

## Patient's perception of improvement after surgical assisted maxillary expansion (SAME): Pilot study

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### Abstract

**Objective:** Clinicians often assume that changes following orthognathic surgery are both physically and psychologically beneficial to the patient. The present study investigates patient perception regarding improvement after surgically assisted rapid maxillary expansion.

**Study design:** A survey with twenty-three patients was carried out to identify satisfaction with the surgical outcome and assess whether the surgery met patient expectations. General information was also collected on schooling, age, gender, chief complaint and reasons for seeking treatment.

**Results:** Most patients (n = 19; 82%) were advised to undergo surgery by a dentist. Twenty-two (95%) patients reported being satisfied with the operation procedure. Twenty-one (91%) patients reported that the procedure met their expectations. Nineteen respondents would undergo the same operation again and would recommend treatment to others with similar problems.

**Conclusion:** The need for surgery associated with orthodontic appliances to correct a transverse maxillary deficiency requires a proper explanation to patients regarding the procedure and postoperative period in order to ensure realistic expectations concerning the surgical goals.

**Key words:** Maxillary expansion, patient satisfaction, Oral Health.

### Introduction

Patient perception and satisfaction regarding the outcome of surgically assisted maxillary expansion (SAME) is influenced by pre-surgery expectations and psychological well-being. Postoperative dissatisfaction, negative mood and/or anxiety are more likely to be expressed by patients who encounter an "unexpected" event (1).

Recent findings indicate that preoperative psychological distress has a negative impact on postoperative outcome

as well as on patient perception regarding oral health before and after surgery (2). Dissatisfaction with the surgical outcome may lead to psychological disturbance and displeasure, which may be expressed through verbal complaints, threatened or actual malpractice suits and a refusal to pay for surgery (3). On the other hand, satisfaction with orthognathic surgery results in both improvement and psychosocial adjustment (4). This procedure has resulted in higher subjective estimations of function, appearance,

health and interpersonal relations than among untreated control groups (5). In the literature, however, patient expectations and perceptions regarding improvement following SAME remain unclear (5,6).

The aim of the present study was to determine patient perception of improvement following SAME with regard to factors that influence expectations prior to surgery as well as postoperative satisfaction.

### Material and Methods

Patients undergoing surgical assisted maxillary expansion between January 1, 2005 and December 31, 2006 were asked to participate in the study. Patients who were to undergo surgery for post-traumatic deformities were excluded. All subjects had transverse deformity in the maxilla with major clinical signs (posterior cross bite, dental crowding, narrow maxillary arch form, high palatal arch and negative spaces at the corners of the mouth), whether associated or not with other jaw development disorders.

A questionnaire was designed to identify patient satisfaction with the outcome of surgery; identify areas of dissatisfaction with parts of the face or jaws; and assess whether the surgery met patient expectations. General information

was also gathered on schooling, age, gender, occupation, post-operative follow-up, chief complaint and reasons for seeking treatment. The questions were based on previous surveys used in orthognathic surgery addressing patient expectations, factors that influence postoperative satisfaction, psychological profile and improvement following surgery (1-8, 6-14). The patients were also asked whether they regretted having undergone the surgery; whether they would undergo the operation again; and whether they would recommend the procedure to others.

All questionnaires were administered by the same person. Questionnaire administration was planned to coincide with the normal outpatient follow-up appointment in an attempt to increase patient compliance. If appointments were missed or the patients left without a questionnaire, one was mailed to the patient's address.

All descriptive statistics were performed using the Statistical Package for the Social Sciences (SPSS) version 14.0.

### Results

Among the 30 patients approached, 23 agreed to participate in the study, 60.9% (n=14) of whom were female and 39.1% (n=9) of whom were male. The age range was

**Table 1.** Demographic and operative data on the patients.

Nº	Sex	Age (year)	Schooling	Postoperative time (Months)	Main reason for seeking treatment	Who advised jaw correction
1	F	26	High school	24	Functional	Dentist
2	F	23	High school	9	Functional	Dentist
3	F	26	College	7	Others	Dentist
4	M	21	Elementary	8	Esthetic	My self
5	M	22	College	9	Both	My self
6	M	19	High School	8	Both	Dentist
7	M	25	High School	34	Both	Dentist
8	F	27	College	20	Others	Dentist
9	F	19	High School	2	Both	Dentist
10	M	22	College	8	Esthetic	Dentist
11	F	28	High School	6	Both	Dentist
12	F	22	High School	14	Functional	Dentist
13	F	34	College	7	Both	Dentist
14	F	20	High School	14	Both	Dentist
15	M	20	High School	24	Functional	Dentist
16	F	30	College	36	Functional	Dentist
17	M	22	College	15	Functional	Myself
18	M	23	High School	3	Esthetic	Myself
19	F	33	High School	9	Functional	Dentist
20	M	44	College	3	Both	Dentist
21	F	18	High School	9	Functional	Dentist
22	M	30	High School	14	Functional	Dentist
23	F	21	College	7	Esthetic	Dentist

from 18 to 44 years, with a median age of 23 years. Most patients were in high school at the time of surgery (n=12; 52.1%); ten (43.4%) were in college and one (4.3%) was in elementary school (adult education). Time elapsed from the operation until the interview ranged from 9 to 36 months, with a median of 22.5 months.

