

# Evaluation of OsseoSpeed™ 3.0 S implants 6 months follow-up

Pablo Galindo-Moreno<sup>1</sup>, Peter Nilsson<sup>2</sup>, Paul King<sup>3</sup>, Nils Worsaae<sup>4</sup>, Carlo Maiorana<sup>5</sup>, Ralph G. Luthardt<sup>6</sup>, Alexander Schramm<sup>7</sup>

<sup>1</sup>University of Granada, Spain; <sup>2</sup>Ryhov Hospital, Sweden; <sup>3</sup>Bristol Dental Hospital and School, United Kingdom; <sup>4</sup>Glostrup Hospital, Denmark; <sup>5</sup>University of Milan, Italy; <sup>6</sup>University of Ulm, Germany; <sup>7</sup>Military Hospital Ulm, Germany

## ABSTRACT

This study was initiated to evaluate 5-years implant survival for Astra Tech OsseoSpeed™ 3.0 S implant when replacing a single tooth in the anterior region. The implants were placed using a one-stage protocol and early loading protocol (6 to 10 weeks after implant placement). Sixty-nine patients with 97 implants were included in this study. This poster reports clinical data and complications after six months of follow up. During the healing period four implants were lost. No implants have been reported lost after loading. This clinical study is ongoing and sponsored by Astra Tech AB, Mölndal, Sweden.

## BACKGROUND AND AIM

In cases with limited space between adjacent teeth and roots, particularly in the anterior region, there is a clinical need for narrow diameter implants. This study was designed to evaluate the clinical performance of OsseoSpeed™ 3.0 S implant using one-stage procedure and early loading (6 to 10 weeks after implant placement) in the anterior maxilla or mandible.

## MATERIALS AND METHODS

This is a prospective, international, single-arm, multi-center study. Patients missing a single tooth in positions 12, 22, 32, 31, 41 or 42 (FDI) were eligible to the study. In cases where both contra laterals were missing, installation of two study implants was allowed. The implants (OsseoSpeed™ 3.0 S, Astra Tech AB, Mölndal, Sweden) used in the study were of 3,0 mm diameter and 11, 13 or 15 mm lengths. One-stage surgery was utilized for all patients, and healing abutments were used during the (6 to 10 weeks) healing period. The crowns were cemented on standard titanium abutments (TiDesign™, Astra Tech AB, Mölndal, Sweden).

Main inclusion criteria were edentulism in the study area for at least 2 months and presence of natural tooth roots adjacent to the study implant. Main exclusion criteria were smoking more than 10 cigarettes per day and a health status that would not allow implant placement. Primary variable in the study is implant survival 5 years after implant placement.

Seventy-two patients were recruited at 6 different study centers in Europe (Spain, Sweden, United Kingdom, Denmark, Italy and Germany).

## RESULTS

The recruitment and treatment phase of study patients has been completed and a total of 72 patients were included in the study. Data for three patients have not been analyzed, two patients were excluded since they did not fulfill all eligibility criteria and one patient never showed up for the installation of the implant. In this analysis 69 patients with 97 implants have been included. Sixty-six patients with 94 implants have been followed for more than 6 months and 20 of these patients with 25 implants have been followed for more than 1 year.

The study population represents a wide variety of patients with respect to age (mean 32 years, and ranging from 17 to 72 years), gender (52% male and 48% female) and smoking history (16% smokers, 13% previous smokers, 71% non smokers).

Mean buccal probing pocket depth at crown placement was 1.6 mm, after 6 months 1.4 mm and after 12 months 1.4 mm.

Complications have been limited to 4 lost implants during the healing period, before loading of the implant (95.9% survival rate). After loading no implants have been lost (100% survival rate after loading).

One patient fractured an abutment (TiDesign™) due to a difficult angulation of the implant. This case was solved using a patient-specific Atlantis™ abutment.

## CONCLUSIONS

Six months follow up data from this clinical study indicates that treatment with OsseoSpeed™ 3.0 S implants is a safe and predictable treatment option in the anterior region when physical space is limited. This is in line with a previous review article by Renouard and Nisand indicating that survival rates for narrow diameter implants are comparable to that of standard diameter implants, when used in appropriate indications. Moreover no relationship was found between marginal bone loss and implant diameter<sup>1</sup>.

**REFERENCES** 1. Renouard F and Nisand D, Impact of implant length and diameter on survival rates, *Clin Oral Implants Res* 2006;17 Suppl 2:35-51



Figure 1. Presurgery, position 12



Figure 2. OsseoSpeed™ 3.0 S 13mm



Figure 3. Installation of OsseoSpeed™ 3.0 S



Figure 4. Sutures around healing abutment

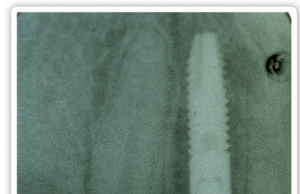


Figure 5. X-ray after surgery

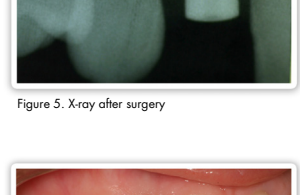


Figure 6. Final crown 6 months after surgery

Table 1. Bone quality and quantity of implant positions

Bone quality	Bone quantity					Total
	A	B	C	D	E	
1	1					1
2	20	28 (3)	13			61
3	9	22 (1)	1			32
4		3				3
<b>Total</b>	<b>30</b>	<b>53</b>	<b>14</b>	<b>0</b>	<b>0</b>	<b>97</b>

No. of implants (lost implants within parenthesis)

Graph 1. Distribution of implant length

