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Does grafting the jumping gap in immediately placed anterior implants using vestibular socket therapy influence the labial bone thickness?

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ABSTRACT

After implant positioning in the socket, a gap - usually called the jumping gap - is formed between the inner surface of the labial plate of the bone and the implant surface. Consequently, the clinician must decide whether fill the jumping gap with bone grafting materials or to leave it as a blood clot, in order to achieve maximum bone formation, with minimal bone reabsorption and soft tissue loss.
As it is still unclear whether grafting the jumping gap in immediately placed implants influences the thickness of the labial bone plate or not, the aim of this double-blind randomized controlled clinical trial was to compare the labial bone thickness 1 year after immediate implant placement using VST, with and without bone graft materials to fill the jumping gap and/or osseous defect above the implant and under the labial shield. Twenty-two patients scheduled for immediate implant placement using vestibular socket therapy (VST) were randomly assigned to Group 1 (gap grafted with a mixture of 75% autogenous bone chips and 25% deproteinized bovine bone mineral (DBBM)) and Group 2 (gap without graft). In both groups, during the surgical protocol a subperiosteal tunnel was created and then a cortical membrane shield made of heterologous origin of 0.6 mm thickness (OsteoBiol® *Lamina*®, Tecnoss®, Giaveno, Italy), was trimmed and introduced through the tunnel apically, where it was stabilized with two membrane tacs. The regenerated facial bone thickness was evaluated using CBCT and measurements were taken at baseline before tooth extraction and 12 months postoperatively The performed analysis showed a statistically significant difference in bone thickness between groups (P = 0.008). The mean (SD) overall bone thickness was 2.95 (0.97) mm for the particulate bone group, compared to 1.45 (0.92) mm preoperatively. For the unfilled group, the mean (SD) overall bone thickness was 1.98 (0.56) mm, compared to 0.79 (0.49) mm preoperatively.

CONCLUSIONS

The results suggested that grafting the jumping gap with particulate bone graft enhanced the thickness of the labial bone plate of immediately placed implants in the aesthetic zone. Consequently, the Authors concluded that *"using particulate bone graft along with vestibular socket therapy to fill the jumping gap and multi-dimensional socket wall defects enhanced the regenerative outcome more than depending only on spontaneous healing following blood clot formation"*.

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