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Review Article

Andy's 'T-pin': Crown and root aligning auxiliary

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ABSTRACT

Orthodontists strive for accurate bracket positioning as it helps in achieving an ideal occlusion more easily. For accurate bracket positioning in direct bonding, various hand-held dental instruments are used. Instruments such as, the Boone and Dougherty gauges, MBT gauges, A-KAM and various other modifications, are used for accurate positioning of brackets. Sometimes the bracket can easily slip when the instrument is removed. So, position adjustments are difficult with such an instrument. Indirect bonding is an easy solution, but it is time-consuming and there is no precise repositioning of brackets that fall off and it does not provide proper root paralleling. This led us to develop an auxiliary which can be used for crown and root paralleling or aligning, horizontal, vertical and axial positioning of bracket (Pre-Treatment assessment) during direct bonding. This will avoid the step of repositioning of the bracket at mid or end of the treatment.

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1. Introduction

For an orthodontist in modern orthodontic practice the most important skill is bracket placement. According to Roth, 'At the heart of every excellent treatment result lies a well-placed appliance, regardless of the appliance that is used. If the bracket is poorly positioned it will result in poorly positioned teeth and many more archwire adjustments will be required. Ultimately there will be an increase in treatment time or final occlusion which is less than ideal.¹ Recently various techniques have been described for improving bracket positioning most of these are helpful in improving the vertical positioning of the bracket during bonding.¹ The orthodontic treatment aims to move the teeth into a stable, aesthetic, and functional occlusion with every crown and root positioned ideally in three dimensions. Orthodontists follow Andrews' six keys to normal occlusion to achieve

this optimal occlusion. Four of Andrew's' keys (molar relation, rotations, spaces and occlusal plane) are guided by crown position, and remaining two keys (mesiodistal angulations and buccolingual inclinations) depend on both crown and root position. Root position is important for mesiodistal angulation and buccolingual inclination because of variations in crown morphologies, inconsistencies in crown-root angulations, and a crown is short relative to root length. For successful orthodontic treatment accurate root position is integral part.² Some of current methods, which monitor root position are either inaccurate, exhibit poor resolution, or use relatively large amount of radiation. Good axial inclinations and adequate root parallelism with regular bone distribution between teeth is important to obtain and maintain a stable treatment results.³ At mid treatment or end of the treatment the most common difficulty which is faced by the orthodontists is inaccurate root paralleling which need to reposition the bracket again and increases

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the duration of treatment.² We have developed an auxiliary 'T' pin which is used initially for bonding procedure and the major advantage of this pin is this avoids the step of repositioning of the bracket and this device is all in one which is also use for horizontal and vertical positioning of bracket.⁴⁻¹²

2. Fabrication

2.1. Armamentarium- (Figure 1)

1. Gas Torch
2. Universal Plier
3. Distal end cutter
4. Tweezer
5. Probe
6. 0.017 x 0.025 gauze S.S wire
7. Cut pieces of 0.017 x 0.025 gauze S.S wire
8. Soldering Flux
9. Soldering Wire



Fig. 1: Gas torch, universal plier, distal end cutter, tweezer, probe, 0.017 x 0.025 gauze S.S wire, Cut pieces of, 0.017 x 0.025 gauze S.S wire, soldering flux, soldering wire.

2.2. Methodology

1. To fabricate 'T' PIN auxiliary 0.017 x 0.025 gauze S.S wire is used which is often available in any orthodontist's instrument set.
2. This auxiliary has two arms one is called vertical arm (10mm) and other is called horizontal arm (4mm) (Figure 2)
3. After that S.S wire is cut into 10x4mm length. (Figure 3)
4. Application of soldering flux with probe (Figure 4)
5. Both the arms are then soldered in 'T' like fashion using Soldering flux and Soldering material by holding with Tweezer (Figure 5)
6. 'T' should be snugly fit into horizontal slot (Figure 6)

7. And vertical arm should be in line with long axis (Figure 6)

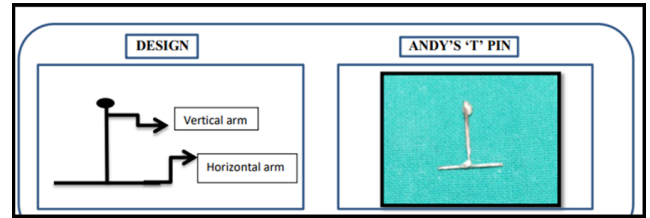


Fig. 2: Vertical arm (10mm), horizontal arm (4mm)

2.3. Procedure

1. Place the 'T' pin into vertical slot of bracket make the adjustments according to dimensions of teeth.(Figure 6)
2. Take RVG along with 'T' pin with patient in accurate sitting position. (Figure 7)
3. Check the RVG (Figure 8)
4. And following these easy and few steps we can easily achieve accurate, early root paralleling, proper horizontal and vertical and axial accuracy during bracket positioning initially.

