A prospective multicenter study evaluating the Ankylos[®] C/X implant system – 1-year results

Introduction

In 2008 the Ankylos C/X implant system (Dentsply Sirona Implants, Mannheim, Germany) was introduced, combining the mechanical characteristics of the system's morse tapered connection with the positioning advantages of a deep-seated internal index. The purpose of this prospective, observational, multicenter study was to evaluate the clinical outcome of Ankylos C/X implants when used in daily practice. Dental practitioners with different specialization, e. g. oral surgeons, implantologists and maxillofacial surgeons from Europe and North America participated in this study.

Results

In total, 569 Ankylos C/X implants were placed in 157 patients. Slightly more female patients were included in the study, 53.5 %, compared to 46.5 % male patients. Mean age at implant insertion was 58 ± 12.5 years.

Clinical case (Dr. Happe, Münster, Germany)



Methods and materials

Patients in need of at least one implant were enrolled in the study. Patient enrollment started in September 2008 and ended in April 2012. A total of 35 centers in Germany, Sweden, Denmark, the Netherlands, Turkey and USA collected data on Ankylos C/X implants [fig 1]. Professors Al-Nawas and Wagner at University Medical Center Mainz, Germany, were coordinating Investigators.

The majority of patients were non-smokers (80.3 %), 12.1 % were smokers and 7.6 % former smokers.

Most patients received more than one implant (72.6 %), only 27.4 % of the patients received one implant. Six implants was the most frequent number of implants placed per patient, followed by two implants. On average 3.6 implants were placed per patient. The most frequent implant position was 36, followed by 25, 15 and 46 [fig 2].

Demographic characteristics, completed patients (n=157)			
Subjects/implants (n)		157	569
Gender (n and % of subjects)	Male	73	46.5%
	Female	84	53.5%
Age at implant insertion (yrs)	Mean ± Std	58 ± 12.5	
Smoker (n and % of subjects)	Non-smoker	126	80.3%
	Smoker	19	12.1%
	Former smoker	12	7.6%
Jaw (% of implants)	Maxilla	60%	
	Mandible	40%	
Most frequent tooth position (%)	36	6.9%	
	25	6.6%	
	15	6.2%	
	46	5.7%	

Clinical situation 1 year post loading of an Ankylos C/X implant in regio 45.



Clinical situation 1 year post loading. Implant-supported crown in place.



Primary outcome variable of the study was implant survival. Other parameters analyzed were hard tissue response and patient satisfaction.

The implants were placed using both two-stage and one-stage procedure, and loading took place immediately or 4-8 weeks following abutment surgery. Six months and 1 year after functional loading, clinical parameters (including peri-apical radiographs) were assessed. Demographic and 1-year data is presented here.



Figure 2. Demographic data

At the 1-year follow-up, 537 implants were still in function while 7 implants had been removed, resulting in a survival rate of 98.7%. For 25 implants data was missing.

Mean marginal bone level change was -0.1 mm 1 year after loading. Notably, 81 % of the implants did not show any bone level change. For 12 % of the implants a bone loss was seen, and 7 % of the implants showed a bone gain.

Patient satisfaction was analyzed using a questionnaire with regards to the general

Peri-apical x-ray 1 year post-loading.

Discussion and Conclusion

The Ankylos implant system provides a morse taper connection since many years, and favorable clinical results have been shown in numerous clinical studies. However, the original system did not provide an anti-rotational element like most other systems do. According to the results of this prospective multi-center study evaluating the Ankylos C/X implant it can be concluded that the new indexing does not seem to have a negative effect on the clinical results. Overall, the reported survival rate, bone maintenance and patient satisfaction with the

Figure 1. The Ankylos C/X implant

WORLD SUMMIT TOUR 2017 TOKYO San Diego NICE SHANGHAI Presented at the World Summit Tour 2017 by Dentsply Sirona Implants. This poster covers parts of data previously presented at the 23rd Annual Scientific Meeting of the European Association for Osseointegration,

25-27 September 2014, Rome, Italy. Poster No. 365. "Results of a prospective, international Post-Market-Surveillance Study with regards to the implant system ANKYLOS C/X (PAX)" Al-Nawas B, Happe A, Nonhoff J, Dueckers D, Wagner, W. This study is sponsored by Dentsply Sirona Implants.

satisfaction with the treatment. One year after loading 98.7 % of the patients stated that they were satisfied or very satisfied with their implant treatment.

> indexed Ankylos implant system seem to be comparable to results reported in the literature

> for the non-indexed precursor Ankylos implant.



