Influence of Size and Volume of Periapical Lesions on the Outcome of Endodontic Microsurgery: 3-Dimensional Analysis Using Cone-beam Computed Tomography

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Aim
- To examine the size, volume, and other parameters of Pre-Op PAR measured from CBCT images as a potential prognostic factors in endodontic microsurgery.

Materials & Methods
- 97 roots that received endodontic microsurgery with Pre-Op CBCT were included in this study.
- The following parameters were measured independently by 2 calibrated investigators from the CBCT:
  a) The mesiodistal diameter
  b) Apicocoronal diameter
  c) Buccolingual diameter
  d) The volume (V) of the periapical lesions
  e) Destruction of the cortical bone
  f) Height of the buccal bone plate (Lb)
- The outcome was classified as a success or failure based on the clinical and radiographic evaluation at least 1 year after the operation.
- Univariate analyses and multivariate analysis using a logistic regression model was performed.

Results
- The interexaminer agreements were excellent for the linear and volume measurement of the preoperative periapical lesion.
- A lesion volume above 50 mm³ was found to be a significant negative predictor in the univariate analysis and the logistic regression model.
- Besides volume, none of the variables were significantly associated with the outcome.

Conclusion
- The outcome of endodontic microsurgery was influenced by the volume of the preop PAR
- Further studies on endodontic microsurgery should be performed and that quantitative measurements using CBCT imaging may be useful for the analyses.

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