**Editorial**

### Oral and maxillofacial surgery: challenges and changes

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The ‘Annals of Oral and Maxillofacial Surgery’ would like to welcome all editors and readers. The Editorial Board of this journal is composed of worldwide, renowned surgeons and researchers coming from all five continents, involved in all fields of cranio-maxillofacial surgery. Hence, we have a dynamic journal capable of receiving and reviewing critically diverse manuscript submissions which will benefit both the quality as well as the number of the eventually published papers, with increasing interest for authors and readers alike. Every aspect of oral and maxillofacial surgery will be fully covered through a range of original research studies, reviews, case studies, case reports, editorials, hypotheses, methodologies, short communications, study protocols, letters-to-Editor and meeting reports.

The Annals of Oral and Maxillofacial Surgery is an e-Journal that provides an open access source for all the accepted papers, allowing readers to view or download the full texts of all the journal content without a subscription. This is the first step towards showcasing the strong intellectual and institutional value of this journal, allowing the journal to be well known within the craniofacial surgical and research fields. Once it has obtained the necessary requisites, the journal will be indexed in the most representative databases to ease the online search of our articles, making the published papers more accessible to many readers and reaching new readers for the first time. The journal aims to see the rapid sharing of new knowledge and research through the aforementioned mediums.

Only papers with the highest scientific merit and widest possible scope in the field of oral and maxillofacial surgery, as well as supporting specialties, will be considered for publication in this journal. A time-limited peer-to-peer reviewing process and an easy electronic processing will allow the publication of accepted papers as quickly as possible.

The number of citations received will be the mirror of the quality of manuscripts published. This is why the journal offers, after the acceptance of the paper, a high-level English language editing service that is mandatory to elevate the quality of the papers published in this journal.

The Editor-in-Chief and his co-workers will make all efforts to preserve the transparency and integrity of the journal and its published material. Since the journal will provide open access to papers worldwide with English as the official language, this international dimension should encourage all contributors to pay special attention to research ethics, avoiding overlap with previously published material and plagiarism. Patient agreement for recognisable pictures will be requested from the authors in advance by the committee of Annals of Oral and Maxillofacial Surgery to prevent the possibility of conflicts, including portrait rights.

The Annals of Oral and Maxillofacial Surgery will make all the efforts necessary to earn Science Citation Index Expanded [SCI(E)] status, to become an internationally renowned journal as soon as possible.

### Biological drugs and smart molecules in oral and maxillofacial surgery

Although over 1000 human micro-RNAs (miRNAs) have been reported, it is estimated that one third of genes are modulated by the expression of these small molecules due to the ability of just one miRNA to regulate the expression of many genes<sup>1</sup>. In the setting of neoplasia, overexpression of oncogenic miRNAs may reduce protein products of tumour-suppressor genes, whereas loss of tumour suppressor miRNAs may cause elevated levels of oncogenic proteins<sup>2</sup>. Indeed, altered expression of one or both of these groups of molecules has been reported in many different types of cancer, including head and neck cancer. Upregulation of the expression of tumour suppressor miRNAs and/or inhibition of expression of overexpressed oncogenic miRNAs are two potentially effective approaches to the treatment of oral cancer<sup>3</sup>. Another example of the importance of miRNA application in oral and maxillofacial surgery stems from the fact that these molecules can modulate the expression of genes coding for extracellular matrix proteins<sup>4</sup>. Therefore, these non-coding RNA molecules are involved in a wide array of processes including tissue...
development, cell motility and wound healing. In the future, miRNA manipulation could also be used by oral surgeons as a strategy to modulate the wound healing process.

**Implantology**

The advancement in implant dentistry has led to a significant improvement in the quality of life of our patients; however, there are still many controversies and many unanswered questions.5,9

The trend is towards minimally invasive surgical procedures with cost-effective dental rehabilitations although many of these therapeutic approaches are still under scrutiny. For instance, till date, the scientific community does not have a definitive answer to the following issues: short implants or bone reconstructions and longer implants, the best reconstructive approach, the ideal implant surface, systemic factors negatively influencing implant cluster failures, the most appropriate treatment for periimplantitis and the ideal aesthetic materials for implant prosthetics, to list a few. Additionally, clinical and ethical issues including when teeth should be extracted and implants placed, are also unclear.

Over the years, we have seen in meetings and congresses, a dramatic increase in the extraction of teeth that could be saved. A defined algorithm for such instances has not yet been presented and the controversy still remains open.

