ORIGINAL RESEARCH PAPER

Volume-8 | Issue-5 | May-2019 | PRINT ISSN No 2277 - 8179

INTERNATIONAL JOURNAL OF SCIENTIFIC RESEARCH

POST-OPERATIVE ASSESSMENT OF PATIENTS' UNDERGOING ORTHOGNATHIC SURGERY- A RETROSPECTIVE SURVEY OF 115 PATIENTS

Surgery

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ABSTRACT

Aim- The study was to evaluate the number of patients undergoing orthognathic surgery in last five years (between 2009 and 2014) & to determine patients' motivations for undergoing orthognathic surgery and their experiences before & after surgery.

Materials & Methods- 115 patients who underwent orthognathic surgery during the period 1st January 2009 to 30th july 2014 were included. The study excluded patients with cleft lip & palate, reconstructive LeFort with bone graft & syndromic deformity. A telephonic assessment was done based on a Questionanaire which included domains like pre surgical reasons & expectations, pain, swelling, Tmj symptoms in the recovery period, and esthetic & functional changes as a final result. The data was collected and tabulated.

Results- The study showed that the most common reason to undergo orthognathic surgery was facial esthetics. Parasthesia of the lower lip was the commonest complication with patients undergoing saggital split osteotomy. Average score of 6 was rated on VAS scale for pain by patients in immediate post-operative period of surgery. Swelling resolved completely over a period of 1-2 months. Esthetic & functional changes were satisfactory.

Conclusion-In recent times, there has been significant rise in patients undergoing orthognathic surgery. Most of the patients were satisfied with the facial and functional changes post surgery. However, pre-surgical planning of the case is essential for good post operative results.

Clinical Significance- Orthognathic surgery is performed to correct dentofacial & craniofacial deformities and improve facial aesthetics, occlusal relations, and function. The overall post-operative improvement after surgery is highly significant and accepted by patient.

KEYWORDS

Orthognathic surgery, Patient's expectations, Post-operative assessment.

INTRODUCTION:

Dentofacial abnormalities are the deformities involving that of the jaw and the dentition. These deformities have profound impact on the speech, mastication, occlusion, TMJ and facial aesthetic.[1,2]

Orthognathic surgery is the art & science of diagnosis, treatment planning and execution of treatment by combining orthodontic & oral & maxillofacial surgery to correct musculoskeletal, dento-osseous and soft tissue deformities of the jaw and associated structure. Orthognathic surgery improves dentofacial abnormalities via various different osteotomies.[3]

The prevalence of malocclusion in India has been reported to be ranging from 20-43%. A study conducted in Mangalore has observed dentofacial deformity to be in 38.5% of subjects.[4,5]

The acceptance of the results of the surgery may have difference of opinion between the patient and the clinician. However, a close relationship has been observed between patient satisfaction and psychosocial functioning. Therefore, it is very important to explain the patient regarding the achievable results after surgery.[6,7]

The study aims to evaluate the patients undergoing orthognathic surgery & to determine patients' motivation for undergoing orthognathic surgery and their expectations & experience before & after surgery.

PATIENTS & METHODS:

This study is a retrospective survey of 115 patients. A telephonic evaluation was done based on a Questionnaire 6 months post-surgery. 115 patients (females-65 & males-50) who underwent orthognathic surgery during the period 1st January 2009 to 30th July 2014 were included. The approval was granted from the Ethical Committee of D.Y. Patil University, School of Dentistry. Informed consent was obtained from the patients. The patients mostly had class II, class III, or asymmetric jaw relation. The patients were subjected to procedures, such as sagittal split osteotomy, Le Fort I osteotomy, and anterior sub-apical segmental osteotomy. Patients with cleft lip & palate, various facial cleft & syndromic deformity were excluded from the study. The questionnaire was divided into three sections: a) expectations, b) overall experience, & c) post-operative sequelae. Expectations of patients had domains like appearance, chewing, comfort, speech & self-confidence which were evaluated on Global Transition Scale (GTS).[8] Overall experience of the patient i.e. from the beginning of the orthodontic treatment till the surgery and post-operative follow up was assessed on 5-point Likert's scale for quality. Patients were asked to rate their degree of pain, swelling & altered sensation as per their perception on a 10 point scale ranging from 1 to 10. TMJ change was also noted. A record of previous history, reasons for treatment and treatment outcome was maintained. The data was collected and tabulated.

