

Zirconia-based implant reconstructions: Current findings and indications

Irena Sailer, Zurich Switzerland

Implant-supported fixed reconstructions have become a valid alternative to conventional fixed dental prostheses due to their excellent clinical long-term results. The outcome of the implant rehabilitation, however, is not only influenced by the survival of the implant itself, but also by the biological, functional and esthetic success of the implant-borne reconstruction. Nowadays, various materials and new computer-aided manufacturing techniques enable the use of different types of fixed reconstructions. Metals like titanium or gold alloys are still considered to be the "gold standard" for implant abutments or reconstruction cores due to their excellent stability. Yet, metals exhibit esthetic disadvantages and in esthetically demanding situations ceramics should be used instead. Ceramics, however, are weak and brittle materials. To reduce the high risk for fracture observed at traditional ceramics, new high strength ceramics like zirconia have been introduced. Indeed today, the high strength ceramic zirconia offers new possibilities for the application of ceramic implant-borne reconstructions. Clinical studies reporting on all-ceramic single-implant crowns on zirconia abutments are showing comparable clinical results like the ones achieved with metal-ceramic crowns on titanium abutments, even in molar regions. Furthermore, clinical studies of zirconia-based tooth-borne fixed dental prostheses show very good medium-term results. The choice of the abutment and reconstruction material is now mainly influenced by factors like the visibility of the region (e.g. high vs. low smile line), the biotype of the gingiva (high scalloped, thin vs. low scalloped, thick), the color of the neighboring teeth and the esthetic expectations of the patient. As an example, in esthetically demanding situations ceramic abutments are indicated in combination with all-ceramic reconstructions in order to avoid problems with soft tissue discoloration. Still, it generally has to be considered, that ceramics are brittle materials and their indications have to be chosen thoughtfully.

The lecture will discuss factors for the choice of the abutment and reconstruction material with specific focus to zirconia as alternative to metal.