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Class II Correction Using Twin Block Appliance: A Case Report

ABSTRACT

The aim of this study was to see the effect of twin block appliance in permanent dentition phase. Twin block from its inception and evolution of the appliance itself has been widely accepted as a more competent Class II corrector compared to earlier bulky monopoly appliances. The effect of the twin block functional appliances is mostly dent alveolar having a small skeletal effect. Functional appliances can be used successfully in growing patient with certain Class II malocclusion. It is dependent on patient's compliance. It also simplifies the fixed appliance phase. A 13-year-old girl was treated with twin block appliance. The design of appliance and treatment results were demonstrated in following case report. In permanent dentition, twin block appliance produces a similar effect as in mixed dentition phase. With proper case selection and good patient cooperation, we can obtain a significant result with twin block appliance.

Keywords: Class II, Functional Appliance, Skeletal Maturation, Twin Block.

1. INTRODUCTION

Functional appliances are those orthodontic appliances which produce skeletal and dental change using forces generated by muscles. Since a long time, these appliances have been used in clinical orthodontic and also extensively featured in the various literature^[1]. In 1982, Clark described the twin block appliance. In the United Kingdom, it was one of the popular functional appliances. Many pieces of evidence suggest that it may be considered as one of the most successful appliances for the treatment of skeletal Class II malocclusions. How much amount of mandible should be advanced for the construction of twin block is still not clear. A bite registration is mostly taken with the incisors edge-to-edge relation. Many authors have suggested that greater orthopedic effect can be achieved by advancing the bite gradually. It produces less incisor tilting in cases such as Class II division I^[2,3]. The following is a case report of a 13-year-old girl treated with twin block appliance.

2. CASE REPORT

A 13-year-old girl came to the Orthodontic department having a chief complaint of upper front teeth placed forwardly. On extra-oral examination, the patient had a convex profile, incompetent lips with an interlabial gap of 5 mm, acute nasolabial angle, receded chin position and deep mentolabial sulcus, and horizontal growth pattern (Fig.1). On intra-oral examination, it showed end on molar relation and canine relation bilaterally, overjet of 7 mm, and upper and lower midlines coincide with the facial midline (Fig.2).

The case was diagnosed as Class II skeletal malocclusion with mandibular deficiency and maxillary dental proclination. The cephalometric analysis confirmed the diagnosis of division I on skeletal Class II base (Fig.3). Patient has horizontal growth pattern and mandibular retrusion. Evaluation of patient's cervical radiograph indicated that she was at the peak of a pubertal growth spurt with a considerable amount of growth remaining. In addition to this, the patient shows positive visual treatment objective.



