

ABSTRACT

Aims: Multiple surgical protocols using biomaterials have been proposed to limit the typical post-extraction bone resorption. However, because of the heterogeneity of the studies, particularly the differences in assessment methods, it is difficult to determine the superiority of one technique over another. The objective of this study was to describe a new radiographic method to draw a map of alveolar bone remodelling after alveolar ridge preservation procedures to compare different surgical techniques more accurately. The newly developed measuring method was applied to a case series describing a specific preservation technique.

Materials and Methods: Five extraction sites (in 3 patients) located in the upper anterior maxilla were treated with osseograft and rubber dam as a non-resorbable membrane. A radiographic three-dimensional assessment of the hard tissues was performed at baseline and 3 months after the procedure. Standardized horizontal measurements were taken at three corono-apical levels (2, 5 and 8 mm) and at three mesio-distal levels (mesial, centre and distal) in the buccal and palatal aspects. Vertical measurements were also recorded in nine regions superior to the alveolar crest. The measurements were performed by two independent observers and intra- and inter-observer effects were evaluated.

Results: No inter- and intra-observer effects were found when analysing the measurements from these two observers. The horizontal dimension of the crest

decreased by 2.09mm (24.60%) in the cervical regions (2mm level), decreased moderately, by 1.25mm (26.10%), at the 5 mm level and decreased very little, 0.964mm (36.10%), at the apical (8 mm) level. The losses were always significantly higher in the buccal than in the palatal aspect. Vertical bone resorption was homogeneous in the nine measured regions.

Conclusion: The radiographic measuring methodology proved to be reproducible. It can be applied in other clinical settings. It successfully assessed the alveolar ridge preservation technique (Osseograft and Rubberdam). It was observed that the remodelling of the alveolar process was not uniform after the socket preservation, and a complete inhibition of the bone remodelling was not achieved during alveolar socket preservation procedures.

Key words: alveolar bone preservation; biomaterials; CT scan; extraction socket; socket preservation.