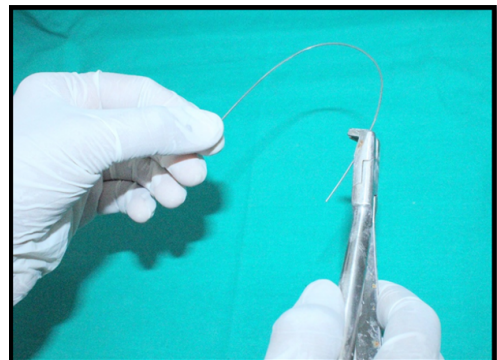


Fig. 3: 0.017 x 0.025 gauze S>S wire cut with distal end cutter into 10 x 4mm length.

2.4. Advantages

1. Crown and Root aligning
2. Axial, Horizontal, Vertical and mesiodistal accuracy
3. Less exposure of patient from various radiographic techniques (OPG)
4. Simplicity in Design:
 - (a) Fabrication is easy
 - (b) Less time required for fabrication
 - (c) Transport is easy
 - (d) Cost-effective
 - (e) Comfortable to patient

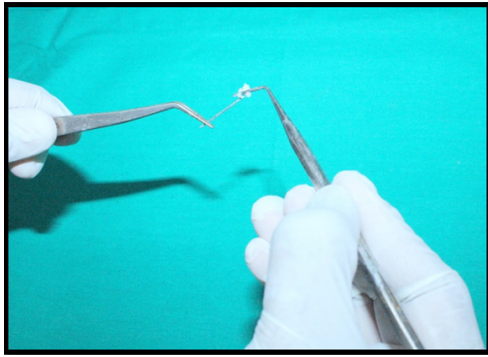


Fig. 4: Application of soldering flux with probe.

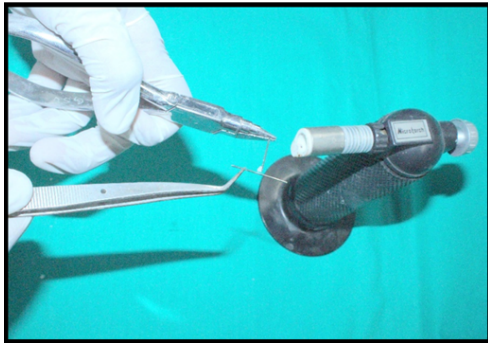


Fig. 5: Both the arms are then soldered in 'T' like fashion using soldering flux and soldering material by holding with tweezers and universal pliers

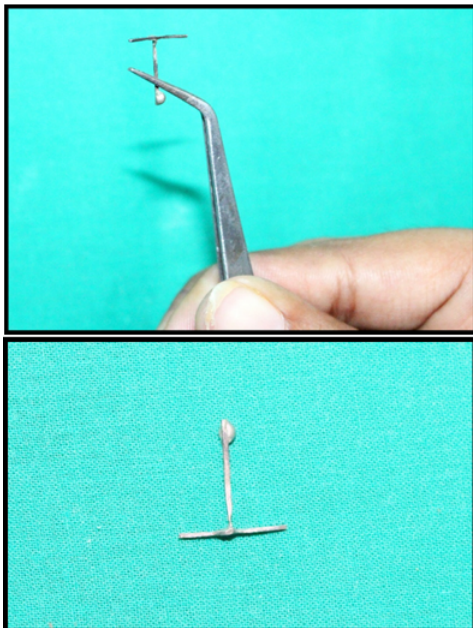


Fig. 6: Andy's 'T' Pin

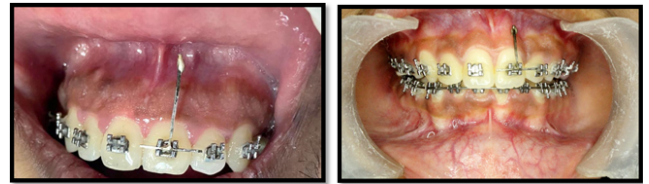


Fig. 7: Intraoral placement of Andy's 'T' pin



Fig. 8: RVG is taken after placing Andy's 'T' pin

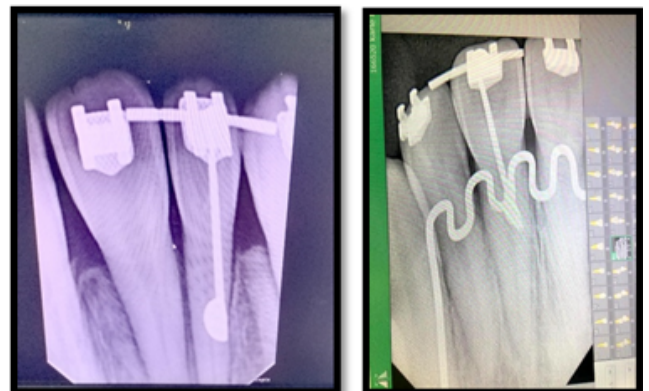


Fig. 9: RVG of same tooth with Andy's 'T' pin

3. Limitations

1. For every tooth RVG has to be taken.
2. Bracket positioning can be change while shooting x-ray.

4. Conclusion

Andy's 'T'pin auxiliary is used primarily to assess the crown and root aligning and root parallelism. And also, can be used for accurate bracket positioning which avoids the repositioning of bracket.

5. Source of Funding

None.


6. Conflicts of Interest

There are no conflicts of interest.

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