Experience of OsseoSpeed™ implants used in a private practice setting

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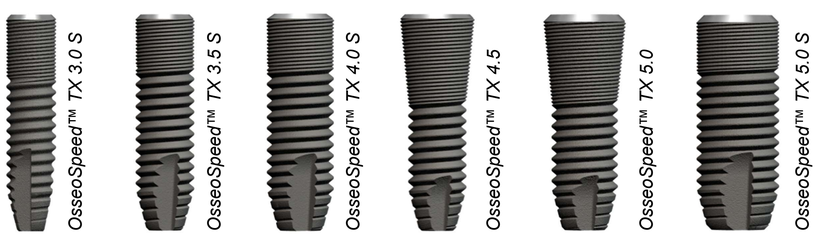
Background and Aim

As a complement to the implant studies performed to evaluate a specific aim in a well defined study population, larger and broader effectiveness studies evaluating the typical implant patient and the outcome of routine implant therapy in clinical practice are needed. The aim of the current study was to evaluate the Astra Tech OsseoSpeed™ implant when routinely used in a private practice setting.

Methods and Materials

Eight clinicians at five dental clinics in Switzerland have retrospectively compiled data according to an established case record form from all patients who had been treated with OsseoSpeed™ implants between November 2007 and January 2012.

Astra Tech study implants



NB OsseoSpeed™ TX was introduced at the clinics in September 2010. Implants placed before that were of the previous OsseoSpeed™ version, i.e. without the tapered apex.

Results

Altogether, the five clinics had treated 563 patients with 1028 OsseoSpeed™ implants during the specified time period. The mean age of the patients was 52 years, ranging from 20 to 85 years. Fifty-one percent of the patients were men and 19 % of all patients were smokers (Fig. 1).

Subject population

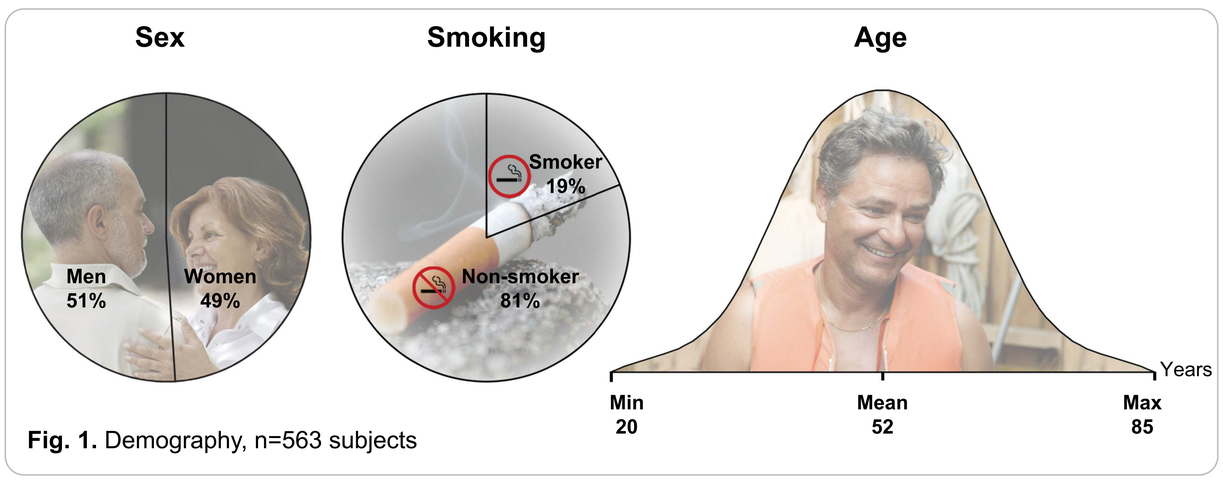


Fig. 1. Demography, n=563 subjects

More than half of the patients (53%) received only one implant, but up to 8 implants were placed in the same patient. Almost all implants (99.5%) were placed in healed ridges and 56% of the implant sites were bone-grafted prior to, or in connection with, implant installation. A flap was raised in connection to implant placement for 97% of the implants, and a two-stage surgical protocol was applied for 67% of the implants (Fig. 2).

