

## Clinical Pearl

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## Modified TPA for Couple Force Systems

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### INTRODUCTION

Couple force is required for the correction of moderate to severely rotated teeth.<sup>1</sup> Accurate bracket placement or wire engagement in a rotated tooth is often compromised in the initial phase of the treatment. The shape of the upper premolar roots also augments the difficulty for de-rotation. Distal-in rotation of a maxillary tooth are comfortably corrected by attaching a couple force from TPA to a lingual attachment on the rotated tooth. But for mesial in rotation of a maxillary tooth requires mesial driving force from the lingual side, which when delivered from the anterior teeth results in its detrimental effects.<sup>2</sup> Hence, a modified removable TPA offers a simple, safe, less time consuming and economical solution. This modification can be helpful in several other aspects of the treatment procedure which is discussed with case reports.



Fig.1: Fabricated Modified TPA

### FABRICATION (Fig.1)

- Fabricate a removable TPA in 0.7mm stainless steel wire with its insertion from mesial end of the lingual sheath to distal end. (If fabricated with its insertion from distal side, then free end of the TPA cannot be extended toward anterior direction.)
- While fabricating TPA, bend the double back (which will be inserted inside the lingual sheath) with its free end extending to the mesial side.
- Then adapt the wire according to the lingual contours of the premolars.
- The wire can be extended till the canine or lateral incisor depending upon the purpose of the treatment procedure.
- At the free end, make a helix or two helices of 2mm diameter adapting to the palatal contours.
- Composite or acrylic can be placed onto the free end of the wire to prevent soft tissue injury.

### PLACEMENT

- Place the removable TPA inserting from mesial side of the lingual sheath with the help of a Weingart plier and secure it with ligature wire.
- To correct mesial-in rotation of premolar, engage E-chain from the helix of the TPA to the lingual attachment on the premolar.

### CASE REPORTS

#### Case report 1:

Mesial-in rotation of first premolar was corrected with the help

of modified TPA described above (Fig 2). In the left upper quadrant the premolar was successfully rotated and mesialised using the traction from the helix to create space for the ectopically placed transposed canine. The un-favorable root positions of the canine and premolar made it difficult to mesialise the canine.

**Case report 2:**

Right upper first premolar was moved mesially with the help of modified TPA described above (Fig 3). E-chain was engaged to helix of the modified TPA to the lingual attachment on the right upper first premolar. This generated a couple force for mesialisation of the premolar preventing its rotation.



Fig.2: Intraoral occlusal view of before and after correction of Case report 1



Fig.3: Intraoral occlusal view of before and after correction of Case report 2

**CONCLUSION**

The modified TPA has proven to be an easy and quick method for the management of mesial-in rotation of premolars with flat root configuration eliminating the need for complicated biomechanics.

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