Same Day Dental Implants® & Teeth: A Surgical & Prostho Protocol

By Costa Nikolopoulos Oral & Maxillofacial Surgeon (S.A.) & Petros Yvanouglou Specialist Prosthodontist (U.S.A.)

The original Branemark protocol advocated the use of a two stage surgical approach where the turned (smooth) implants were buried for several months under the mucosa. With the advent of surface enhanced and tapered implants the protocol later evolved into a one stage approach.

Several clinicians then proceeded to immediately load these one stage implants with good success provided good primary stability (more than 45Ncm) was achieved at time of implant placement and provided micro-movements could be limited to 100µm. Ample reports have been published on immediate loading of dental implants showing an initial unloaded period of 5 – 6 months is not necessary. From a patient’s point of view the reduction of treatment time between implant placement & installation of a functional prosthesis leads to increased patient satisfaction & treatment acceptance and is the most important advantages of immediate loading and immediate function.

Surgical Protocol

The surgical protocol of immediate loading of dental implants with same day teeth is based on the following:

1) Bone volume & quality
2) Implant length & diameter
3) Patient’s age
4) Patient’s finances (cost to benefit ratio)

Prostho Protocol

The Prostho protocol of SameDay Dental Implants & Teeth is focused and designed around the patient’s needs. It’s fast, efficient and doesn’t compromise quality. The patients are never left without teeth for more than six hours. As a result treatment acceptance is high. All implants with good primary stability (>45Ncm) are immediately loaded with screw-retained teeth. For single implant cases, the final all ceramic screw retained crown is fabricated and delivered to the patient within six hours. For multiple implants cases, temporary screw retained acrylic teeth are fabricated with screw retention is an absolute requirement for biological reasons (to avoid risk of inflammation due to excess cement) as well as the ease of handling of immediate loading in a surgical environment.

Immediate Extraction & Placement

Immediate extraction surgery is performed one at a time followed by implant placement and torqued to 45Ncm at the time of surgery. Screw registration is started prior to extraction of all the teeth in the mouth/arch case unless to loose the centric relation and vertical dimension (Fig 8). In healed cases where possible the “punch” technique is used (Fig 15). Alternatively minimal flaps are raised where indicated. This flapless/punch technique/minimal flap approach results in minimal or no soft tissue changes thereby allowing the restorative dentist/prosthodontist to proceed with the provisional acrylic screw retained teeth in the same day and permanent ceramic screw retained teeth in 1 week in the case of multiple implants. In the case of the single implant the permanent full zirconia screw retained tooth can be delivered in 6 hours on the same day.

Number of Implants

In edentulous cases 4 to 6 implants (figs 14 & 15) are placed per arch depending on:
1) Bone volume & quality
2) Implant length & diameter
3) Implant distribution (A-B spread)
4) Patient’s age
5) Patient’s finances (cost to benefit ratio)

Fig 1. Dr. Costa and Mr. Petrov in line with Prof. Branemark’s philosophy of “Lesser Surgery to Treat More Patients”.

Fig 2. Angled implants placed into available bone anterior and posterior to the maxillary sinus.

Fig 3. Immediate molar replacement implants.

Fig 4. 45Ncm Primary Stabilty measured during implant placement.

Fig 5. Silicone key of the facial surfaces of the existing teeth.

Fig 6. Silicone key of a diagnostic wax up.

Fig 7. The silicone key can direct the implant surgeon.

Fig 8. Bite registration is started prior to extraction of all the teeth in the mouth/arch case with addition of bite registration material onto the remaining healing caps.

Fig 9. Good peri-implant tissues with “One Abutment One Time” approach.

Fig 10. Healing caps placed on abutments.

Fig 11. The single implant with a Zirconia screw retained crown.

Fig 12. Pulpation of the extraction socket walls with a peri-odontal probe.

Fig 13. In healed sites where possible the “punch” technique is used.

Fig 14. All-On-6.

Fig 15. All-On-6.
Tissue osseointegration, an additional x-ray helps to verify the perfect fit (5μ) on to the implant (Fig. 20). Occlusion is checked and verified with the help of 5μ thick “schimstock” articulating paper. The prosthetic access hole is obturated with a temporary filling (telfon tape + composite resin) to allow easy access for retrievability in the future but simultaneously excellent esthetics, occlusion and buccal corridors are easily made to the acrylic teeth. If needed modifications are made to the prosthesis.