Most of the patients (n = 19, 82.6%) reported that they had been advised to undergo correction of their jaw anomaly by a dentist, but four (17.4%) made this decision entirely on their own. The principal reasons for seeking treatment were anticipation of improved ability to chew (n = 9, 39.1%), esthetic issues (n = 4, 17.4%), both reasons (n=8, 34.8%) and others (n=2, 8.7%). When asked what they felt was the worst part of their face, most patients cited their chin (n=10, 43.5%) (Table 1).

Regarding patient expectations and the results of surgery, 22 (95.5%) patients reported being satisfied with the operation procedure and 21 (91.3%) patients reported expectations of improvement. Fourteen (60.9%) reported being satisfied with their facial appearance; six (26.1%) reported being a little satisfied; and three (13%) reported being very happy with their new appearance (Figure 1).

Ten (43.5%) respondents reported feeling "better" following the surgery; seven (30.4%) reported feeling "a little bit better"; and six (26.1%) stated "others say that I'm better". Eight (34.8%) patients stated that the main change following surgery was to their facial appearance,

followed by chewing (n=6, 26.1%), breathing (n=6, 26.1%) and speech (n=3, 13%) (Figure 2).

The main discomfort in the postoperative period was soft diet restriction (n=9, 39.1%), followed by the first 24 hours after surgery (n=4, 17.4%), the orthodontic appliance (n=4, 17.4%), contention time (n=3, 8.7%), the first week after the operation (n=3, 8.7%) and the hospital admission (n=3, 8.7%).

Pain (n=7, 30.4%) was the main inconvenience related to the surgery, followed by swelling (n=5, 21.7%) and wound cicatrization (n=5, 21.7%). Paresthesia in the upper lip was cited in four cases (17.4%).

Median time to return to work/school activities was 18 days, ranging from 3 to 90 days. When the patients were asked whether they had received all the information that they needed prior to surgery, twenty (87%) responded affirmatively. Nineteen (86.2%) respondents reported they would undergo the same operation again if they needed it and twenty one (91.3%) would recommend the surgery to others with similar problems.

**Discussion**

The motives of patients who request rapid maxillary expansion are many and varied, but a desire for improvement in aesthetics and the alleviation of functional problems are the two most important reasons (6). The patients in the present study reported a number of different factors

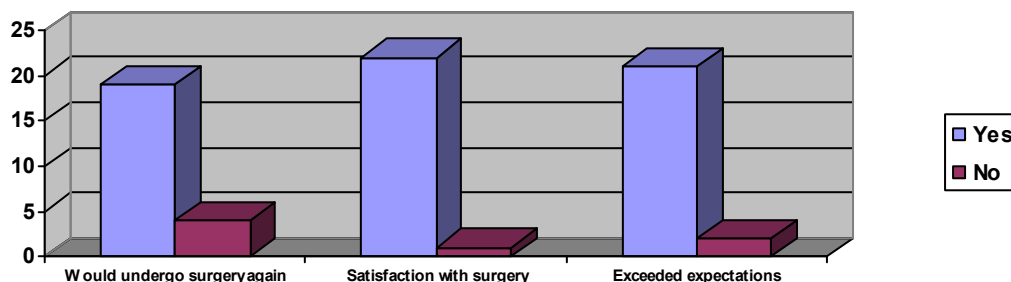


Fig. 1. Responses regarding satisfaction and expectations after surgery.

