

A Method for Precise Vertical Position of the Implant When Using Computerized Surgical Guides and Bone Reduction

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Abstract : Computerized Surgical Guides have been proven to be a predictable way to perform dental implants, with a relatively high accuracy in comparison to a treatment plan. When using the CSG Bone supported, it allows us to make the necessary changes of the hard tissue prior to the implant placement and after the implant placement. The CSG gives us an accurate position for the drilling, and during the implant placement it allows us to alter the vertical position of the implant altering the final position of the abutment and avoiding any risk of any damage to the adjacent anatomical structures. Any Changes required to the bone level can be done prior to the fixation of the CSG using a reduction guide, which incur extra surgical fees and the need of a second surgical guide. Any changes of the bone level after the implant placement are at the risk of damaging the implant neck surface. The technique consists of a universal system that allows us to remove the excess bone around the implant sockets prior to the implant placement which then enables us to place the implant in the vertical position with accuracy as planned with the CSG. The systems consist of a hollow pin of different sizes and diameters. Depending on the implant system that we are using. Length sizes are from 6mm-16mm and a diameter of 2.6mm-4.8mm. Upon the completion of the drilling, the pin is then inserted into the implant socket-using the insertion tool. Once the insertion tool has unscrewed the pin, we can continue with the bone reduction. The bone reduction can be done using conventional methods upon the removal of all the excess bone around the pin. The insertion tool is then screwed into the pin and the pin is then removed. We now, have the new bone level at the crest of the implant socket which is our mark for the vertical position of the implant. In some cases, when we are locating the implant very close to anatomical structures, any form of deviation to the vertical position of the implant during the surgery, can cause damage to such anatomical structures, creating irreversible damages such as paresthesia or dysesthesia of the mandibular nerve. If we are planning for immediate loading and we have done our temporary restauration in base of our computerized plan, deviation in the vertical position of the implant will affect the position of the abutment, affecting the accuracy of the temporary prosthesis, extending the working time till we adapt the prosthesis to the new position.

Keywords : bone reduction, computer aided navigation, dental implant placement, surgical guides

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