Transforce Appliance – A Review of Literature

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Abstract:- Transverse malocclusions are always subjected to early intervention and treatment, since growth tends to seize first in the transverse direction. Many appliances which have come up for expansion of the maxillary arch especially due to the requirement for expansion in cleft lip and palate patients. Expansion in maxillary arch can be done with various appliances like Quadhelix, W arch, NiTi palatal expander, hyrax appliance and so on. When it comes to the mandibular arch, the concept of expansion isn't similar to that of the upper arch. This is due to the absence of sutures and light slow continuous forces are required for expansion of mandibular arches, where TransForce lingual expander was one such appliance.

Keywords:- Mandibular Arch Expansion, Transforce Appliance, Arch Development.

I. INTRODUCTION

Malocclusions are basically categorized in three dimensions – transverse, vertical and sagittal. Transverse malocclusions are always subjected to early intervention and treatment, since growth tends to seize first in the transverse direction. Over the years, there have been many appliances which have come up for expansion of the maxillary arch especially due to the requirement for expansion in cleft lip and palate patients. Expansion in maxillary arch can be done with various appliances like Quadhelix, W arch, NiTi palatal expander, hyrax appliance and so on.

When it comes to the mandibular arch, the concept of expansion isn't similar to that of the upper arch. This is due to the absence of sutures and light slow continuous forces are required for expansion of mandibular arches, where TransForce lingual expander was one such appliance developed by W. J. Clarke in the year 2004. The advantages of this being that it helps in gaining arch length, and if used during mixed dentition helps in favorable eruption path for canines and premolars. Along with these advantages it is also comfortable to wear.

II. TRANSFORCE LINGUAL EXPANDER

Fig 1: Types of Transforce appliance

TransForce appliance was introduced by William. J. Clarke in the year 2004. And this appliance was designed to be used in both maxillary and mandibular arches. It also is used in expansion in both anteroposterior and transverse directions. The major advantages being that it is pre activated, and so the patient does not have a role to play in the activation; hence its non-compliant.

III. APPLIANCE DESIGN, SELECTION AND FITTING

The appliance is inserted into the 0.036-inch lingual sheaths placed on the molars. In the sagittal expansion appliance both unilateral or bilateral expansion is possible. The appliance consists of expansion modules activated by a coil spring which is embedded into a stainless-steel tube. The

distal portion of the wire is recurved to turn mesially and adapt to the anterior segment.

Fig 2: Band selection and adaptation

On placement into the oral cavity the sagittal expander increases arch length by having a reciprocaleffect on molars and anteriors. Transverse expander is generally available in two sizes for both maxillary and mandibular arches. Clear templates are used to measure the intercanine width and both compressed and passive forms of the appliance are given in the preliminary template, and the compressed form is generally chosen as the size of choice. And the amount of expansion expected is the size in the passive form of the appliance.

