSwearingen and Brach¹⁰ and adapted into Spanish by Gonzalez-Cardero et al in 2012,¹¹ is a specific, short, and simple questionnaire that measures the importance of physical and mental functioning from the patient's perspective, and how it affects activities of daily life (for example, brushing teeth, eating, and drinking). Nevertheless, the number of studies that we know of that have used the FDI is limited, and to our knowledge there are few publications that have specifically evaluated postoperative facial dysfunction after parotidectomy.¹²

We have therefore designed a prospective clinical study that uses the FDI questionnaire up to 12 months' postoperatively to evaluate the impact of facial nerve dysfunction after superficial parotidectomy for pleomorphic adenoma of the superficial lobe.

Patients and methods

We included 79 patients who had superficial parotidectomy with facial nerve dissection at the Department of Oral and Maxillofacial Surgery of the Virgen del Rocio University Hospital, Seville (Spain). Inclusion criteria were: consecutive patients over 18 years of age with a pleomorphic adenoma in the superficial lobe of the parotid gland and fine-needle aspiration cytology examination that confirmed that it was benign. The exclusion criteria were: previous operation on the parotid gland, transection of a branch of the facial nerve during dissection, a history of Bell's palsy or other type of facial paralysis, and neurological diseases.

The surgical technique was similar in all patients. We began by making a modified facelift incision and raising a superficial muscular aponeurotic system (SMAS) flap. The main trunk of the facial nerve was then identified at its exit from the stylomastoid foramen, and all its peripheral branches were dissected in an antegrade direction. The great auricular nerve was always visualised, and was preserved when this was technically possible. The tumour, including the superficial lobe of the parotid gland, was then resected. The SMAS

was then approximated and sutured back to the anterior border of the sternocleidomastoid muscle, a suction drain was inserted, and the skin was sutured.

Facial nerve dysfunction was graded with the House-Brackmann Scale¹³ from grade I (normal) to grade VI (no movement). Patients with II grade involvement or above in either of the branches of the facial nerve were considered to have clinical facial nerve paresis.

The FDI questionnaire^{10,11} consists of 10 questions divided into two subscales: five questions associated with physical wellbeing and five with psychosocial wellbeing. Each item is scored up to five and six points on a scale that ranges from no disability to severe disability (Table 1). Both subscales were transformed from 1-100 points. The higher the score, the better the patient's facial functioning.

The SF-36 questionnaire¹⁴ consists of 36 questions divided into eight dimensions: physical functioning, physical role, emotional role, vitality, mental health, social functioning, pain, and social. All questions are scored on a scale from 0 (poor health) to 100 (good health).

Facial nerve function was graded according to the House-Brackmann scale by the same observer preoperatively at the outpatient clinic and on subsequent follow-up visits at one week and one, three, six, and 12 months postoperatively. On each visit, each patient filled in the FDI and SF-36 questionnaires on the presence of the observer. Patients were specifically instructed to respond to questions about the consequences of their surgical treatment. All questions were referred to the preceding week.

Statistical analysis

Data were analysed with the aid of SPSS Statistics for Windows (version 17.0, SPSS Inc, Chicago, IL) by an independent medical statistician. For quantitative variables, the interquartile range was used if the values did not follow a normal distribution as assessed by the Kolmogorov-Smirnov test. The significance of differences between quantitative variables was assessed using Student's *t* test for independent samples or the non-parametric Mann-Whitney test if they

Table 1
Original version of the Facial Disability Index.

Item	Questions
Physical function subscore:	
1	How much difficulty did you have keeping food in your mouth moving food around in your mouth or getting food stuck in your cheek while eating?
2	How much difficulty did you have drinking from a cup?
3	How much difficulty did you have saying specific sounds while speaking?
4	How much difficulty did you have with your eye tearing excessively or becoming dry?
5	How much difficulty did you have with brushing your teeth or rinsing your mouth?
Social functioning and wellbeing subscore:	
6	How much of the time have you felt calm and peaceful?
7	How much of the time did you isolate yourself from people around you?
8	How much of the time did you get irritable towards those around you?
9	How often did you wake up early or wake up several times during your nighttime sleep?
10	How often has your facial function kept you from going out to eat, shop or participate in family or social activities?

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