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INTRODUCTION

Fixed and removable orthodontics are commonly used to enhance bony architecture, minimize tooth cutting which is associated with unwanted risks of pulpal exposure and reducing the structural characteristics of teeth to withstand masticatory forces. Additionally, less need for tooth reduction may optimize resistance and retention form prior to prosthetics. Therefore, clear aligners may be viable alternative due to greater esthetics and patient comfort. Prior studies have demonstrated that clear aligners with a soft internal lining may cause generation of less stress to teeth and bone, thereby minimizing potential damage to those areas. An additional question is raised with respect to utilization of microsurgical implants for added anchorage using clear laminated aligners.

OBJECTIVE

To compare effectiveness of conventional molar uprighting appliances referred to as Molar Distalizer and NuBrace aligner using microsurgical implants as anchors.

MATERIALS AND METHODS

MODEL DESCRIPTION

- Three-dimensional photoelastic model.

STRESSES GENERATED FROM ORTHODONTIC OPTIONS USING MICRO-IMPLANT

RESULTS

<table>
<thead>
<tr>
<th>Test Procedure</th>
<th>No load</th>
<th>Laminated Aligner</th>
<th>Conventional Molar Upright Appliance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model in tank of mineral oil ready for aligner installation and stress observation.</td>
<td><img src="image1.jpg" alt="Image" /></td>
<td><img src="image2.jpg" alt="Image" /></td>
<td><img src="image3.jpg" alt="Image" /></td>
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<td>Fringes for both appliances demonstrated tensile forces mesial to the tilt of tooth #15 and compressive forces distal to tooth #15.</td>
<td><img src="image4.jpg" alt="Image" /></td>
<td><img src="image5.jpg" alt="Image" /></td>
<td><img src="image6.jpg" alt="Image" /></td>
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<tr>
<td>Stress around the implant was fairly uniform around the implant threads and bone interface.</td>
<td><img src="image7.jpg" alt="Image" /></td>
<td><img src="image8.jpg" alt="Image" /></td>
<td><img src="image9.jpg" alt="Image" /></td>
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<td>The amount of stress at the distal portion of tooth #15 was significantly greater with the conventional appliance as compared to the laminated aligner.</td>
<td><img src="image10.jpg" alt="Image" /></td>
<td><img src="image11.jpg" alt="Image" /></td>
<td><img src="image12.jpg" alt="Image" /></td>
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<td>There was no evidence of active engagement mesial to the tilted molar.</td>
<td><img src="image13.jpg" alt="Image" /></td>
<td><img src="image14.jpg" alt="Image" /></td>
<td><img src="image15.jpg" alt="Image" /></td>
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DISCUSSION

- However, the conventional appliance had no active engagement at the mesial of the tilted molar to facilitate uprighting.
- Therefore, in order for to achieve analogous forces, the stress would have to be more concentrated as evidenced in this study.

CONCLUSIONS

Clinician may benefit from NuBrace over conventional methods due to: Greater control of tooth movement, elimination of unwanted stresses, no invasive attachments to minimize tissue irritation and reactive responses, greater esthetics and more hygienic toward greater patient compliance and comfort. We would like to thank Space Maintainers and NuBrace for appliance fabrication. and bone outside of the region, +/or greater patient comfort are mandated.

REFERENCES