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Alveolar ridge augmentation - Achieving more predictable vertical bone augmentation prior to dental implant placement

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The long-term success of dental implants depends upon the degree of osseointegration that can be achieved, which is largely determined by the volume and quality of bone available at the time of surgery. Bone height and volume is often diminished in patients due to the extended time after tooth loss and this is a major limitation impacting long term dental implant treatment success. Some of the commonly used surgical techniques for ridge augmentation are (i) Osteoperiosteal flap (OPF); (ii) Distraction osteogenesis (DO); (iii) Block grafting; (iv) Guided bone regeneration (GBR) using membranes; and (v) Subperiosteal tunneling for minimally invasive approach to GBR. This talk discusses the development of bioceramic graft materials with superior biological properties to those currently available. Dicalcium phosphate cements, brushite and monetite, resorb faster *in vivo* than hydroxyapatite (HA). Monetite (unlike brushite) does not re-precipitate as HA *in vivo*, and demonstrates superior osteoconductive and osteoinductive properties. We have produced monetite disc grafts by varying processing conditions which alter their physical properties such as porosity, surface area and mechanical strength. Histological observations after 12 weeks of onlay grafting on rabbit calvaria reveal higher bone volume (38%) in autoclaved monetite grafts in comparison with the dry heat prepared monetite grafts (26%). The vertical bone height gained is similar for both the types of monetite grafts (up to 3.2 mm). This talk discusses and provides information regarding two types of monetite onlay grafts prepared with different physical properties that could be used for achieving more predictable vertical alveolar bone augmentation.

Biography

Dr. Sheikh is a clinician scientist with degrees in dental hygiene, dentistry (BDS) and since has worked as a dental surgeon in hospitals and private practices for 2 years before proceeding to obtain an MSc degree in dental and biomaterials from Queen Mary, University of London (QMUL) with distinction. He then joined Altamash Institute of Dental Medicine (AIDM) as Head of the Department of Dental Biomaterials and Preclinical Dentistry and then proceeded to obtain a PhD from McGill University, Faculty of Dentistry. He currently works at Faculty of Dentistry, University of Toronto and the Mt. Sinai Hospital in Toronto, Canada.

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