

Maxillary Sinus Membrane Elevation and Simultaneous Implant Placement without Grafting Materials



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Abstract

Background and objective: Previous studies have shown that simultaneous elevation of the sinus mucosal lining and placement of dental implants (Ritter dental implant system) without graft materials can be a predictable procedure. The purpose of the present study was to evaluate the results of the maxillary sinus membrane elevation technique and simultaneous implant placement without using any graft material.

Materials and methods: Fifteen patients with maxillary resorbed ridges received 27 implants (Ritter implants of different size and length) protruding into 18 sinuses either via lateral osteotomy window (n=20) or via crestal osteotomy (n=7). A Cone Beam Computed Tomography (CBCT) scan was taken immediately post-operatively to assess the clot formation and to measure the anchoring residual bone height all around the implants (i.e. mesiodistally and buccopalatally), and after a 6 month healing period another CBCT was taken to assess the new bone formation.

Results: The mean (\pm SD) residual bone height was 4.96 ± 1.64 mm preoperatively. All the implants (except one) survived till the end of the follow-up period, giving a survival rate of 96.3%. Cone beam computed tomography scan demonstrated an average of 3.11 ± 1.7 mm of intra-sinus new bone formation 6 months after surgery, the highest bone gain being 9.3 mm and the lowest being 0.425 mm.

Conclusions: The present study demonstrated that sinus membrane elevation and simultaneous implants placement (Ritter implant system) without adding grafting materials led to new bone formation and high implants success rate and intra sinus new bone formation around the implants beyond the original limits of the sinus floor over a period of 6 months.