Case report:

Intra-arch non-compliant mechanics for maxillary 2nd molar buccal crossbite: A transpalatal arch with L-Loop

[1]Dr.Renuka Patel,[2]Dr.Falguni Mehta,[3]Dr.Shivam Mehta,[4]Dr.Swati Khonde

[1]Assistant professor, Department of orthodontics,govt.Dental college and hospital,Ahmedabad , India [2]Head and professor, Department of orthodontics,govt.Dental college and hospital,Ahmedabad, India

[3]P.G. part-3, Department of orthodontics,govt.Dental college and hospital,Ahmedabad, India

[4]P.G. part-2, Department of orthodontics,govt.Dental college and hospital,Ahmedabad, India

Corresponding author: Dr. Renuka Patel

Abstract:

For over a decade, various modified appliances have been described which are placed intraorally to make a treatment successful independent of patient compliance. Many cases are seen with 2nd molar buccal crossbite in routine clinical practice, adding significantly to treatment time. Different methods have been suggested to correct it, but a better method would be to correct it without extrusion. So in the present article we have modified the transpalatal arch in a way that its middle loop is directed distally with two additional L-loops directed mesially, E-chain is connected to 2nd molar to correct it during any phase of orthodontic treatment when mandibular arch is well-aligned.

Key Words: Cross bite,Transpalatal arch with L-Loop,E-chain

Introduction:

The Transpalatal Arch introduced by Goshgarian, soldered or removable have become a routine part of orthodontics for the purpose of anchorage..Transpalatal arch can be used as an adjunct during orthodontic treatment to control the movement of maxillary 1st molars in three dimensions including molar rotation,uprighting and maintaining transverse dimension posteriorly. Transpalatal arch has been modified for different purposes e.g.for space maintainance,intrusion etc.. Here we made transpalatal arch with bilateral symmetrically positioned L-Loop for correcting transverse discrepancy of maxillary 2nd molar.

Fig.1:Intra-oral view with assembly

Fig.2: Maxillary 2 molar Buccal crossbite of 4mm

Fabrication procedure:

An impression is taken with prewelded molar bands on maxillary 1st molar and study cast is made. In the patient shown here there is a buccal crossbite of maxillary 2nd molar about 4mm on left side(Fig.2). A modified TPA is made from 1.0mm hard stainless steel round wire with middle omega shaped loop directed distally and two additional L-loops directed mesially (8mm long and 8mm wide). They are symmetrically positioned on either side of the middle loop at the bisecting point of mesial surface of maxillary lateral incisor and of 1st molar adapted along the palatal curvature about 2mm away from the palatal tissue .It is then soldered on the palatal aspect of the 1st molar band. This assembly is cemented on the maxillary 1st molars. Buccal tube is bonded on maxillary 2nd molar buccally .Additional L-loop is used for engaging an E-chain.An open long clear E-chain(Rabbit force,Libral traders)which exerts about 128gms(4.5 oz)of force is inserted from the buccal tube of maxillary 2nd molar crosses over the occlusal surface to L-loop on left side(Fig.1) .E-chain has to be changed every 3weeks.Buccal displacement of maxillary 2nd molar gets aligned with in 3months(Fig.4) 0.017×0.025 HANT is extended to 2nd molar to maintain the correction. Light force of 1oz(28.56gms) with prestretched E-chain is maintained for next 3months to prevent relapse(Fig.3).

Fig.3: After 3months Maxillary 2 molar in occlusion

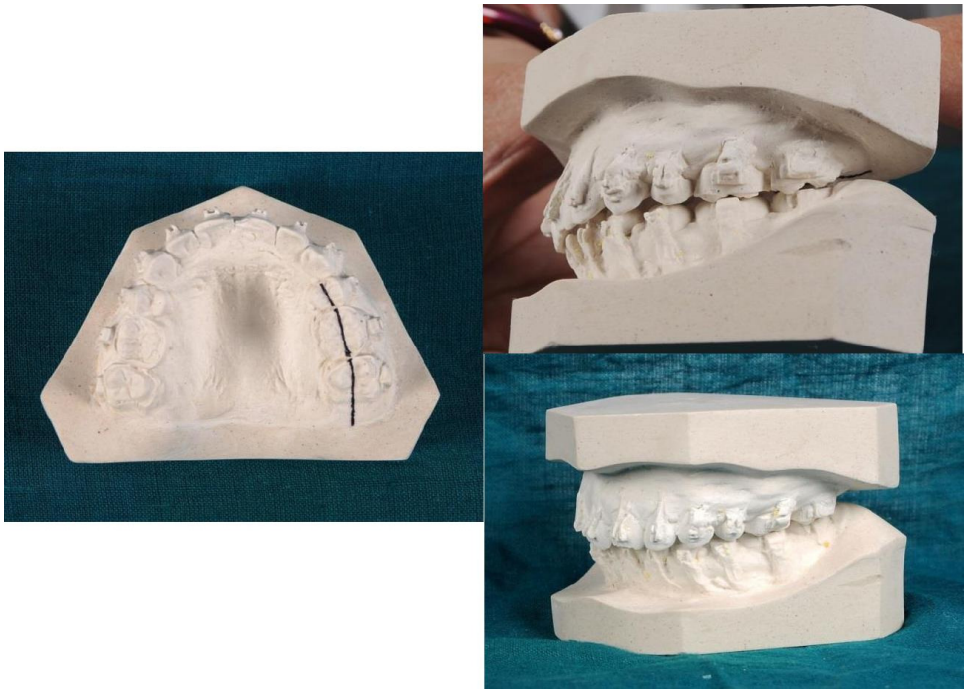

Fig.4: Maxillary 2 molar in archform

Discussion:

This modification of TPA allows it to be used in more cases while saving on treatment time.And by incorporating L-loop we have virtually eliminated unwanted extrusion,which frequently occurs in inter- arch correction with 'S' elastics.But in this intra-arch mechanics,E-chain crosses over the occlusal surface of maxillary 2nd molar along with low placed L-loop delivers intrusive force on maxillary 2nd molar .However, it helps to deliver an isolated force on buccally displaced maxillary 2nd molar without disturbing anchor unit and simultaneous desired movement of the dentition.And also this mechanics does not interfere with the physiologic eruption of teeth in the counterpart. A modified Transpalatal arch with L-loop is simple in design ,easy to fabricate ,not soldered , has minimal chances of breakage ,prevents slippage of E-chain ,is non-compliant and

without disturbing anchor unit and simultaneous desired movement of the dentition.And also this mechanics does not interfere with the physiologic eruption of teeth in the counterpart. A modified Transpalatal arch with L-loop is simple in design ,easy to fabricate ,not soldered , has minimal chances of breakage ,prevents slippage of E-chain ,is non-compliant.

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