Clinical Evaluation of the Magnetic Mallet™ Device

In this report, the clinical experiences on the pre-clinical and clinical use of the magnetic mallet for osteotomies and tooth extractions is described after having introduced this clinical procedures in 2016.

The application of various oral-surgical, and pre- and simultaneous implantologic bone augmentation techniques such as vertical osteotomies, lateral spreading and condensing of the alveolar crest as well as tooth extraction techniques have been described in literature in many peer-reviewed publications. Horizontal and vertical clinical procedures (Summer’s osteotomy, bone spreading etc) have been described with the use of manual mallets, and resulted in predictable results regarding the technique itself as well as its implant survival and success rates on various observation times.

The introduction of the magnetic mallet device promised a shorter and more efficient time of energy transfer on the implant bed to be augmented when compared to manual instruments according to an investigations of the Centro Nazionale di Ricerca (University of Milan, data provided by Meta Ergonomica):

- No pre-clinical complications of adverse observations have been made in the initial phase of use as well as during several training courses the use of the magnetic mallet (approximately 50 applications)

- No clinical intra-operative complications (alveolar bone or instrument fractures, dislocations, injuries of anatomical structures) have been observed during the observation period (>100 applications in both centers)

- No adverse post-operative side effects such as headache, paroxysmal vertigo or other discomfort has been detected in the observation time. Comments of patients feedback ranged from enthusiastic feedback after successfully avoiding more invasive grafting procedures (such as lateral sinus floor elevation, lateral onlay grafts, ...) up to moderate acoustic discomfort limited to the Summer’s procedure with no post-operative complaints. The amount of patients with intraoperative acoustic discomfort, mostly with dense bone qualities of Typ I and Typ II+ according to Lekholm & Zarb (1985) was less than 10% and much less than for manual mallet used for summer’s osteotomies with >30%.

- So far, less only 3 patients have been treated with the magnetic mallet chisels for a minimal invasive extraction of teeth: The roots were successfully removed, no adverse effects have been observed, the number of treatments for this indication, however, is very low in our centers for the time being.

In conclusion, the introduction of the magnetic mallet device in our training and clinical setting has broadened the field of minimal invasive indications, increased the safety of the described techniques, reduced the patient’s discomfort so far without any substantial adverse effects.
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