Current perspectives on oral surgery

How to improve consistency and implementation of contemporary treatment recommendations and options in general dental practice

Oral surgery would consequently encompass maxillary sinus membrane lifts, onlay and inlay bone grafts, the placement of dental osseointegrated implants, exodontia (including surgical extraction of impacted teeth and tooth-like structures), as well as the incision and drainage of cellulitis, just to name a few. Despite these different fields of use, the limits of oral surgery are not yet well defined and may reach maxillofacial surgery, a term that implies a greater scope of surgical interest, such as temporomandibular joint surgery, orthognathic surgery, the treatment of head and neck trauma, as well as cancer surgery.

General dental practitioners are only required to undertake surgical treatment of teeth, tooth-like structures, and soft tissue surrounding teeth. In this regard, the UK General Dental Council defines “surgical dentistry” as “those surgical procedures within the mouth which would normally be accomplished for a cooperative patient under local anaesthesia, with or without sedation, in a tolerably short operating time.”

In the past 50 years, oral surgery has progressed significantly in the diagnosis and treatment of dental and jaw pathology. Dentistry, particularly surgical dentistry, is rapidly changing and evolving, and dentists worldwide are attempting to adapt to the revolutionary changes and new opportunities resulting from globalization of dental and medical surgical specialties. New insights and discoveries related to oral surgery are indeed astonishing and many of them have already been applied in everyday practice, and addressed in textbooks and at international conventions.

The near future will probably witness Er:YAG laser bone ablation replacing surgical drill osteotomy in oral surgical practice. Indeed, scanning electron microscope observations have determined that Er:YAG laser treatment produces well-defined edges. Melting and carbonisation associated with carbon dioxide lasers can be observed on sites irradiated with Er:YAG lasers. In addition, FTIR spectroscopy revealed that the chemical composition of bone surfaces after ablation with an Er:YAG laser was almost the same as that after conventional drilling with a bur, proving that the use of Er:YAG laser ablation can be an alternative to traditional bur ablation in oral and periodontal, oesophageal surgeries, particularly in mandibular ramus onlay block harvesting, apicectomy cysts and benign jaw tumour surgery, or the irradiation of bisphosphonate-associated jaw osteonecrosis.

Dental pulp stem cells (DPSCs) can now be cryopreserved and stored for years, while still retaining their multipotency and bone-producing capacity. These highly specialized cells show very low morbidity and are easy to collect from extracted wisdom teeth or buds, for example. They also interact with bone biomaterials and substitutes, which makes them an ideal cell population for jaw reconstruction. In addition, stem cell ablation and cell subpopulation of DPSCs, are capable of differentiating into osteoblasts, and they are claimed to possess immune privilege and exert anti-inflammatory abilities like many other mesenchymal stem cells.

Introduced in the late 1990s, CBCT is becoming the main imaging armamentarium of oral surgeries, as it provides more comprehensive anatomical information and data that help to improve preoperative and peroperative clinical implementation of surgical procedures. Impacted teeth, cystectomies, removal of benign jaw tumours, and placement of dental implants.

While oral surgery continues to develop further with new technologies and visions, the assessment and diagnosis of patients will still form the cornerstone of any surgical specialty. Decision-making, a complex cognitive process that involves consideration of surgical patients’ complaints and preferences, the availability of evidence-based data, as well as practitioners’ case-specific clinical judgment, consequently remains an ongoing challenge for dental and general practitioners alike.

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Dr Ziad Noujeim
Lebanon

As a matter of fact, regional differences in training, education, and dental school treatment philosophy, the “schools effect”, may significantly influence decision-making processes.6, 7 It seems likely that specialists are much more confident in their ability to manage surgical cases successfully. A better understanding of inter-clinician variability and disparity in decision-making are very well known in dentistry and medicine.8,9 In oral surgery, treatment options and decisions can vary widely among practising dentists. In many cases, they are based more on personal values and expertise than on objective, rigorous or evidence-based analysis of treatment alternatives, risks, prognosis and benefits. There are treatment guidelines for the management of impacted teeth but none for aggressive and non-aggressive jaw cysts and odontogenic tumours, for which documented long-term treatment success has not yet been achieved. Owing to this lack, the treatment planning process in oral surgery remains a dilemma and warrants further interest and research.

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