Visiogauge: A Modified MBT Gauge

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ABSTRACT

Bracket placement is an integral part of orthodontic treatment and it is needless to say that appropriate placement of the brackets is the most desirable. Over time, many devices and aids have been made to help an orthodontist to achieve this aim of placing the bracket to the most desirable position, but for some other reason, most of them have failed to achieve the desired position. In the present scenario, the most useable instrument for this purpose is the MBT gauge, which even though has its shortcomings, but has proven quite effective. One of its major disadvantages has been its non-ergonomic design because of which the orthodontist has no direct or indirect vision for the placement and as a result, the operator has to bend in a fatiguing posture or place it arbitrarily. To overcome this obstacle, we have custom-made "Visiogauge" which has an ergonomic-friendly design to help the doctor in achieving ease to use indirect vision. It not only would cater to the orthodontist to correct posture but would also enable him to achieve a higher level of precision in bracket positioning making it the required third eye.

Keywords: Bracket positioning, MBT gauge, Visiogauge.

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INTRODUCTION

Orthodontics is a branch of dentistry that deals with the alignment and leveling of the teeth while maintaining or improving the surrounding skeletal structures to obtain the desired results.^{1,2} To treat dental occlusion various appliances have been used. Most commonly, MBT bracket system is used in orthodontics which is the preadjusted kind of bracket system, i.e., torque and tip are incorporated in the bracket itself so to fully express its potential to move the tooth in the desired direction one has to place bracket at the FA point, i.e., mid-point of tooth structure which is formed by the intersection of the horizontal and vertical line.³⁻⁵ So to place bracket at that particular point orthodontist has to use a various instrument in the oral cavity such as MBT gauge and mouth mirror and probe, which sometimes create a fatiguing condition for the patient and the orthodontist also. This results in a decrease in the efficacy of the treatment and also increased time consumption.¹

To overcome this problem and to create an ergonomic design present article discussed a new type of instrument "VISIOGAUGE—THE THIRD EYE" which will not only give the ergonomic design to the orthodontist but also give better treatment result for the patient.

Design

The instrument is a modification of an MBT gauge with a rotating mirror (3 × 3 cm) that is attached to the 19-gauge SS wire on one end and on the other end, it is attached to the rotating rubber ring which is snugly fit on the gauge (Fig. 1).

Fabrication

- The rubber material is placed over the gauge forming a rubber ring which surrounds the gauge from all surfaces (Fig. 2).
- On the other hand, 19-gauge SS wire is welded over the band material (Fig. 3).
- After welding the wire to the band, it is placed over the rubber ring on the gauge and after securing its position the band material is welded making it a snug fit with the rubber material (Fig. 4).

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Fig. 1: Design of visiogauge

Fig. 2: The rubber material is placed over the gauge forming a rubber ring which surrounds the gauge from all surfaces

Fig. 3: On the other hand, 19-gauge SS wire is welded over the band material

Fig. 4: After welding the wire to the band, it is placed over the rubber ring on the gauge and after securing its position the band material is welded making it a snug-fit with the rubber material

Fig. 5: On the side where the ring is attached wire bending is done so that the mirror acts parallel to the tooth surface and another end of the 19-gauge wire mirror is attached

Fig. 6: Final design

- On the side where the ring is attached wire bending is done so that the mirror act parallel to the tooth surface and another end of the 19-gauge wire mirror is attached (Fig. 5).

Fig. 7: Working with the visiogauge gives clinical accuracy

- Final design of the visiogauge.
- *Clinical Use and Advantages* (Fig. 6).
- Working with the Visiogauge gives clinical accuracy (Fig. 7).
- It can be used in the anterior region as well as the posterior region (Fig. 8).
- This instrument creates an ergonomic condition for the orthodontist.

Fig. 8: It can be used in the anterior region as well as the posterior region

- Reduces chair-time.
- With the help of a rotating mirror can be used on both markings of the MBT gauge.
- Comfortable for the patient.
- No need for additional help/assistance.

DISCUSSION

The practice of orthodontics involves laborious work that has to be carried out for a prolonged period to treat a patient's malocclusion. The majority of work of orthodontics has to be performed in a static position which causes the strain in the neck and lower back of the orthodontist.⁶ Bracket positioning is the heart of the orthodontics.¹ One has to bond brackets on every tooth in a repetitive manner and for proper placement of the bracket on the tooth surface one has to use an MBT gauge and mouth mirror simultaneously which engage both hands of the orthodontist creating a tiresome

condition for both orthodontist and patient. And in today's era of COVID where social distancing is the norm. An orthodontist has to limit staff in the operating area. Visiogauge which not only creates an ergonomic condition for orthodontist but also reduces the need of assistant which was previously required. With the help of a Visiogauge orthodontist can perform bonding procedure more precisely in very less time.

CONCLUSION

Visiogauge is a useful clinical instrument that verifies the bracket placement on anterior as well as posterior teeth and creates less stressful and easy to the handle condition for the orthodontist by creating the ergonomic condition.

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