Successful peri-implantitis prophylaxis

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During the last decades, implantology emerged as one of the most innovative enrichments in the field of dentistry. Considerable increase is expected in the future. Compared to earlier pre-prosthetic methods, endosseous implantology is a simple treatment that usually is not very stressful for the patients and offers many advantages, eg the physiological transfer of chewing forces into the bone, which - under certain conditions - even generates renewed bone growth.

Against this background and since implantology with all its prosthetic treatments varieties is considered an established method.

One of the most common and most feared complications occurring in implantology is peri-implantitis (Fig 1), which usually leads to implant loss in case it remains untreated.

Introduction
Initially, the peri-implantal tissue disease manifests itself as mucositis with progressive bone loss at the implant area, as described by ALBREKTSSON et al. The reasons for this disease pattern are complex, and various hypotheses about the development of peri-implantitis were proposed, amongst them insufficient oral hygiene, lack of fixed gingiva, and/or overstressed implants. These putative triggering factors contradict the statements of well-known implantologists. An absence or insufficient width of keratinised gingiva is not aetiologically linked to the development of gingivitis and peri-implantitis or the functional strain placed on an implant cannot be solely held responsible for progressive bone loss. That means that additional pathologic influences, which trigger and sustain the process of disease, must exist next to these osten-

The re-infection from an implant cannot be ruled out. On almost every assembled implant we noticed a putrid smell of its content, which was extracted with a cotton tip. In 1996 we initiated the examinations after that confirmed the assumption that gaps and hollow spaces in the interior implants were contaminated with germs, which matched the germ spectrum of an interdental smear. Implant interiors in their dimensions, position and size are easily recognised by construction drawings, cross-sectional shapes and X-rays, and so it becomes clear that hardly any assembled implant is actually excluded from those facts.

Therapies reach from improved basic hygiene to antibiotics and disinfectant inserts into peri-implant spaces to ultrasound treatments and laser curettage of infected tissues. The main attention, however, should not be placed on therapy, but rather onto an efficient prevention of peri-implantitis.

Reflecting on gaps and hollow spaces of assembled implants It’s a fact assembled implants contain hollow spaces, which can be minimised but not prevented even at the most meticulous production. Because also threads hold gaps, the contamination of implant interiors with germs originating from the oral cavity is inevitable (Fig 2).

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Fig. 1: Peri-implantitis clinical and X-ray
Fig. 2: Endosseous implant, gaps and hollow spaces are marked in blue
Fig. 3: Used implant randomly chosen, on which the marked area was light- and electron microscopically examined. (Brand is intentionally unnamed)
tions apply to screwed superstructures as well. Cemented superstructures seem to be sealed at first by the fastening cement, but everyone knows the smell that emerges when cement is drilled from crown and bridge work and gives evidence of germs permeating here as well.

The access paths of germs into the implant interior are easily comprehensible, and we were able to provide evidence by taking light- and electron microscopic exposures of a used implant (Fig 5).


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