RESULTS:

The questionnaire was answered by 115 patients out which 65 were females and 50 were males. The mean age of the patients undergoing surgery was 26.39 yrs. Mean age of female is 26.29yrs and mean age of males is 26.52yrs. 72 patients (62.61%) agreed for orthognathic surgery for better facial aesthetics, 29 patients (25.22%) for better chewing ability and 14 patients (12.17%) for both.

The most common skeletal deformity was class 3 deformity (78 patients) {Graph 1}. The most common procedure performed was mandibular setback (38patients). All the patients in the study had pre-surgical orthodontics (Mean time=24 months) {Graph 2}.

The maximum patients stated that they were happy and satisfied. The overall treatment improved various parameters like facial appearance, smile, self-confidence, social life and eating ability (table 1). Improvement in speech was limited. However, speech was not the main reason for treatment. The overall experience of the patients varied from below average to above average (table 2).

The mean post-operative pain was 5.22 (table 3). The mean post-operative swelling at the end of 1st month was 6.67, which reduced to

2.39 at the end of 3rd month and 1.25 at the end of 6th month (table 4). The altered sensation was present in 13 patients, which resolved over the period of time. At the end of 6 months altered sensation was present in only 2 patients (table 5). No significant change in TMJ was noticed (mean score-1.35) (table 6).

DISCUSSION:

The patients with dentofacial deformities who requires to undergo orthognathic surgery is in much emotional and psychological stress. The clinician must understand the patient's problems and address them carefully. This ensures patients trust on the clinician. It also helps clinician to gain patients compliance before and after surgery. The long duration of treatment lays a lot of emphasis on a good patient-clinician relationship.

After orthognathic surgery high rate of satisfaction was reported by the patients. Most of the patients stated that the result of the surgery was acceptable. The factors associated with high rate of satisfaction were better aesthetic outcome, improved mastication, normal TMJ functioning and clear speech. The studies conducted by KIYAK et al., CUNNINGHAM et al. & CAMILA PACHE et al. also showed high satisfaction rates. [8,11,12]

54% of the patient reported moderate to large improvement in chewing ability after surgery. 81% of the patient in the study observed immense improvement in appearance. Majority of the patient accepted that appearance and function were the prime reasons to undergo surgery. FINLAY et al & WILMOTT et al. suggested aesthetics followed by difficulty in chewing as primary reasons to undergo surgery.[9,13]

The study showed that 70.43% patients reported of improved self-confidence after undergoing orthognathic surgery. This result shows positive direct effect on the psycho-social aspect of the patient. The retrospective studies conducted by Nurminen et al. & Hunt et al. have also identified similar psychological benefits to the patients after surgery.[16]

Most of the patients reported of no or minimal improvement in speech after surgery. This can be attributed to the fact that these patients' did not have speech as the primary reason to undergo orthognathic surgery. Therefore, perception of improvement of speech after surgery was minimal.

The post-operative pain & swelling was of concern to the patient. These problems were taken care of with judicious use of analgesics and anti-inflammatory drugs. However, swelling remained for a while, but completely resolved over the period of 3 to 6 months.

8.69% of the sample reported a deterioration in comfort following surgery, which is potentially related to surgical side-effects such as altered sensation. No statistically significant correlation was found between the age of the patients and the degree of numbness and the level of recovery of sensation. This finding of our study is in contrast to the published data. Westermark et al. (1998) and Nesari et al. (2005) reported that patients younger than 30 years at the time of surgery had fewer post-operative neurosensory problems than patients aged 30 years or older.[10,11] Bothur and Blomqvist (2003) indicated in their study that the level of neurosensory deficit following surgery was greater in females than in males.[13] No such correlation was found between the level of neurosensory deficit following surgery and the sex of the patients in this study.

