Adapter for inserting a dental implant

Reference Number: 32-00048

Challenge

Today, most dental implants are inserted with an adapter that is directly screwed to the implant. After insertion, the fixing screw has to be carefully unlocked inside the oral cavity to remove the adapter from the implant. This procedure is critical in several aspects. The handling of screw drivers and small parts in the narrow oral cavity is difficult and an aspiration of these parts cannot be excluded. In addition, the application of force to the implant for opening the screw can cause position changes of implants or the implant can be damaged. For this reason, we propose an innovative pluggable adapter design as part of an insertion system for a dental implant.

Technology

The innovative screw-less adapter consists of a coupling element which can be directly plugged to the implant and a guard ring allowing a safe removal. Therefore, the adapter can be easily plugged and unplugged from the implant. The new device enables an easy implantation and allows to secure the implant during the adapter removal with an instrument at the guard ring, so that the overall procedure can be performed fast, safe and reliable. The innovative design reduces the aspiration risk as well as it prevents unwanted position changes of unstable implants, combined with an overall faster procedure. In addition, the design of the adapter is more robust compared to systems on the market because there is no need for a screw channel in the center of the adapter. This newly gained robustness even allows the use of plastic materials like PEEK for manufacturing of the adapter system.

Commercial Opportunity

The patent protected adapter is available for in-licensing. Further development or clinical validation can be realized in cooperation with an experienced university dental clinic in Germany.

Developmental Status

The technology development is in detailed design and concept stage. A first prototype has been manufactured to demonstrate the concept.

Patent Situation

A priority claiming European patent application has been filed in December 2016. Additional international patent filings are possible within the priority year.

Further Reading

A. Schwitalla, T. Zimmermann, T. Spintig, I. Kallage, W.-D. Müller, Fatigue limits of different PEEK materials for dental implants, Journal of the Mechanical Behavior of Biomedical Materials, Volume 69, 2017

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