Figure 1: Pre-Treatment Extra Oral Photos



Figure 2: Pre-Treatment Intra Oral Photos

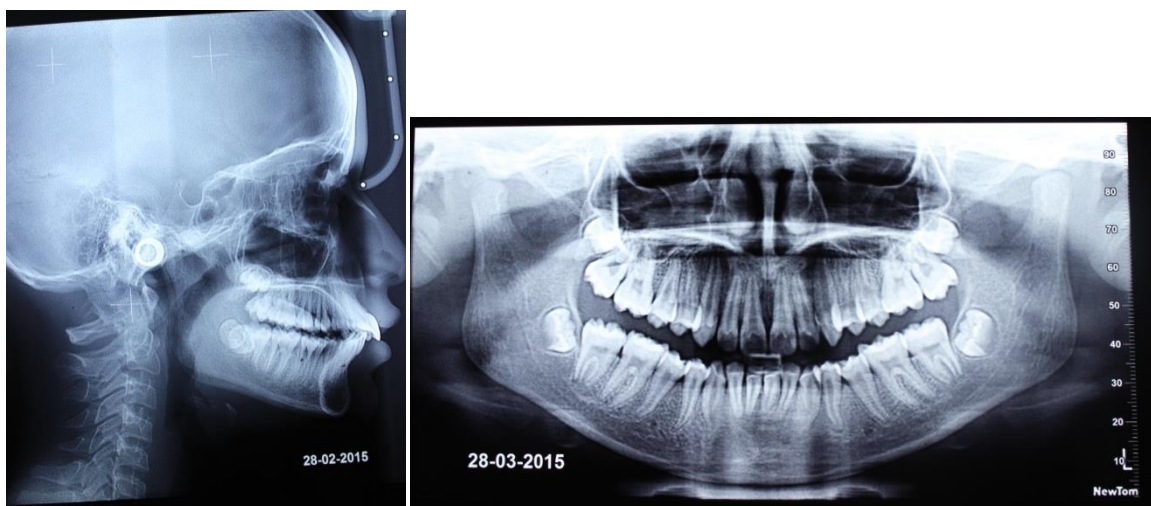


Figure 3: Pre-Treatment Lateral Cephalogram and Orthopantomogram

2.1 Treatment Objectives

- Reduction of profile convexity and lip incompetence.
- Correction of molar and canine relation.
- Achievement of normal overjet and overbite.

2.2 Treatment Plan

As the patient had skeletal and dental Class II relationship in growing phase (cervical vertebrae maturation indicators 2), growth modification was planned using functional appliance followed by the fixed orthodontic appliance for the final detailing of occlusion.

2.3 Treatment Progress

Twin block was fabricated for the patient (Figure 4). After an 11 months period of wear, significant improvement was noted in profile and lip competency (Figure 5). A significant correction in molar and canine relation was obtained along with significant reduction in over jet and overbite (Figure 6). Figures 7 and 8 show comparison of extra-oral and intra-oral changes brought about by twin block.



Figure 4: Twin Block Appliance



Figure 5: Post-Treatment Extra Oral Photos



Figure 6: Post-Treatment Intra Oral Photos



Figure 7: Pre and Post Treatment Extra Oral Changes



Figure 8: Pre and Post Treatment Intra Oral Changes

3. DISCUSSION

Class II malocclusion might have any number of a combination of the skeletal and dental component. Hence, identifying and understanding the etiology and expression of Class II malocclusion and identifying differential diagnosis is helpful for its correction and to select treatment planning whether functional, orthodontic or surgical^[4]. Clark's twin block is a functional appliance, which effectively modifies occlusal inclined plane which induces favorably directed occlusal force by causing a Mandibular displacement^[5,6]. It allows masticatory function. The patient can wear the appliance full time with little discomfort. Other advantages include esthetic, easy to repair, and robust. It is suitable for mixed dentition as well as deciduous dentition^[7].

There were several studies where they have documented the ability of twin block appliance to produce significant skeletal as well as dentoalveolar changes which in combination correct Class II malocclusion.^[8,9,10]

Here, comparison of pre-treatment and post-treatment lateral cephalogram (Figure 9) showed SNA remained unchanged, and SNB increased by 3°. ANB angle reduced up to 3°. The inclination of maxillary remains same and Mandibular incisors was proclined by 2°. Length of the mandible is increased by 5 mm (Table 1).

