Mandibular Arch Expansion- A New Treatment Approach by Transverse Transforce: A Case Report

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Abstract
Constricted mandibular arch shows difficulty in orthodontic treatment owing to their asymmetric shape and occlusal relationship. The treatment options may be many depending on the clinician’s ability and perception to the problem. This case report describes management of constricted mandibular arch by transverse transforce, thereby successfully correcting the mandibular arch and establishing a good occlusal relationship.

Key Words: Constricted Mandibular Arch; Transverse Transforce.

Introduction
One of the primary goals of an orthodontic treatment is to attain and preserve facial attractiveness.(1) If a treatment plan does not begin with a clear view of its aesthetic impact on the patient, then the results can be disastrous. Transforce lingual appliances are designed to correct arch form in patients with contracted dental arches.(2, 3)

Palatal and lingual appliances insert in horizontal lingual sheaths in molar bands. No activation is required after the appliance is fitted. Both sagittal and transverse appliances have additional components to achieve 3-way expansion where this is indicated.(4) These appliances may be used in correction of all classes of malocclusion at any stage of development, from mixed dentition through permanent dentition.(5) This case report shows correction of constricted mandibular arch by transverse transforce appliance.

Case Report
A 15 years old female patient reported to our department with a chief complaint of irregularly placed upper and lower front teeth. Patient had a convex profile, mesoprosopic face, and potentially incompetent lips. Patient is skeletal class I with mild severity and anteriorly placed maxilla and hypo divergent jaw bases. Patient is dental class II div I subdivision left side with 9mm of overjet and 6mm of overbite.

Objectives of the treatment was a) correction of constricted mandibular arch, b) correction of proclination and spacing in upper arch, c) correction of crowding in lower arch, d) correction of molar relationship and e) correction of overjet and overbite. Non-extraction treatment plan was decided with Transverse Transforce in lower arch, to idealize the arch forms and then fixed functional appliance for correction of molar relationship and achievement of normal overjet and overbite.

Transverse transforce appliance comes in 2 sizes for upper arch (size 1-29mm and size 2-32mm) and in 2 sizes for lower arch (size 1-26mm and size 2-28mm). Each expander contains nickel titanium springs generating approximately 200 grams of force. In this patient size 1 transverse transforce for 6 months was given (Figure 1). After 4½ months of delivering this appliance, approximately 7mm expansion in inter canine width was achieved. The appliance was left for 1½ months for retention, after this fixed functional appliance was given (Figure 2).

Discussion
Interceptive treatment with this new series of pre-activated lingual appliances offers new possibilities for arch development, in combination with fixed appliances.(5) Advantages of transforce appliance are, a) it produces 200gm of gentle biocompatible force, b) it can treat all classes of malocclusion, c) its force module provides gentle biocompatible force, d) no lab work is required, e) no activation is required after the appliance is fitted, and this principle is extended to a series of appliances for sagittal and transverse arch development, f) both
sagittal and transverse appliances have additional components to achieve 3-way expansion where this is indicated, and g) the invisible lingual appliances may be used in correction of all classes of malocclusion at any stage of development, from mixed dentition through permanent dentition, and this approach has wide indications in adult treatment.(1-3)

**Conclusion**

In conclusion this is a simple pre-fabricated appliance with minimal discomfort to the patient and no laboratory work required.

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Source of Support: Nil, Conflict of Interest: None Declared