

# Long-term follow-up of an immediate functional loading implant in a single-tooth replacement

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For many patients, early or immediate functional loading of implants is an obvious advantage, especially in anterior regions when the need to restore the esthetic appearance has high priority. In recent years, an increasing concern regarding the possibility to shorten the healing period in cases of single-tooth replacement by implants in esthetic areas, has become evident. Here is reported a clinical case where the patient's concern of shortening the rehabilitation time met the criteria for challenging the immediate functional loading protocol for a single tooth restoration. A three-year follow-up is presented.

## Patient presentation

The patient is a 40-year-old female in good general health, presented with the goal of changing her appearance in the maxillary anterior area. The patient had a congenital missing of the left lateral incisor with consequent occlusion problems. A well-planned orthodontic therapy re-established a normal occlusion and created a proper space to rehabilitate the left lateral incisor (Figure 1). To meet the patient's desire to reduce the time of rehabilitation, an immediate functional loading protocol was applied.

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Figure 1a



Figure 1b

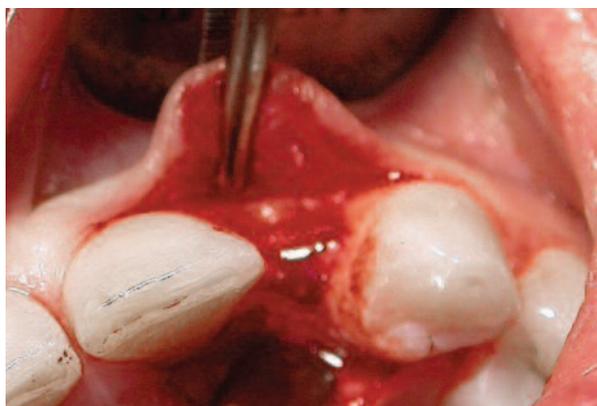


Figure 2a



Figure 2b



Figure 2c



Figure 3a



Figure 3b



Figure 3c

### Surgical procedures

The patient received an antibiotic prophylaxis one hour prior to surgery. Following local anesthesia, sulcular incisions were made at the neighboring teeth and connected by a crestal incision over the edentulous area. Full thickness flaps were

elevated to expose the bone ridge (Figure 2). For the installation of the implant, the preparation of the implant bed was performed according to the standards described in the surgical manual specific to the implant system (Astra Tech Dental, Mölndal, Sweden).



Figure 4a



Figure 4b

### Prosthetic procedures

Following the completion of the surgical procedure of the site, the prosthetic procedures were initiated. The position of the implant was transferred to a model using an implant pick-up, which was attached to the surgical stent with an autopolymerizing resin (Figure 3). The implant was then protected with a healing abutment during a 12–24 hour interval until the custom-made abutment and the temporary crown were placed. The flaps were adjusted and secured around the abutments with interrupted sutures.

A custom-made abutment (preparable abutment, Astra Tech Dental, Mölndal, Sweden) and a temporary crown were produced within 24 hours of implant

installation (Figure 4). The healing abutment was removed and the custom-made abutment was placed and tightened to 20 Ncm. The temporary acrylic crown was cemented with a temporary cement (Temp Bond, Kerr Co., USA). The crowns were in contact in centric occlusion (Figure 5). An X-ray (baseline, Figure 6) was taken with a standardized intraoral radiograph (Kodak Ektaspeed Plus, Eastman Kodak Co., Rochester, NY, USA) obtained using a parallel technique with custom-made film holders. Suture removal was performed 10 to 14 days after implant surgery.

Six months after implant installation, new impressions were taken and a gold-ceramic crown was produced and cemented (Figure 7).



Figure 5a



Figure 5b



Figure 5c

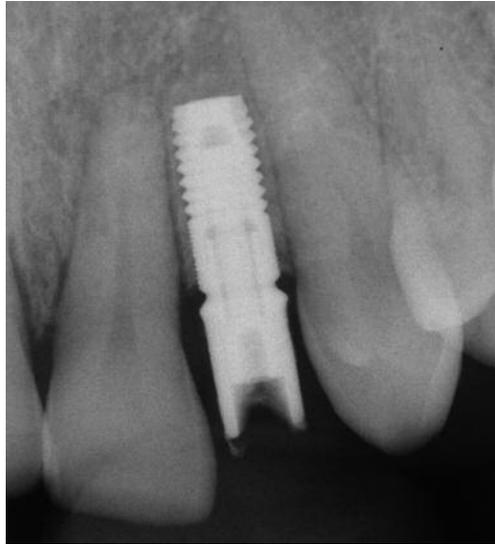


Figure 6



Figure 7a



Figure 7b

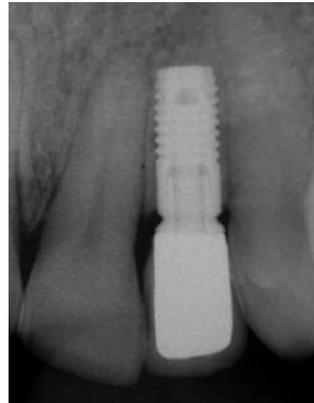


Figure 7c



Figure 8

### Follow-up

The patient has been followed for three years. The clinical and radiographic pictures reveal long-term stability of the soft and hard peri-implant tissues, maintaining a successful esthetic outcome that met the patient's expectations (Figure 8). This clinical case is one of the

cases included in a recently published study (Clinical Oral Implant Research 19, 2008, 740-748) on immediate functional loading of implants in a single-tooth replacement. The Astra Tech Implant System™ provides a good and reliable protocol when reduction of the rehabilitation time is requested.