Surgical procedures

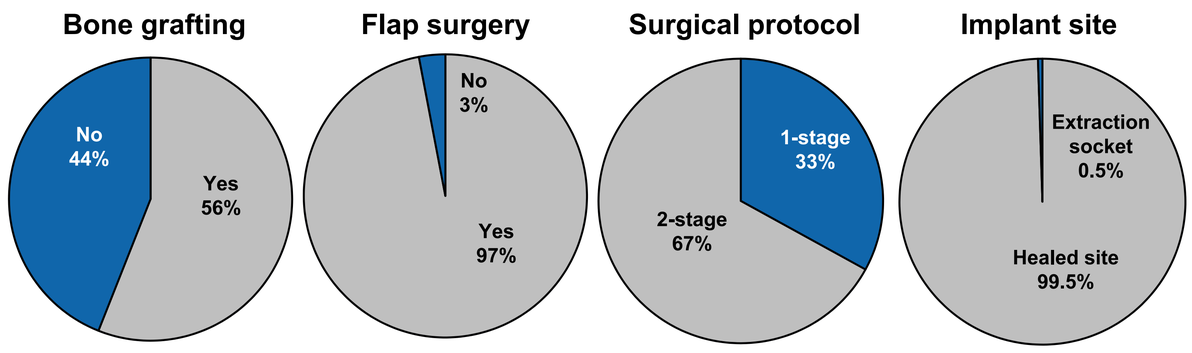


Fig. 2. Surgical procedures used in 563 subjects for 1028 implants

The most commonly used OsseoSpeed™ implants were the two straight implants with diameters of 3.5 and 4.0 mm, respectively, and the most commonly used lengths were 11 and 13 mm (Table 1). Implants were evenly distributed between the maxilla and the mandible, and were more often placed in the posterior regions than in the anterior regions of the mouth. As many as 79% of the implants were placed posteriorly, replacing premolars or molars (Fig. 3).

Up to now, 173 patients with a total of 311 OsseoSpeed™ implants have been followed for at least 12 months after loading, and 68 patients with 137 implants for at least 24 months. Nine of the 1028 installed implants have been reported as failures, resulting in a cumulative survival rate of 99.1%. Eight of these implants were lost before loading and one was explanted seven months after loading, due to peri-implantitis. Intra-oral radiographs showed a mean marginal bone loss of 0.19 mm between implant placement and loading. Thereafter, the mean marginal bone level remained more or less stable with a mean loss of 0.12 mm from surgery to the 12-month follow-up visit and 0.17 mm from surgery to the 24-month follow-up visit (Fig. 4).

Size of implants

	Length (mm)						
	8	9	11	13	15	Total	%
3.0S	0	0	5	6	0	11	1%
3.5S	10	66	125	64	2	267	26%
4.0S	13	120	291	146	11	581	57%
4.5	0	6	24	9	0	39	4%
5.0	0	4	8	5	0	17	2%
5.0S	0	20	63	29	0	112	11%
Total	23	216	516	259	13	1027	
%	2%	21%	50%	25%	1%		

Table 1. Length and diameter of placed implants, n=1027 (diameter not given for 1 implant)

Distribution of implants

Fig. 3. Placement of implants, n=1028

Marginal Bone Level Changes

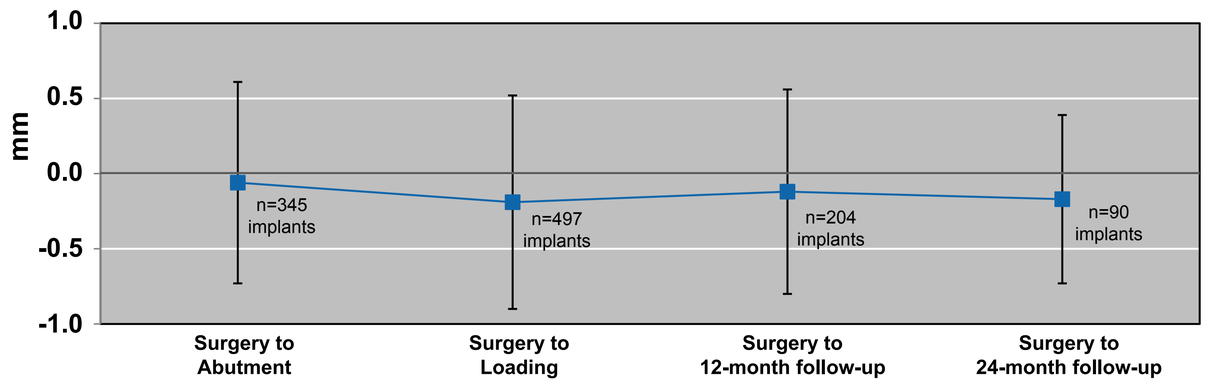


Fig. 4. MBL Changes from Surgery (Mean ±1SD)

Conclusions

This study indicates that the Astra Tech OsseoSpeed™ implant provides predictable results with regard to implant survival rate and marginal bone level changes, when used in routine treatment by clinicians in private practices in Switzerland.

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