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# Grid-Check: A Clinical Innovation for Optimal Bracket Positioning

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***Abstract:*** *The pre-adjusted edgewise system, a widely employed technique requires optimal bracket positioning to ensure a successful outcome.[1,2] There has been paucity in modifications of bracket positioning gauges in terms of ease in manufacturing,readily available chair-side materials and positioning the brackets in all three planes. In view of this we have modified a straight explorer with a rotating grid of dimensions 1cm x 1cm which is attached to it by a needle soldered to a piece of band crimped around the edge of the grid. This ensures optimal bracket positioning in all three planes with an easy chair-side fabrication.*

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## I. Introduction:

The pre-adjusted edgewise system is one of the most popular techniques that has been employed widely in routine clinical practice and is relevant despite a number of upcoming advancements in the field. Optimal positioning of brackets in the pre-adjusted edgewise system has been regarded as an integral part of the treatment procedure and plays a shaping role in determining a successful treatment outcome. It has been postulated that proper positioning of brackets allows the teeth to be positioned with a straight wire in occlusal contact with the in-built tip and torque of the prescription being expressed fully and efficiently.[1]

Bracket positioning errors could occur in three dimensions: horizontal, axial and vertical, all leading to inadvertent tooth movements than an optimal one.[2,3] Despite the use of gauges and bracket positioning charts ,occurrence of errors is a common sight in practice.

A number of modifications of gauges have been available to overcome such errors [4,5] , despite which there has been a paucity in terms of the ease of manufacturing , readily available chair-side materials and positioning the brackets in all three planes.

Therefore, we modified a straight explorer ,an essential dental amenity with a rotating grid that comprised of 10-mm markings to verify the horizontal, vertical and axial accuracy of positioned brackets before subjecting to curing.

**Design :** The instrument is a modification of a straight explorer with a rotating grid (1cm x 1cm ) that has ten boxes, each 1- mm apart attached to the end of the explorer by means of a 18-gauge needle soldered to a piece of band material crimped around one edge of the grid.(Figure1)

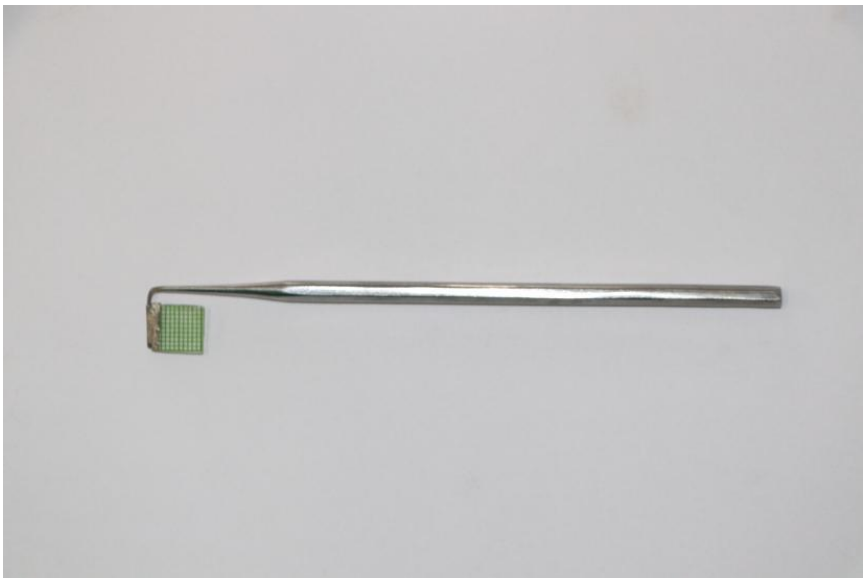

**Figure 1**

**Fabrication:**

1. A 1cmx 1cm box is cut out from a sim grid used for arch forms.
2. Band material (0.004 thickness, 0.015 inch wide) is crimped around one edge of the grid.
3. A 18-gauge needle is trimmed using a disc.
4. Solder the crimped band to the needle.
5. Attach the grid back to the crimped band and fix it with glue.(Figure2)
6. Grid-needle component is attached to the explorer tip.

