

X-ray Observations of Root Canals of Lower First Premolars (4 teeth)

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Lower first premolars usually have a single root canal. These premolars are sometimes extracted expediently for orthodontic treatment and such extractions revealed that there were more cases than expected where the premolar has supernumerary root canals.

This means that it is highly probable that we will encounter the root canal treatment of lower first premolars with supernumerary root canals.

Based on this idea, we observed those premolars to propose guidelines for their clinical treatment. The observation methods were isometric X-ray, X-ray CT and cross-section images of tooth roots.

The results were as follows.

1. Eccentric projection is effective for isometric X-ray observation.
2. The places of root canal orifices (height from apex) on the buccal and lingual sides at the root canal bifurcation should be carefully examined.
3. It is necessary to verify the junction (isthmus) between the buccal root canal and the lingual root canal.
4. It should be considered that a groove exists on the mesial side of tooth root and the width of the groove is narrow in the mesiodistal cross section.
5. It is necessary to be careful in filing operation because the tooth root surface in the mesial groove is less calcified and less hard.
6. Appropriate instruments for root canal enlargement should be selected.

From these results it was therefore suggested that the success rate of the root canal treatment could be increased by the thorough knowledge of the characteristics of supernumerary root canals and cautious treatment.

Key words : lower first premolar, supernumerary root canal, root canal form

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