The patients' main point of dissatisfaction was the length of treatment. The average length of treatment was 2 years. It was observed that a few patients treatment duration went upto 4 years. To reduce the total treatment duration and reduce the pre and post-surgical orthodontics phase 'surgery first' approach has been adopted. The surgery first approach has been reported to reduce the overall duration of treatment without affecting the quality of life of patients and giving similar results as per the conventional orthognathic surgery.[18]

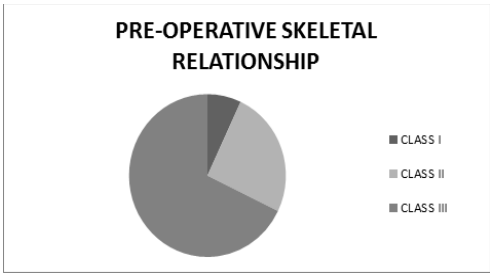
The awareness about orthognathic surgery in Indian population is much less compared to other countries. The financial limitations and long duration of treatment which again increases the cost is the major reason for less number of cases in India. However, the scenario has changed since last decade and rise in number of orthognathic surgery cases is seen.

The limitation of the study is the small sample size compared to huge Indian population and no pre-operative baseline data available to compare the after surgery results.

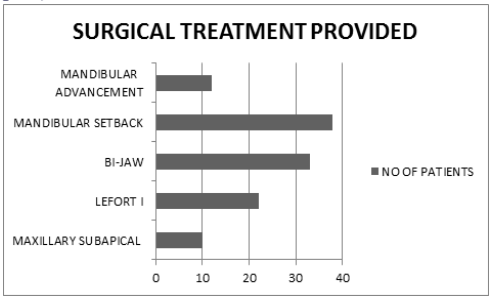
CONCLUSION & INTERPRETATION:

Pre-surgical orthodontics & orthognathic surgery is a dependable treatment option with accurate and predictable results. In recent times, there has been significant rise in patients undergoing orthognathic surgery especially among the young population. Most of the patients were satisfied with the facial and functional changes post-surgery. Patient must be explained about the realistic expectations post-surgery. Good pre-surgical planning of the case is essential for good post-operative results. There must be considerations raised in building up patient support network. One must consider surgery first approach to overcome long pre-surgical orthodontics phase.

TABLES & GRAPHS



{Graph 1}



{Graph 2}

Table 1: Global rating of post-treatment expectations.

EXPECTATION (Global transition scale)	Deterioration (1,2,3,4,5,6)	No change (7,8,9)	Minor improvement (10,11)	Major improvement (12,13)	Large improvement (14,15)
Appearance	0 (0%)	4 (3.47%)	18 (15.65%)	40 (34.78%)	53 (46.09%)
Chewing	3 (2.61%)	31 (26.96%)	19 (16.52%)	24 (20.87%)	38 (33.04%)
Comfort	10 (8.69%)	26 (22.61%)	18 (15.65%)	28 (24.35%)	33 (28.69%)
Speech	4 (3.47%)	74 (64.35%)	8 (6.96%)	10 (8.69%)	19 (16.52%)
Self confidence	0 (0%)	34 (29.56%)	36 (31.30%)	30 (26.08%)	15 (13.04%)

Table 2: Overall experiences

EXPERIENCE(Likert's scale)	Extremely poor	Below average	Average	Above average	Excellent
Overall experience	4 (3.47%)	20 (17.39%)	26 (22.61%)	53 (46.09%)	12 (10.43%)

Table 3: Post-operative pain

PAIN	1	2	3	4	5	6	7	8	9	10	MEAN
PATIENTS	2 1.74%	13 11.30%	7 6.09%	19 16.52%	16 13.91%	23 20%	26 22.61%	7 6.09%	1 0.87%	1 0.87%	5.22

