

Recent Advance in Oral and Maxillofacial Surgery: An Overview

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The aim of this article to highlight various recent advances in the field of Oral and Maxillofacial Surgery. This article briefly overviews various recent techniques and innovations like "Bioresorbable plates", recent bone substitutes and osteoactive agents, "Stem Cell Therapy", "LASER Technology", "Piezoelectric Surgery", "Robotic Surgery" and "Physics forceps".

Bioresorbable plates

Stable fixation is necessary to achieve uneventful bony healing in cases of Maxillofacial Osteosynthetic Surgeries. In Maxillofacial Surgeries, titanium plates and screws are considered as the gold standard for rigid fixation and optimal remodeling [1]. In open reduction and internal fixation (ORIF) technique, bioresorbable screws and plates have higher success rate. Co-polymer of poly-L-lactic acid and glycolic acid is the biodegradable material used in Oral and Maxillofacial Surgery [7]. First-generation bioresorbable materials like "GRAND FIX" system and "FIXORB-MX" system are used in cases of Orthognathic surgeries and zygomatico-maxillary fractures [1]. The recent 3rd generation biodegradable material of uHA/PLLA has better mechanical potential as well as osteoconductive and bioresorbable properties [1].

Bone regenerative materials and Osteoactive agents

Bone regenerative materials are available in the form of scaffolds and gels. All these have been designed with the help of nanotechnology [2].

Stem cell therapy

Stem cell therapy or tissue engineering helps in achieving alveolar bone regeneration. It is useful for treating periodontal tissue defects. Stem cells are pluripotent cells which have the capability of renewing by their own [8]. Stem cells are derived from the gingiva, primary teeth and third molars. Stem cells can be stored for treatment purpose with the help of "dental stem cell banking" [5]. Dental pulpal diseases and hard tissue defects as well as maxillofacial defects can be treated by stem cell therapy [8,9,14].

LASER technology

"Biolase laser", "Epic 10 laser" are some recent laser technologies which are used in the field of Oral and Maxillofacial Surgery [11-13].

Piezoelectric surgery

Piezoelectric surgery can be applied in Implantology and Maxillofacial Surgery. In this technique, devices work on piezoelectric principles and they perform cutting by means of ultrasonic vibrations. Piezoelectric surgery provides clear vision of the surgical field due to cavitation effect and irrigation under pressure [6]. Piezoelectric surgery provides precise bone cutting as well as it preserves soft tissue [4].

Robotic surgery

Robotic surgery provides better cosmetic results as well as there is less blood loss and minimal complications as compared to open surgery. Robotic surgery is the promising recent modality in the field of Maxillofacial surgery [10].

Physics forceps

The concept of physics forcep proved revolutionary in the field of Oral and Maxillofacial Surgery. Physics forceps are less traumatic and prove more efficient to extract teeth [3].

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