

# Relationship between root concavity and the furcation entrance in surgical crown lengthening



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Key word: BONE LEVEL, CBCT, CROWN LENGTHENING, FURCATION, ROOT CONCAVITY.

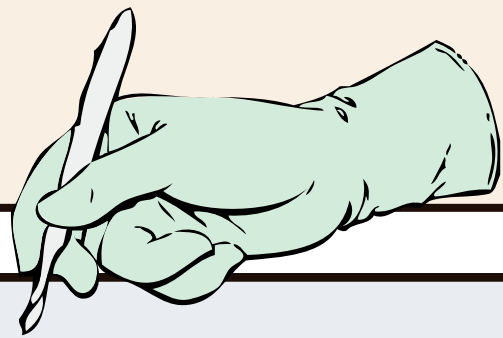
## \* Background \*

Crown lengthening is a surgery that usually requires a bone ostectomy procedure. Ostectomy beyond the level of furcation entrance can worsen the periodontal prognosis.

Limitation: Furcation

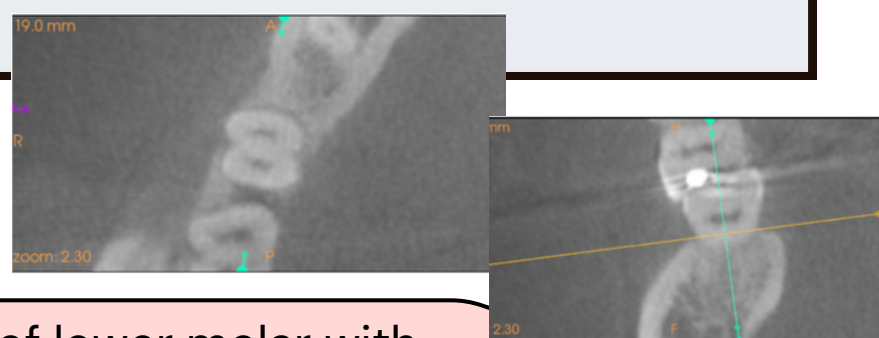
Various types of furcation probes have been used to indicate the position of furcation. However, this instrument can only be used in tooth that already had bone loss through the level of furcation meaning that it is not a good candidate for crown lengthening surgery.

Aim: to **evaluate the accuracy of the presence of root concavity at the level of alveolar bone crest (PRC) on the availability of ostectomy procedure in crown lengthening surgery.**



## \* Objective \*

1. To determine that the **presence of the root concavity over the level of the alveolar bone crest (PRC)** is a good indicator used for estimating the location of the furcation entrance in crown lengthening surgery treatment planning
2. To measure the amount of alveolar bone available for ostectomy procedure in crown lengthening surgery.



## \* Methodology \*



Includes 171 CBCT images of lower molar with separated root



The **presence of root concavity at the level of alveolar bone crest (PRC)** was evaluated in all furcation areas.



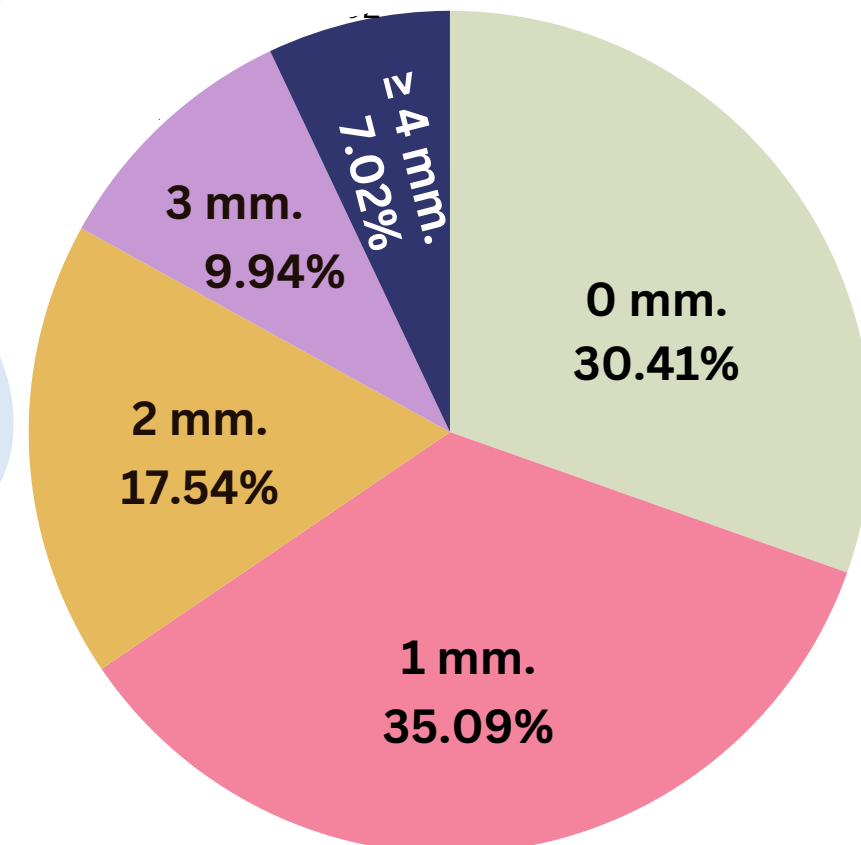
Measure the distance from the alveolar bone crest to the furcation entrance to determine the amount of the alveolar bone available



Sensitivity, specificity, and the area under ROC curve for PRC usage as an indicator for crown lengthening surgery were calculated.

## \* Data Analysis \*

Amount of the bone possible for ostectomy (mm.)



Comparison data between PRC and CBCT in order to detect the accuracy of PRC being an indicator for the possibility of performing an ostectomy procedure.

		Detect by CBCT		Total
		Possible	Not possible	
Detect by PRC	Possible	0 0.0%	3 2.5%	3 1.8%
	Not possible	52 100.0%	116 97.5%	168 98.2%
Total		52 100.0%	119 100.0%	171 100.0%

\* The data shows low sensitivity and high specificity

## \* Result \*

PRC found in this study are 98.25%. Ostectomy can be executed at least 1 mm in 69.59% of the furcation area. Buccal furcation of lower first molar appeared to be the most problematic area in crown lengthening surgery as only 42.86% of the cases are the good candidate for the ostectomy procedure. When using PRC as an indicator for the ostectomy procedure, the sensitivity and specificity were 0% and 97.5%, respectively. The area under the ROC curve was 0.655 which can be evaluated as a **poor accuracy indicator**.

## \* Conclusion \*

**PRC cannot be used as an indicator** to determine the limitation of the amount of bone needed to be removed in the process of crown lengthening surgery.

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