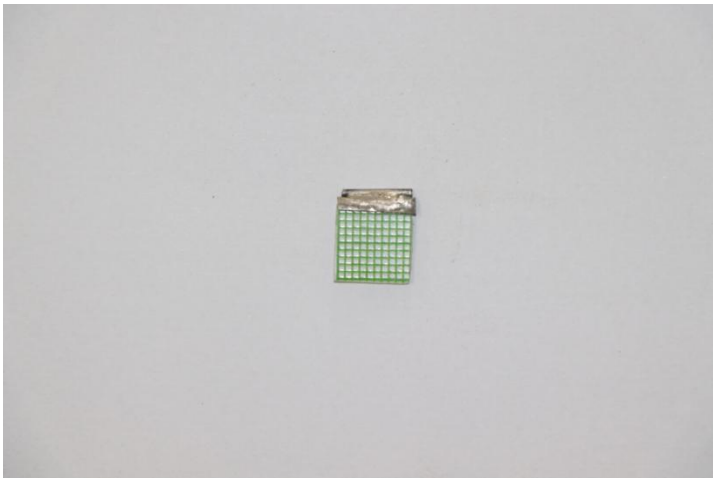

**Figure 2**

**Clinical use:**The Grid-Check instrument can be used during the bonding procedure to verify the vertical and axial accuracy by placing it labial to the tooth onto which a bracket has been positioned, by correlating the 1mm boxes to the tooth dimensions and thus, the positioned bracket(Figure 3).It could also be used to check for horizontal accuracy by placing the grid over the occlusal aspect(Figure 4).Since, the design permits rotation as on a hinge joint ,the grid position can be varied to both sides of the arch and to verify positioning in different dimensions.

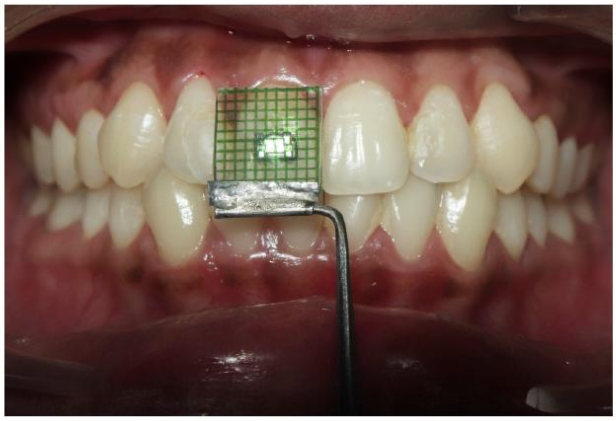

**Figure 3**

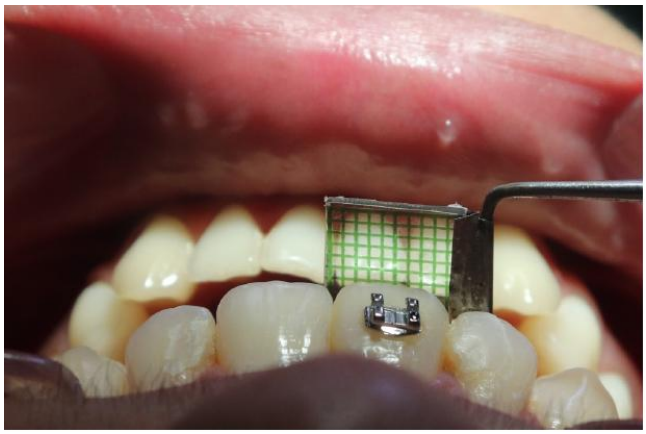

**Figure 4**

## II. Conclusion:

To sum up, the grid check instrument is anuseful clinical adjunct to verify and aid in a more optimal bracket positioning that offers simplicity in terms of its design and the ease with which it can be fabricated in a chair-side set up. Its makeshift design allows for verifying accuracy in three dimensions and hence, reducing the chance of errors.

## References:

[1]. David Armstrong, Gang Shen, Peter Petocz, M. Ali Darendeliler. A comparison of accuracy in bracket positioning between two techniques—localizing the centre of the clinical crown and measuring the distance from the incisal edge. Eur J Orthod2007; 29:430–436.
[2]. Peter V. Fowler.Variations in the Perception of Ideal Bracket Location and its Implications for the Pre-adjusted Edgewise Appliance, Br J Orthod 1990;17: 305-310.
[3]. McLaughlin RP, Bennett JC, Trevisi HG. Systemized Orthodontic Treatment Mechanics. Mosby, London; 2001.
[4]. Sharma NS , Shrivastava SS, Hazarey PV.A new 2D bracket-positioning gauge. J Indian Orthod Soc 2011;45:202-4.
[5]. Ambekar A, Agrawal KD, Madansure A, Sonawane M.A-KAM, bracket positioning device. J Indian Orthod Soc 2018;52:147-8.

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