Table 4: Post-operative swelling

SWELLING	1	2	3	4	5	6	7	8	9	10	MEAN
1ST MONTH	0	0	0	0	14	39	45	7	7	3	6.67
3RD MONTH	5	18	24	38	19	10	1	0	0	0	2.39
6TH MONTH	87	27	1	0	0	0	0	0	0	0	1.25

Table 5: Post-operative altered sensation

ALTERED SENSATION	1st Month		3rd Month		6th Month	
PATIENTS	Present	Absent	Present	Absent	Present	Absent
	13(11.30%)	102(88.70%)	10(8.70%)	105(91.30%)	2(1.74%)	113(98.26%)

Table 6: Post-operative TMJ changes

TMJ	1	2	3	4	5	6	7	8	9	10	MEAN
PATIENTS	93	14	5	5	0	0	0	0	0	0	1.35

REFERENCES:

1) Cunningham SJet al. Development of a condition- specific quality of life measure for patients with dentofacial deformity: II. Validity and responsiveness testing. Community Dent Oral Epidemiol 2002;30:81-90.
2) Ashish Khadka et al. Changes in quality of life after orthognathic surgery: a comparison based on the involvement of the occlusion. Oral Surg Oral Med Oral Pathol Oral Radiol Endod 2011;112:719-725.
3) fonseca
4) Joshi MR, Makhia PG (1984) Some observation on spacing in normal deciduous dentition of 100 Indian children from Gujarat. Br J Orthod 11(2): 75-79
5) Rekha P. Shenoy, Ganesh Shenoy-Panchmal, Dentofacial abnormalities among adolescents:A study on the prevalence and severity J Clin Exp Dent. 2015;7(2):e273-7.
6) Sarwer DB et al. Adult psychological functioning of individuals born with craniofacial anomalies. Plast Reconstr Surg 1999; 103:412-8.
7) C Murphy et al.: The clinical relevance of orthognathic surgery on quality of life. IJOMS. 2011; 40: 926–930.
8) Cunningham et al. Psychological assessment of patients requesting orthognathic surgery and the relevance of body dysmorphic disorder. BJ Orthod 1998: 25: 293–298.
9) Finlay PM et al. Orthognathic surgery: patient expectations, psychological profile and satisfaction with outcome. BJOMS 1995: 33: 9–14.
10) Juniper G et al. Determining a minimal important change in a disease specific quality of life questionnaire. J.Clin.Epidemiol 1994: 47: 81–87.
11) Kiyak HA et al. The psychological impact of orthognathic surgery, a 24 month follow up. JOMS 1984: 42: 506–512.
12) Camila Pache et al. Patient satisfaction after orthodontic treatment combined with orthognathic surgery: A systematic review Angle Orthodontist, Vol 86, No 3, 2016.
13) Wilmott JJ et al. Associations between severity of dentofacial deformity and motivationfor orthodontic orthgnathic surgery treatment. Angle Orthod 1993: 63: 283–288.
14) Westermark et al. Inferior alveolar nerve function after sagittal split osteotomy of the mandible: correlation with degree of intraoperative nerve encounter and other variables in 496 operations. BJOMS 36: 429-433, 1998.
15) Nesari et al. Neurosensory function of the inferior alveolar nerve after bilateral sagittal ramus osteotomy: a retrospective study of 68 patients. IJOMS 34: 495-498, 2005.
16) Nurminen st al. Motivation for and satisfaction with orthodontic-surgical treatment: a retrospective study of 28 patients. Eur J Orthod 21: 79-87, 1999.
17) Bothur S et al. Patient perception of neurosensory deficit after sagittal split osteotomy in the mandible. Plast Reconstr Surg 111(1): 373-377, 2003.
18) Shengbin Huang etal. The changes of oral health-related quality of life and satisfaction after surgery-first orthognathic approach: a longitudinal prospective study. Head & Face Medicine (2016) 12:2.