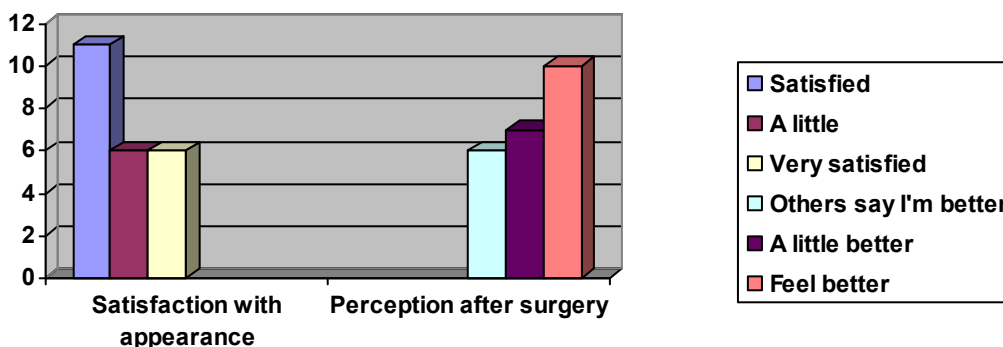


Fig. 2. Perception of improvement after surgery.

in their decision to seek surgical treatment – 39.1% cited functional reasons; 17.4% cited facial appearance; and 34.8% cited both of these factors as the most important reason for undergoing surgery. Unlike the findings of most previous studies on this topic (4,6-8), functional problems were the principal reason for seeking treatment in the present study. For some patients, however, aesthetic issues were equally important, particularly when patients recognized the results surgical correction could achieve (5).

Due to minimal changes in facial soft tissue, an accurate diagnosis of transverse maxillary deficiency may be difficult. In cases with associated vertical or anterior-posterior hypoplasia, the diagnosis is even more difficult (9). This probably explains why perception of deformity had been found to be very low (10). Most patients (82.6%) in the present study were advised to undergo jaw correction by their dentist and only a few (17.4%) made this decision entirely on their own. In addition to this lack of perception, laypeople tend to perceive significantly less need for orthognathic treatment than clinicians (6).

The present study found that most of the patients (95.5%) who had undergone maxillary expansion were satisfied with the outcome. High percentages of success have been published in previous studies (3-8). Male and female patients had similar rates of satisfaction with surgical outcome. Patient age and marital status also had no affect over the outcome. However, patients with higher levels of education tended to be more satisfied. This may be attributed to successful communication between the surgical staff and patients with higher levels of education, thereby leading to more accurate expectations among these patients (3).

Six patients (26%) reported that extrinsic impressions regarding the postoperative outcome were more relevant than their perception of improvement after surgery. On the other hand, patients with intrinsic motivation tend to have more realistic expectations regarding surgery. Thus, their desired esthetic and functional improvement may be more easily achieved through orthognathic surgery (3). Auerbach et al. (15) found that postoperative satisfaction with surgical treatment may not necessarily correlate with the surgeon's skill, but with a failure in communication between surgeon and patient. Therefore, it is important to explore the potential factors that may affect patient attitudes toward surgical results. Likewise, Olson and Laskin (16) found that dissatisfaction with surgery was related to an inadequate explanation of procedures rather than the actual outcome. The results of the present study appear to corroborate this.

In contrast with Finlay et al. (7), 87% of the present sample claimed to have received sufficient information prior to surgery, which contributed toward the high satisfaction rate regarding the results of surgery (95.5%). This finding is consistent with the range of satisfaction described in other studies (3, 8, 10-13, 17,18). Nineteen

patients (86.2%) had no regrets about their surgery and would be happy to undergo the procedure again. Twenty-one (91.3%) would recommend the procedure to others. No patient experienced any unexpected result leading to dissatisfaction with the procedure.

Facial appearance was the main change reported after surgery (34.8%), which supports the findings of Modig et al. (5). Patient perception of esthetic changes following surgery seems to override the functional reasons that brought most of the respondents to surgical treatment. In cases of severe deformity, patients were more likely to give more accurate descriptions of their existing facial problems and what they wanted corrected (4).

Unlike other studies, pain (n=7, 30.4%) and swelling (n=5, 21.7%) were the main inconveniences related to surgery (5). In the postoperative period, the findings of the present study corroborate results described in other studies reporting that the soft diet restriction and paresthesia are common areas of concern (7).

Unlike other orthognathic procedures, maxillary expansion requires an orthodontic appliance on the palate, with an average contention period of four months. During this period, patients present an unaesthetic condition of multiple anterior diastema. Such factors may contribute to patient dissatisfaction with the treatment. In the present study, however, the orthodontic appliance and contention were not cited as major sources of discomfort related to treatment. This is in contrast with Nurminen et al. (18), who found the 79% of the 28 patients who participated in their study reported considerable pain from the orthodontic appliances and one third of their patients rated orthodontic appliance as the worst part of the treatment.

## Conclusion

The need for surgery associated with orthodontic appliances to correct a transverse maxillary deficiency requires a proper explanation to patients regarding the procedure and postoperative period in order to ensure realistic expectations concerning the surgical goals.

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