

Same day teeth

A report on immediate substitution by Stewart Harding.

How often have patients asked about screw-in teeth to be told they do not exist? Immediate substitution is the direct replacement of teeth following extraction to maintain the function and tissue of the dento-alveolar complex. This has long been considered the Holy Grail of dentistry, but not any more.

The advantages of immediate substitution are:

- Preservation of soft tissue and improved soft tissue aesthetics.
- Preservation of both bone height and width.
- Reduced treatment time.
- Cost effective.
- Increased patient acceptance.

Implant design

A prerequisite for successful osseointegration is primary stability as micromovements cause fibrous tissue encapsulation and implant failure. The tapered Osteo-Ti implant predisposes to minimal bone preparation as the tapered root shape matches that of the extraction socket (fig1). This means that implant placement is greatly simplified as the



Fig 1: Range of root form tapered Osteo-Ti implants and provisional abutments.

implant can be simply screwed into position, the threads engaging the dense lamina dura bone lining the root socket enhancing implant stability.

Tooth extraction

Obviously for this technique to work it is essential that the bone of the root socket is not damaged during tooth extraction. Substituted teeth are not extracted but are luxated to preserve surrounding soft and hard tissue. To achieve this new instruments and extraction techniques have had to be developed by the author. Mini-Luxators with fine tapered titanium tips are pushed through the periodontium (fig2). The instrument follows the line of least resistance between the root surface and socket wall. As it advances the wedge effect created by the advancing tip slowly extrudes the root leaving the cortical bone plates intact.

Extraction socket preparation

The fine walls of the empty socket should be handled with extreme care to preserve bone architecture and soft tissue aesthetics. Instruments called Site Formers are used sequentially under hand pressure to extend the socket apex and shape the osteotomy site to the desired implant diameter and length with no drilling. This procedure also improves the density of the bone at the extraction site.

Implant placement and positioning

The diameter of the implant should be as wide as possible to minimise the use of grafting materials. Ideally the head of the implant should be inclined towards the buccal cortical plate and positioned 2mm below the margin of the extraction socket (fig3). This improves the eventual emergence



Fig 2: Mini-Luxator being used to remove premolar.

profile of the final restoration as the abutment will be more closely aligned with the cemento-enamel junction of the adjacent teeth. Additionally placing the implant head in this position helps retain the labial plate limiting the effects of resorption.

Provisional abutment and restoration

These pre-angled plastic abutments

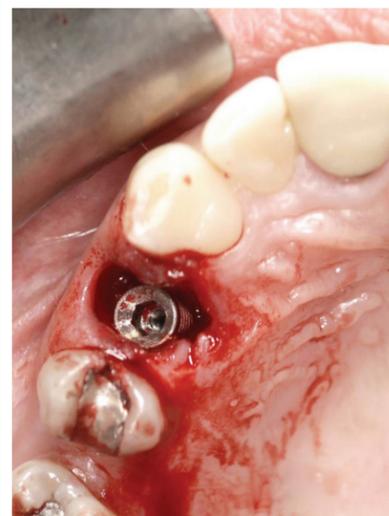


Fig 3: Implant head in position.

Stewart Harding is an implantologist.

Maintaining the bone

continued from page 68

- preserve the surrounding bone level
- maintain esthetics and soft tissue health.

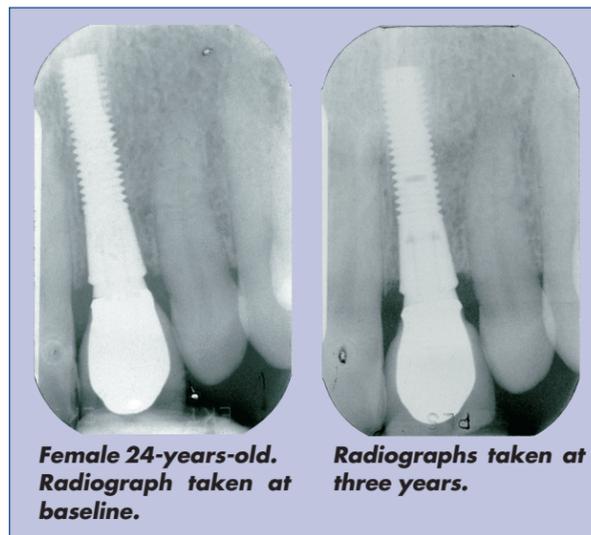
References

1. Henry PJ, Laney WR, Jemt, T *et al.* Osseointegrated implants for single tooth replacement: a prospective 5-year multicenter study. *Int J Oral Maxillofac Implants*, 1996; 11: 450-455.
2. Palmer RM, Palmer PJ, Smith BJ. A 5-year prospective study of Astra single tooth implants. *Clin Oral Impl Res*, 2000; 11: 179-182.
3. Norton MR. The Astra Tech single-tooth implant system: a report on 27 consecutively placed and restored implants. *Int J Periodontics Restorative Dent*, 1997; 17: 574-583.
4. Åstrand P *et al.* Astra Tech and Brånemark System implants: A prospective five-year comparative study.

Results after one year. *Clin Impl Dent Rel Res*, 1999; 1:1: 17-25.

5. van Steenberghe D, Callens A, Geers L *et al.* A prospective split-mouth comparative study of two screw-shaped self-tapping pure titanium implant systems. *Clin Oral Impl Res*, 2000; 11: 202-209.

6. Puchades-Roman, L *et al.* A Clinical, Radiographic, and Microbiologic Comparison of Astra Tech and



Brånemark Single Tooth Implants. *Clin Impl Dent Rel Res* 2000, 2: 78-84.

Same day teeth

continued from page 66



Fig 4: Gingival margin only one week after extraction of premolar. Note excellent soft tissue aesthetics around the temporary crown and X-ray of integrated immediate implant.

are available in five angles from 0 to 20 degrees in 5 degree increments. They are inexpensive and can be easily shaped using a conventional handpiece. Provisional abutments are used to

temporarily restore the implant during tissue healing and maturation. Using traditional crown and bridge techniques an anatomically correct temporary crown can be fabricated which helps guide soft tissue healing (fig 4).

This removes the need to use an expensive healing abutment, which is normally cylindrical with no resemblance to the natural contour of a crown. Once the soft tissue has stabilised the implant can be simply restored with a porcelain bonded crown.

Although immediate substitution has been mainly confined to the replacement of single teeth in an otherwise intact dentition the procedure has been recently applied to full arch restoration with promising early results.

For information contact: Osteo-Ti Limited, Transport House, Commercial Road, St Sampsons, Guernsey, GY2 4QP. Tel: 01481 241117. Fax: 01481 241078. Email: osteoti@guernsey.net Website: www.osteoti.com

Stewart Harding has been involved with implantology since 1985 and in 1992 formed Osteo-Ti Limited, a company which manufactures implantable devices and materials for maxillo-facial application. Osteo-Ti was the first British dental implant company to achieve the internationally recognised CE mark for its products with published five year survival data.

Since 1984, he has been in private practice and introduced osseointegrated implants into his practice in 1988. His practice is over 90 per cent implant based and is an international centre for implant training. Leading British implant specialists and several health authorities use the implant system he developed.

In 1992 Stewart began presenting implant training courses helping numerous surgeons to introduce implant therapy to their practices. He is the visiting implant consultant to the Bahrain Defence Force and a Fellow of the International Congress of Oral Implantologists. Currently, he is involved in research into the response of bone to substitute graft materials. He is an honorary clinical teacher at the Clinical Academic Group of Restorative Dentistry, University Dental Hospital of Manchester.