

Maxillary Sinus Elevation Surgery

The restoration of the edentulous posterior maxilla using dental implants presents distinctive challenges. The height of the residual alveolus is often limited and bone density is often poor, leading to a diminished implant success rate. The proximity of the maxillary sinus to the alveolar crest as a result of the position of the sinus and resorption of the alveolar ridge because of tooth extraction, trauma, or pathology may prevent the placement of implants of adequate length and position. A minimum of 10 mm of vertical bone height is usually required for predictable implant success. To address this problem, maxillary sinus elevation surgery was developed to increase the height of bone available for implant placement in the posterior maxilla.

Sinus elevation surgery for implant placement was initially described by Boyne and James and by Tatum. In these reports the sinus was exposed by a modified Caldwell-Luc approach. A window was created in the lateral maxillary wall, the sinus membrane was carefully elevated, and grafting material (autogenous bone) was placed prior to implant placement. Since these early reports, several modifications have been made to the surgical technique and the materials used. Furthermore, the efficacy and predictability of this procedure has been determined in a number of studies.

Prior to sinus elevation surgery, a thorough preoperative evaluation should be performed. Contraindications to this surgery include all medical conditions and medications that would preclude implant placement. In addition, the patient should be questioned regarding sinus problems and previous sinus surgery that could complicate or contraindicate the procedure. The presence of sinus pathology including acute sinusitis, antral polyps, cysts, or tumors could certainly compromise the success of the procedure. A consultation with an ENT specialist prior to surgery may be recommended. Other contraindications to this procedure are the use of inhaled steroids and cocaine dependency.

Eliaz Kaufman, DMD, MS