Molar bands with 0.036-inch lingual sheath are placed and the pre activated transforce expander is inserted into the oral cavity. Patients are recalled at an interval of 6-8 weeks for checking on expansion.
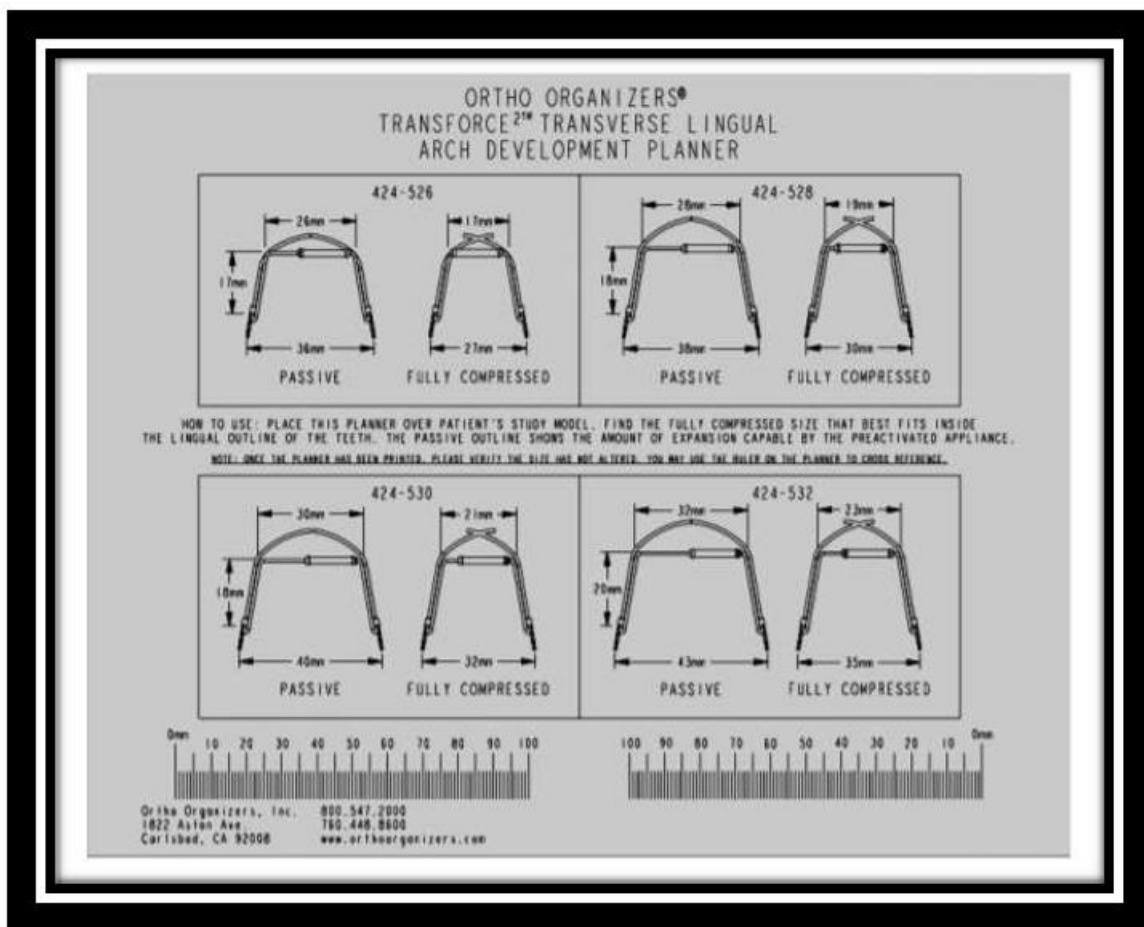

Fig 3: showing different sizes & dimensions

➢ *Types*
- *Transverse Arch Developer*
- *Sagittal Arch Developer*

TransForce² Transverse Arch Developer

The Transverse Appliance has an expansion module to increase the inter-canine width (expands at the cuspids) and may be used in the upper or lower arch when expansion is required to accommodate crowding in the labial segments, or to correct arch width in constricted arches.

CATALOG NUMBER	COLOR-CODE		TRANSVERSE SIZE: INTER-CANINE FULLY EXTENDED	TRANSVERSE SIZE: INTER-CANINE FULLY COMPRESSED	MAXIMUM AMOUNT OF EXPANSION
424-500			Transverse Kit		
424-526	🟥	Red	26 mm	18 mm	8 mm
424-528	🟩	Green	28 mm	20 mm	8 mm
424-530	🟪	Purple	30 mm	22 mm	8 mm
424-532	🟪	Pink	32 mm	24 mm	8 mm

Transverse Arch Development Planner   424-500T

TransForce² Sagittal Arch Developer

The Sagittal Appliance is specifically designed for anterior arch development (creates space by advancing the 3x3 labially) and is often indicated for simultaneous use in both arches. The appliance operates on the slide principle and may be used unilaterally or bilaterally to extend arch length.

