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Osseointegrated, percutaneously guided implants for rehabilitation after leg amputation-via the endo-exo-prostheses in hannover

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Introduction: The use of osseointegrated prostheses for limb amputation has been evolved over the last two decades as a promising alternative to the traditional external prosthesis. These systems are basically implants that are anchored intramedullary in the femoral or tibial section of the residual limb and extend outwards through the skin. This system is used by amputated since 1990 in few selected and special centers across the world (Sweden, Germany, Australia, Netherlands, and USA). The Section for Endo-Exo-Prosthetic moved 2017 from Lubeck to Hannover, Germany.

Materials & Methods: Endo-Exo-Prostheses are carried out in a two-stage operation. In the first-step operation, the Endofix-Stem is implanted in the residual bone; this is followed by a healing phase of several weeks allowing for the osseointegration of the Endofix-Stem. The soft tissue component is placed in the second-step operation, where the components that pass through the skin are assembled to which the Exoprosthetics can be later attached. These patients suffered an amputation of traumatic etiology, by generalized sepsis with peripheral microcirculation disorders, arterial occlusions, or heparin-induced thrombocytopenia as well as an end of complication of multiple medical interventions, such as surgical treatment of fractures or elective orthopedic interventions with severe unexpected complications. A few patients had to undergo an amputation due to peripheral vascular disease and as part of the treatment of tumors.

Results: Since February 2017 39 Patient have been treated by the Endo-Exo-Prostheses in Hannover. This includes the two-stage procedure, starting with the first-step operation followed by the second step after healing of the bone into the implant and continuing after healing respond with the physiotherapy guided rehabilitation work. Four operations had to be done due to infection of the soft tissue around the penetration part of this prostheses, one osteosynthesis had to be done due to a periprosthetic fracture. Our follow ups showed that all patients who have been treated by the Endo-Exo-Prostheses are able to walk with their prostheses and gain a good rehabilitation.

Conclusion: The bone guided, transcutaneously diverted prosthetics (Endo-Exo-Prosthetic) for rehabilitation after limb amputation can be regarded as sufficiently safe according to the available data. It is therefore a valuable treatment option for patients who cannot be satisfactorily rehabilitated after upper and lower leg above or below knee amputation.

Biography

Marcus Orgel was a student of human medicine at the University of Heidelberg, Germany from 10/2007 - 10/2014, he was also a resident at the clinic for trauma surgery (Prof. Dr. med. Christian Krettek) during 06/2015 at Medical School Hannover, Germany and he is the deputy head of the section for endo-exo-prosthetic, clinic for trauma surgery (Prof. Dr. med. Christian Krettek) from 02/2017 at Medical School Hannover, Germany.

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