

Case Report-Treatment of a Patient with Vertical Dysplasia

Juhi Yadav¹, Pradeep Raghav², NK Ahuja³

To cite: Juhi Yadav, Pradeep Raghav, N K Ahuja, Case report-treatment of a patient with vertical dysplasia. Journal of contemporary orthodontics, Nov. 2017, Vol 1, Issue 4, page no. 44-49.

Received on:
03/10/2017

Accepted on:
29/10/2017

Source of Support: Nil

Conflict of Interest: Nil

¹MDS, Reader, Department of Orthodontics and Dentofacialorthopedics, Career Post Graduate Dental College and Hospital, Lucknow, Drjuhiyadav@Yahoo.Com, 9415550040

²MDS, Professor and Head, Department of Orthodontics and Dentofacialorthopedics, Subharti Dental College Meerut, Drpradeeppraghav@Gmail.Com, 9837175914

³MDS, Vice Chancellor, Swami Vivekanand Subharti University, Meerut, 9639010906

ABSTRACT

This is a case report of 21 year old male who turned up to the department of orthodontics with chief complaint of protruded maxilla. He had class II skeletal malocclusion with excessive vertical growth of maxilla and reverse smile arc. Excessive visibility of gum tissues leading to gummy smile. A combined orthodontic and surgical treatment resulted in harmonious occlusion, esthetics and function.

Keywords: Maxillary excess, incompetent lips, open bite, vertical growth pattern, superior repositioning of maxilla.

INTRODUCTION

When any patient reports to the department, we analyse the case to the deepest and reach to a conclusion whether to go just orthodontics or a combination of orthodontics and surgery. Patients seeking orthognathic surgery treatment have limited masticatory function. It has been studied that masticatory function has five aspects – masticatory performance, voluntary mandibular mobility, chewing cycle shape and timing, jaw muscle strength, occlusal forces¹. So patients with protruded maxilla and vertical excess do face these problems apart from esthetics. Studies quote that with protruded maxilla, patients have half of the masticatory performance relative to normal individuals.² Prognathic patients have reduced lateral excursion and have long chewing cycles with using more anterior teeth.^{3,4} Vertical growers lack muscle efficiency.⁵ So treatment of vertical growers with prognathic maxilla becomes mandatory as function and esthetics are concerned. Superior repositioning of maxilla is a treatment modality in non growers with stable results.^{6,7,8}

This article discusses a case with ortho-surgical treatment modality of a patient who had class II malocclusion with vertical maxillary excess.

DIAGNOSIS

A 21 year old male patient presented in the department of orthodontics with the chief complaint of forwardly placed upper front teeth. Examination revealed long face with excessive visibility of gingiva both at rest and smiling. Patient had incompetent lips with convex profile. Incisor exposure during speech was 7 mm and during smile was 10 mm. Patient came to the department with spaces in upper anteriors and when enquired he told some practitioner had done proximal recontouring and given him removal plate for correction of protrusion. Molar relation was class II on left side and end on on right side. Overjet of 8.5 mm and overbite of 0 mm were recorded (Fig. 1).

With the cephalometric analysis maxilla came out to be retrusive and orthognathic mandible were measured. Anterior growth pattern revealed vertical grower with excessive middle third facial height (Fig. 2). Upper and lower incisors are proclined and excessively erupted. Bolton analysis revealed mandibular anterior excess of 5.89 mm and overall excess of 4.1mm (Fig. 3) 'S' line depicted upper lip protrusive by 4mm and lower lip protrusive by 8 mm, nasolabial angle is 85 degrees. Vertical maxillary excess, proclined upper and lower



Figure 1 Pretreatment Extra oral and Intraoral photographs



Figure 2 Pretreatment lateral cephalogram

anterior teeth, excessive overjet and excessive eruption of upper and lower anteriors – justified the surgical treatment of patient.

TREATMENT PLAN

In this case treatment objectives were to level and align the arches with correction of convex profile, gummy smile with correction of increased anterior facial height. A surgical prediction was done and treatment planned

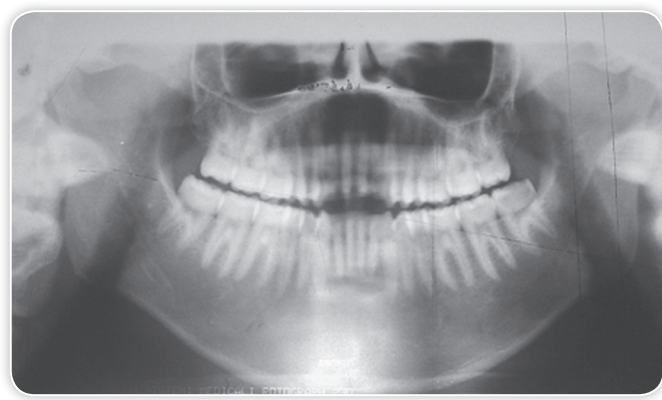


Figure 3 Pretreatment OPG

with extraction of upper first premolars to correct the overjet and superior repositioning of maxilla with 10 mm of impaction (Fig. 4).

TREATMENT PROGRESS

All first molars were banded and 022" preadjusted MBT prescription were bonded. Then we ligated 016 inch NiTi in upper and lower arches. Gradually we ligated rectangular 019 *025 inch stainless steel wires in upper and lower arches with spurs in upper arch distal to canine to help retraction of upper anteriors. Upper anterior spaces were closed. After 8 months of presurgical orthodontics, maxillary impaction of 10 mm was performed and augmentation genioplasty

in mandible was performed (Fig. 5). There was no complications recorded during surgeries and were stabilized with rigid fixation. After one month of surgery, post surgical orthodontics started to retract all anteriors. This resulted in correction of overjet and achieved a pleasing profile. Finishing and detailing were performed and then appliance was debonded.