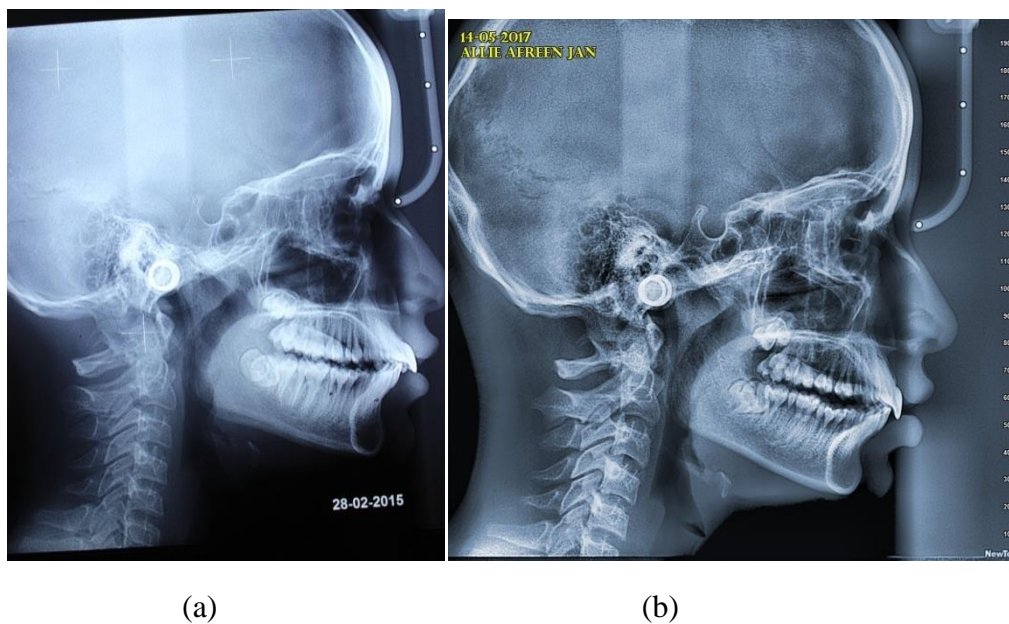


Figure 9: Comparison of Pre-Treatment (a) and Post-Treatment (b) Lateral Cephalogram.

Table 1: Comparison of Pre- and Post-Treatment Parameters

Parameter	Pre-treatment	Post-treatment
SNA	82°	82°
SNB	76°	79°
ANB	6°	3°
SN-GOGN	28°	28°
Maxillary length	78 mm	79 mm
Mandibular length	94 mm	99 mm
Nasolabial angle	79°	81°
IMPA	90°	92°

4. CONCLUSION

Effect of twin block depends upon patient's compliance and case selection. Use of this appliance during growing phase with good patient co-operation produce the skeletal effect, and some dent alveolar effect is also there.

5. CLINICAL SIGNIFICANCE

During permanent dentition phase and growing age and good patient's cooperation, twin block is as much effective as in mixed dentition phase.

6. ACKNOWLEDGEMENT

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7. REFERENCES

- [1]. O'Brien K, Wright J, Conboy F, Chadwick S, Colony I, Cook P *et al.* The effectiveness of treatment of Class II malocclusion with the twin block appliance: A randomized, controlled trial. Part 2: Psychological effects. *Am J Orthod Dentofac Orthop* 2003; 124:488-95?
- [2]. Chadwick SM, Banks P, Wright JL. The use of myofunctional appliances in the UK: A survey of British orthodontists. *Dent Update* 1998; 25:302-8.
- [3]. Petrovic AG, Stutzmann JJ, Gasson N. The final length of the mandible: Is it genetically determined? In: Carlson DS, editors. *Craniofacial Biology. Monograph No. 10.* Ann Arbor: Center for Human Growth and Development, University of Michigan; 1981. p. 105-26.
- [4]. Sharma NS. Management of growing skeletal class II patient: A case report. *Int J Clin Paediatr Dent* 2013; 6:48-54.
- [5]. Clark WJ. The twin block traction technique. *Eur J Orthod* 1982; 4:129-38.
- [6]. Clark WJ. The twin block technique. A functional orthopedic appliance system. *Am J Orthod Dentofacial Orthop* 1988; 93:1-18?
- [7]. Al-Anezi SA. Class II malocclusion treatment using combined Twin Block and fixed orthodontic appliances - A case report. *Saudi Dent J* 2011; 23:43-51.
- [8]. Trenouth MJ. A comparison of twin block, Andresen and removable appliances in the treatment of Class II Division 1 malocclusion. *Funct Orthod* 1992; 9:26-31.
- [9]. Trenouth MJ. Cephalometric evaluation of the Twin-block appliance in the treatment of Class II Division 1 malocclusion with matched normative growth data. *Am J Orthod Dentofacial Orthop* 2000; 117:54-9?
- [10]. Singh GD, Hodge MR. Bimaxillary morphometry of patients with class II division 1 malocclusion treated with twin block appliances. *Angle Orthod* 2002; 72:402-9.