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Shorter treatment time

Immediate molar placement using Ankylos implants

Historically, function was the highest priority in the field of implant therapy – however, today's priorities are esthetics and faster treatment. Patient expectations and requirements have led us to push the limits of our current treatment modalities, resulting in shortened treatment time without reducing the success rate. Immediate implant placement is well documented and has become the norm for implant placement.

In the field of implant therapy, the molar site has always been a problem area. The multi-rooted anatomy of the teeth provides very little bone for primary stability of the implant, which is necessary for immediate placement. This means that either extremely wide diameter implants are required to utilise the buccal and palatal bone plates for primary stability or implants are placed in the palatal root. Another way to achieve primary stability is to utilise the bone apical to the tip of the root. However, the inferior alveolar nerve and the maxillary sinus can limit the amount of bone available for this.

Numerous studies have shown the great success of immediate molar placement in both the mandible and the maxilla. However, the majority of the studies have advocated the use of wide diameter or tapered implants with a wide neck in order to achieve primary stability. The purpose of this article is to illustrate the successful use of narrow diameter Ankylos implants placed in the inter-radicular bone septum in both maxillary and mandibular molar sites.

Treatment Protocol

Included in this study were patients who required implants placed in mandibular (Fig. 1) or maxillary molar sites (Fig. 8). The only people excluded were those not medically suitable for implant therapy. Patients with periodontitis were first treated with closed therapy and then placed in a supportive periodontal program. Smokers and patients with acute or chronic apical pathology were not excluded in this study.

All molars were removed atraumatically by sectioning the roots into their individual components. These procedures were flapless unless better visualisation was required to ensure that the socket was clear of any infected soft tissue (Fig. 13). In cases where there was thick furcation bone, a 2 mm round drill was used to make an initial landing site (Fig. 2). Thereafter, a 2 mm pilot drill was used to prepare the osteotomy to the correct depth (Fig. 15). The next step used the 3.5 mm drill as the final drill. The conical reamer was then only used if thick furcal bone was present. If the bone is thin and fragile, then it is advised to use this sparingly or not at all for the implant's primary stability. The implant was then inserted into the osteotomy. It is important to place the implant 1-2 mm below the bone in the furcation and not according to the buccal plate in order to ensure the correct three-dimensional implant height after bone remodeling (Fig. 3, 4 and 9). The remaining jump gap is then filled with a xenograft (Fig. 16), which is pushed to the most apical portion of the alveolus by means of a periodontal probe. Doing this prevents a bottleneck from forming, which obstructs the placement of bone into the most apical part of the alveolus.

In molars with insufficient furcal bone, found more often in maxillary molar cases (Fig. 8 and 13), osteotomes are required to expand the furcation bone rather than drill it away. This is accomplished by using the bayonet bone condenser starting with the position marker and expanding the osteotomy until the bone condenser for A-implants is reached (Fig. 14 and 15). The conical reamer is only used in denser bone. The roots are then filled with the xenograft as per the lower molars (Fig. 16).

It is not always possible to use the bone condensers in the lower jaw, as the jaw moves every time you tap it. Therefore, for thin furcation bone it is ideal to use a piezo-surgical unit to prepare the osteotomy, as it puts far less force on the bone. It is also safer when working close to the sinus and the inferior alveolar nerve.

Most of the implants were performed using a torque exceeding 35 Ncm and succeeded in having transgingival healing. Only two cases required soft tissue coverage due to complete lack of primary stability (Fig. 17 and 18).

The cover screw is then removed and a Balance gingival former is placed for transgingival healing (Fig. 4). In cases where there was no primary stability (maxillary molars), a rotated palatal flap was used to achieve primary closure of the implant. All other implants were left to heal with a transgingival approach. The edges of the extraction socket were pulled together using chromic sutures. No attempt was made to undermine the soft tissue in order to encourage primary closure of the fl ap. Any exposed area of bone was left to heal by secondary intention.

Sutures were removed after 7-10 days and the patients were followed-up after one month. In cases with excellent primary stability, the integration was checked at two months and the final restoration was created (Fig. 5, 6, 11, and 19). Cases with poor primary stability but with transgingival healing were given three months integration time before the final restoration was placed.