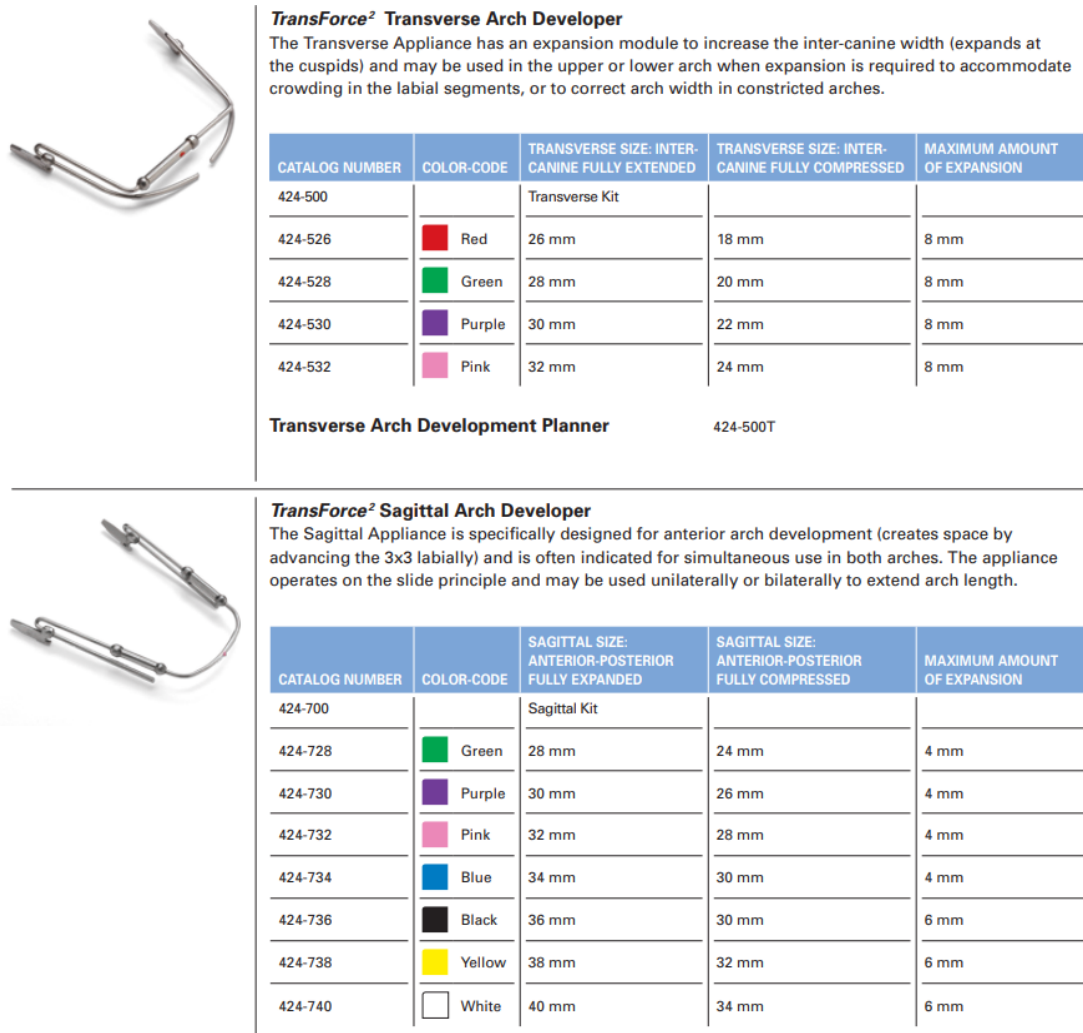| CATALOG NUMBER	COLOR-CODE		SAGITTAL SIZE: ANTERIOR-POSTERIOR FULLY EXPANDED	SAGITTAL SIZE: ANTERIOR-POSTERIOR FULLY COMPRESSED	MAXIMUM AMOUNT OF EXPANSION
424-700			Sagittal Kit		
424-728	🟩	Green	28 mm	24 mm	4 mm
424-730	🟪	Purple	30 mm	26 mm	4 mm
424-732	🟪	Pink	32 mm	28 mm	4 mm
424-734	🟦	Blue	34 mm	30 mm	4 mm
424-736	⬛	Black	36 mm	30 mm	6 mm
424-738	🟨	Yellow	38 mm	32 mm	6 mm
424-740	⬜	White	40 mm	34 mm	6 mm

Fig 4: Color coding and selection of appliance

IV. CONCLUSION

Arch development techniques are effective in the correction of types of malocclusion and maybe indicated from early mixed dentition to adult treatment. Transforce appliance is a good choice for arch development in both sagittal as well as in transverse dimension.

Transforce lingual appliances are acceptable to patients who might otherwise be reluctant to wear orthodontic appliances.

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