RESULTS

Results showed improved facial thirds, balanced occlusion, pleasing smile and lip competency (Figs 6 and 7) Treatment resulted in closure of all spaces. class II molar relation with class I canine relation and ideal overjet and overbite were achieved (Figs 8 to 10) Superimposing of cephalograms showed there was

autorotation of mandible which resulted in balanced anterior facial height (Figs 11 and 12). Patient was assessed after one year of treatment, results were stable and there was no relapse recorded.

DISCUSSION

Any case before starting should be judged properly for any drawbacks. In our case as the patient was non grower with excessive anterior facial height with gummy smile and open bite, we decided to go for superior positioning of maxilla. Then we checked about the relapse of this type of surgeries. we found that maxilla can be moved successfully. Superior repositioning of maxilla with rigid internal fixation is amongst the highest successful rated procedure.⁸ As we move the maxilla upward, the position of mandible changes and occlusal forces increases. Augmentation genioplasty was also planned in this case as pogonion point was too far behind and resulting in convex profile of patient.⁹ It was achieved by using an osteotomy of lower border of mandible and repositioning of symphysis. This type of genioplasty is preferred approach as no unwanted forces are created.

CONCLUSION

This treated case clearly defines the importance of treatment planning and diagnosis. The outcome of results were both esthetically and functionally good. So if we know how, when and where to reach in treating a case, we can give very good results with the help of good team.



Figure 4 Post surgical (Extra oral view)



Figure 5 Post surgical (Intraoral view)



Figure 6 Pre and Post treatment comparison (Extra oral Front view)



Figure 7 Pre and Post treatment comparison (Extra oral profile view)



Figure 8 Pre and post treatment comparison (Intra oral front view)



Figure 9 Pre and Post treatment comparison (Intra oral occlusal view)



Figure 10 Pre and Post treatment comparison (Intra oral lateral view)

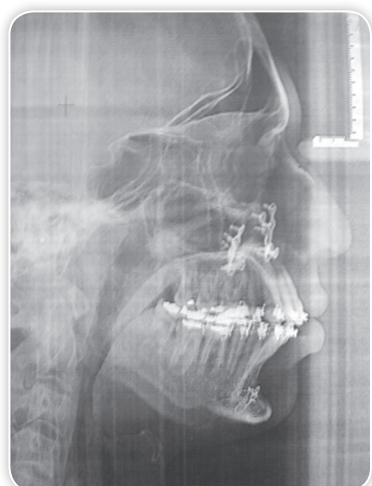


Figure 11 Post treatment lateral cephalogram

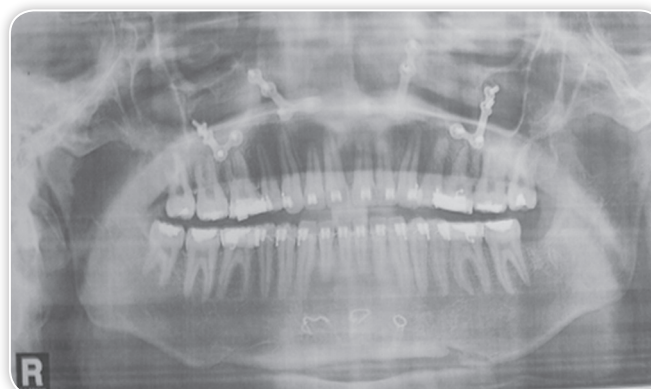


Figure 12 Post treatment OPG

Address for Correspondence

Juhi Yadav MDS
Reader, Department of Orthodontics and Dentofacialorthopedics,
Career Post Graduate Dental College and Hospitals, Lucknow,
drjuhiyadav@yahoo.com
9415550040

REFERENCES

1. Gaylord S. Throckmorton. Functional Deficits in orthognathic surgery patients. Seminars in orthodontics 2006;12(2):127-37.
2. Astrand P. Chewing efficiency before and after surgical correction of developmental deformities of the jaws. Swed Dent J 1974;67:135-46.

3. Athanasiou AE, Melson B, Mavreas D, Kimmel FP: Stomatognathic function of patients who seek orthognathic surgery to correct dentofacial deformities. *Int J Adult Orthod Orthognath Surg* 1989;4:239-54.
4. Athanasiou AE: Electrognathographic patterns of mandibular motion after bilateral vertical ramus setback osteotomy. *Int J Adult Orthognath Surg* 1992; 7:23-7.
5. Lundberg M, Nord PG, Astrand P: Changes in masticatory function after surgical treatment of mandibular prognathism. Cineradiographic study of bolus position. *Acta Odont Scand* 1974;32:39-49.
6. Fish LC, Wolford LM, Epker BN. Surgical orthodontic correction of vertical maxillary excess. *Am J Ortho* 1978;73:241.
7. Fish LC, Epker BN. Prevention of relapse in surgical-orthodontic treatment, part 2: maxillary superior repositioning. *J Clin Orthod* 1987;21:33-47.
8. Profitt WR, White RR, Sarver DM, editors. *Contemporary treatment of Dentofacial Deformity*. St. Louis: Mosby; 2003.
9. Chang EW, et al. Sliding genioplasty for correction of chin abnormalities. *Arch Facial Plast Surg* 2001.