Multiple Impacts Reconstructions
1) Temporary Teeth
For multiple implant cases (three unit bridges to full mouth reconstructions), the temporary screw retained teeth are fabricated by the in house dental lab within five to six hours and are placed again in the mouth of the patient on the same day.

Providing the temporary teeth immediately don’t only a great service to the patient but is also the best “diagnostic tool” for the prosthetic technician to record all the necessary information for the fabrication of the permanent teeth. If needed modifications are easily made to the acrylic teeth either directly in the mouth or in the dental lab. The patient should be evaluated for esthetics, phonetics and occlusion. Midline, plane of occlusion and buccal corridors are established. The “S” and “P” sounds are checked. The occlusal scheme is adjusted. For extensive cases the “mutually protected occlusion” (Fig. 23) is established which means that in centric occlusion, all teeth are touching but the posterior teeth have slightly heavier contacts compared to the anterior and on lateral and protrusive excursive movements the anterior teeth are touching/guiding and there are no posterior “working” or “non-working” interferences (anterior guidance). X-rays are taken in order to verify the passive fit of the prosthesis.

Once all necessary modifications are made and the patient is satisfied, we need to convey all newly established parameters recorded to the prosthesis. This is achieved by: i) taking photos and videos to record the esthetic result, in the mouth and ii) using the so-called “Clinical Remounting Procedure”, in the laboratory.

Alginate impressions and bite registration are taken from the temporary teeth, which are removed from the mouth and remounted again on the articulator. From the newly remounted temporary teeth the dental technician fabricates i) a series of silicon keys which will guide him to fabricate the permanent teeth and ii) an “Anterior Custom Made Guiding Table” (Fig 22) which will allow him to reproduce the occlusal scheme of the temporary teeth to the permanent teeth.

Two months later the temporary teeth are placed again in the mouth of the patient and the occlusion is recorded down to 20 Ncm. He is instructed not to bite hard onto the acrylic teeth and the instructions are provided to him. 2) Permanent Teeth Fabrication is done with the help of i) the interchangeable implant and temporary models, ii) the silicon keys, iii) the anterior custom made guiding table, iv) the photos and v) the videos starts to fabricate immediately the permanent screw retained porcelain teeth.

The permanent teeth need to be ready in one-week’s time and should have perfect fit onto the implants. This is one of the most important prerequisites for optimal implant longevity.

The material of choice, used by our dental lab, for the past 20 years, is porcelain fused to metal. The fabrication of the metal ceramic prosthesis involves a series of technique sensitive procedures, inevitably in each step, small “5 dimensional inaccuracies” are introduced into the synthesis. The sum of these inaccuracies is never zero. As a result, at the end of the fabrication procedure, the final prosthesis will never have a perfect fit onto the implants.

The use of the “Passive Abutment” (Fig. 25), which is a titani-• mum machine-cut interfacial component/cylinder, offsets all the 5D inaccuracies, provided that the implant model is accurate. The passive abutment is cemented by the dental technician onto the fitting surface of the prosthesis, in the lab. The master implant model is used as a blueprint for the cementation. Based on our experience over the past 15 years of using passive abutments, the metal try-in procedure is not necessary, thus speeding up the fabrication of the final prosthesis.

5) Placement of the Permanent Teeth
One week after the implant surgery the patient returns for the placement of the permanent teeth.

The temporaries are removed, the prosthetic platform of the implants is cleaned, dried and immediately the permanent teeth are screwed onto the implants.

There is a big benefit having to work only with “one piece screw retained” (Fig. 24) prosthesis.

There are no multiple custom abutments to be positioned first, the retaining abutment of the “one piece prosthetic” makes adjustments much easier, there is no excess cement to deal with, saving cementation that can cause significant complications if left accidentally under the imma-
terior tissues.

Fitting of the prosthesis is assessed together with the patient and the dental technician can check the anterior teeth all parameters are evaluated. The passive abutment (titanium) are layered (buccaly) with porcelain that will have perfect fit onto the titanium wear problems.

Important information: The material of choice, used by our dental lab, for the past 20 years, is porcelain fused to metal. The fabrication of the metal ceramic prosthesis involves a series of technique sensitive procedures, inevitably in each step, small “5 dimensional inaccuracies” are introduced into the synthesis. The sum of these inaccuracies is never zero. As a result, at the end of the fabrication procedure, the final prosthesis will never have a perfect fit onto the implants.

The use of the “Passive Abutment” (Fig. 25), which is a ti-