Translating evidence into treatment predictability should be the goal in implant dentistry in the near future, with emphasis on an open and honest approach and the complete financial disclosure of every author. This is essential in a field like implant dentistry where conflicts of interest could generate confounding factors and bias.

**Transoral robotic resection and reconstruction in oral maxillofacial surgery**

Transoral robotic surgery (TORS) has achieved a mainstream status in head and neck surgery for the resection of early stage tumours. Functional and oncological outcomes have been good, and in carefully selected patients, TORS provides locoregional control in the confined surgical anatomy of the upper aerodigestive tract, without the morbidity of wide surgical access or speech and swallowing impairment that often accompanies high dose radiation.10,11

Because most TORS defects result from early stage tumours and are consequently small, reconstructive efforts have often been limited to healing by secondary intention. This approach is reliable for smaller tumours but not when a significant anatomical defect is created, vital structures are exposed or a surgical fistula is created. These cases require soft tissue reconstruction.

The reconstructive challenge created by these minimally invasive resections is that the cylinder of the oropharynx remains closed, severely restricting physical and visual access to the oropharyngeal anatomy. Early efforts at transoral robotic reconstructive surgery by our group and others have proved successful.12-14 By taking this approach, the plastic surgeon can provide the reconstructive support for the head and neck surgeon to remove larger and more complex tumours robotically that would be very difficult to reconstruct through traditional methods.

**Stem cells application in maxillofacial surgery**

The last decade has witnessed a great deal of progress in the field of stem cell research, at the level of both basic biology and biotechnological applications. In particular, the oro-maxillofacial region is a candidate district in which regenerative medicine is expected to benefit because of its increasing ability to replace, repair and/or regenerate damaged and injured tissues and restore their physiological function by means of stem cell-based technologies.15

Stem cells have been isolated from a variety of embryonic and adult tissues. The latter (adult stem cells) do not pose the same ethical concerns and controversies in comparison with embryonic stem cells and therefore, their application is being favoured in many academic research institutes around the world. Multipotent adult mesenchymal stem cells (MSCs) are a cell subpopulation that can be isolated primarily from the stromal part of the bone marrow and may follow characteristic differentiation pathways in osteogenic, chondrogenic or adipogenic cells that can be of particular interest to the oro-maxillofacial surgeons.16,17 Dental stem cells are MSCs that have received much attention from both researchers and clinicians in the repair of soft tissues and craniofacial defects of varied nature (i.e. malformation, trauma and reconstruction following surgeries for cancer) because of their prompt accessibility and their ability to differentiate into bone and/or other periodontal tissues.

More recently, the existence of a small subpopulation of tumour-initiating cancer stem cells in the bulk of human head and neck squamous cell carcinomas (SCC), has been recognised.19,20 These cells maintain stem-like characteristics in that they proliferate slowly and have an inherent capacity to self-renew and to differentiate into the phenotypically heterogeneous, aberrant progeny of the bulk of tumours. Cancer stem cells in head and neck SCC can be identified by the presence of characteristic markers on their surface.21 Because of their resistance to standard-of-care anticancer treatments, more recent investigations have been focused on understanding their biology with the ultimate goal of developing new diagnostic markers and curative cancer treatments.22

**Reconstructive surgery and microsurgery**

Reconstructive surgery and microsurgery have made considerable...
Post-oncological and post-traumatic patients who have been disfigured or rendered dysfunctional have directly benefited from these advances that provide the chance to regain an adequate quality of life and to develop social relationships. The eradication of a disease should be followed by restoration of form and function aiming to create results as similar as possible to the original tissues with regard to volume, soft tissue contour, function, colour, texture, thickness and pliability.

In a field as challenging as head and neck reconstruction, an active and healthy interdisciplinary approach across different related specialties will continue to provide the best onco-logical and reconstructive options for each patient’s treatment. A policy of isolationism, competition and conflict, will only alienate colleagues of isolationism, competition and multi-lineage potential of adult human mesenchymal stem cells. Science. 1999 Apr;284(5411):143–7.

The spectrum of care in reconstructive head and neck surgery should no longer be limited to relatively simple wound coverage. The creation of a natural-appearing and natural-functioning head and neck area is considered a prerequisite when undertaking this endeavour and requires the skills of all specialties within the field. The policy of Annals of Oral and Maxillofacial Surgery to include cross-specialty members in its editorial board will ensure not only the coverage of the broad range of topics within this field but also the continuation of ongoing innovations to thrive well in the future.

References