INTRODUCTION: Diagnosis, treatment planning and knowledge of root canal morphology and its frequent variations is a basic requirement for endodontic success. The success of root canal therapy is dependent on the clinician’s knowledge of root canal morphology with goal to precisely locate all canals, properly clean, shape and obturate the canal space.

AIM: The aim in our study was to determine the root canal morphology in maxillary and mandibular molars.

MATERIAL and METHOD: A total of 160 human teeth were evaluated. Upper and lower human molars with completely formed apices were used. These teeth were obtained from the Dental Medicine at our institution. The dental specimens were collected and analyzed in accordance to the guidelines set forth by our institution’s Ethics Committee. Evaluation included number of root canals, lateral canals, position of lateral canal and position of apical foramen. All specimens were analyzed by Vertucci classification. Each root specimen was measured by using a calibrated microscope at magnification of 2X; 4.5X; 50X.

RESULTS: The most common root canal morphology demonstrate anatomical complexities of root canal system. The root apex were most commonly located in the center in all groups followed by distal and buccal locations.

Table 1. Classification and type of root canal of the maxillary molars

<table>
<thead>
<tr>
<th>Teeth 80</th>
<th>No of teeth</th>
<th>Type I: one canal</th>
<th>Type II: 2-1 canals</th>
<th>Type III: 1-2-1 canals</th>
<th>Total with one canal at apex</th>
<th>Type IV: 1-2 canals</th>
<th>Type V: 1-2-1 canals</th>
<th>Type VI: one canal at apex</th>
<th>Type VII: three canals</th>
<th>Total with three canals at apex</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maxillary first molar 40</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>mesiobuccal</td>
<td>40</td>
<td>17</td>
<td>15</td>
<td>0</td>
<td>32</td>
<td>8</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>8</td>
</tr>
<tr>
<td>distobuccal</td>
<td>40</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>40</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>palatal</td>
<td>40</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>40</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

| Maxillary second molar 40 | | | | | | | | | | |
| mesiobuccal | 40 | 20 | 14 | 0 | 34 | 6 | 0 | 0 | 0 | 6 |
| distobuccal | 40 | 0 | 0 | 0 | 40 | 0 | 0 | 0 | 0 | 0 |
| palatal | 40 | 0 | 0 | 0 | 40 | 0 | 0 | 0 | 0 | 0 |

Table 2. Classification and type of root canal of the mandibular molars

<table>
<thead>
<tr>
<th>Teeth 80</th>
<th>No of teeth</th>
<th>Type I: one canal</th>
<th>Type II: 2-1 canals</th>
<th>Type III: 1-2-1 canals</th>
<th>Total with one canal at apex</th>
<th>Type IV: 1-2 canals</th>
<th>Type V: 1-2-1 canals</th>
<th>Type VI: one canal at apex</th>
<th>Type VII: three canals</th>
<th>Total with three canals at apex</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mandibular first molar 40</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>mesiobuccal</td>
<td>40</td>
<td>7</td>
<td>8</td>
<td>0</td>
<td>15</td>
<td>19</td>
<td>2</td>
<td>3</td>
<td>0</td>
<td>24</td>
</tr>
<tr>
<td>distobuccal</td>
<td>40</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>40</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

| Mandibular second molar 40 | | | | | | | | | | |
| mesiobuccal | 40 | 10 | 14 | 0 | 24 | 12 | 4 | 0 | 16 | 0 |
| distobuccal | 40 | 35 | 2 | 0 | 37 | 2 | 1 | 0 | 0 | 0 |

CONCLUSION: More than one canal were found in mesiobuccally roots of second maxillary molars. The additional canals were found in mandibular mesial roots. The prevalent location of the root apex and the foramen was the central position followed by the distal position.

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