Aim: The purpose of this study was to conduct a systematic review and network meta-analysis of RCTs with the following specific aims: (1) to systematically review best available evidence on effect of M3M surgical removal interventions on periodontal health of M2M; (2) to establish a ranking in efficacy of the treatment options; and (3) to identify the best approach, in terms of clinical attachment gain (CALg) and probing pocket depth reduction (PPDr) at the distal surface of the M2M.
Methods: Medline, Cochrane and Embase databases were interrogated to identify randomized controlled trials (RCTs) up to 22 December 2014. Patients with M3Ms fully developed, unilaterally or bilaterally impacted, were considered. Outcomes were clinical attachment level gain (CALg) and probing pocket depth reduction (PPDr) with a follow-up ≥ 6 months. Patient-subjective outcomes as pain, discomfort and complications, financial aspects and chair-time were also explored. A Bayesian network meta-analysis (NMA) model was used in order to estimate direct and indirect effects and to establish a ranking of treatments.
Results: 16 RCTs were included and categorized into 4 groups investigating: regenerative/grafting procedures (10 RCTs); flap design (3 RCTs); type of suturing (1 RCT); periodontal care of M2M (2 RCTs). Guided tissue regeneration (GTR) with resorbable (GTRr) and non-resorbable (GTRnr) membrane, and GTRr with anorganic xenograft (GTRr+AX) showed the highest mean ranking for CALg (2.99, 90%CrI: [1; 5]; 2.80, 90%CrI: [1; 6]; and 2.29, 90%CrI: [1; 6], respectively) and PPDr (2.83, 90%CrI: [1; 5]; 2.52, 90%CrI: [1; 5]; and 2.77, 90%CrI: [1; 6], respectively). GTRr+AX showed the highest probability of being the best treatment for CALg (Pr=45%) and PPDr (Pr=32%). Direct and Network quality of evidence rated from very low to moderate.
Conclusions: 1) GTR therapies with non-resorbable and resorbable membranes and their grafting-combined therapies achieved some additional clinical benefit compared to standard non-regenerative/-non-grafting procedures in terms of CALg and PPDr. However, the overall low quality of evidence suggests low degree of confidence and certainty in treatment effects. 2) The body of evidence for therapies consisting on alternative access flap design, type of suturing, periodontal care for M2Ms indicates that none of these aspects of is decisive on M2M periodontal healing. 3) In view of the importance of M3M extraction as a common dental surgical intervention, more well-designed and well-conducted RCTs are necessary in order to suggest robust evidence-based guidelines.

Influence of pretreatment with PRF (platelet rich fibrin) on wettability of implant surface

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Aim: The objectives of this study were three: 1) obtaining electronic microscopy images before and after a PRF pretreatment from three different implant surfaces, 2) evaluating the angle contact obtained wetting, with a blood drop, three different implant surfaces and 3) evaluating if the PRF pretreatment of the same implant surfaces, modifies their wettability.
Methods: Six implant surface's samples were selected: two machined, two blasted and two with laser treatment. Four images for implant surface were acquired by SEM (Scanning Electron Microscope) before and after a PRF pretreatment, respectively with 200x, 500x, 1000x and 2000x magnification. Afterwards the angle contact formed between three different implant surfaces and 10µl blood drop was calculated by optical microscope with 10x magnification. With other three samples, that were pretreated with PRF, the angle contact formed between the different implant surfaces and 10µl blood drop was evaluated by the same microscope. The pretreatment of the implant surfaces was made soaking the samples in the PRF and after drying them with sterile gauze. The entire procedure was performed five times in five different days to obtain five measurements for implant surface with and without the PRF pretreatment. The human blood, for the drops and for the PRF production, was drawn from the same volunteer for all the time.
Results: The results obtained with SEM were poorly relevant. It was possible to observe only a few fibrin deposits on implant surfaces with PRF pretreatment.
The results obtained with optical microscopy, evaluating different surfaces between them, were relevant: by using "non parametric" tests with software SPSS for Mac OS X (SPSS inc. Chicago, IL, USA) a significant wettability difference from different implant surfaces was observed. The average angle contact of the different surfaces were: for the machined surface 56.58 ± 12.83, for the sandblasted surface 76.45 ± 6.93 and for laser treated surface 51.02 ± 3.49. The results obtained, calculating the angle contact after PRF pretreatment of implant surfaces, were very interesting and satisfying. It was possible to observe an important wettability improvement of implant surfaces: machined surface had 33.67 ± 3.06, sandblasted surface had 38.84 ± 8.49 and laser treated surface had 32.88 ± 1.59. The statistical analysis highlighted a significant wettability difference from the same implant surface before and after PRF pretreatment but there was not significant angle contact difference between the different surfaces after PRF pretreatment; in fact the angle contact values were very similar

Conclusions: Compelling evidence from our study lead us to suggest, according to scientific literature, that the machined surfaces have more wettability than sandblasted surfaces and a similar one compare to the laser treated surfaces. The PRF pretreatment have a positive effect on wettability of implant surfaces. This effect is independent from the kind of surface, probably because the wettability improvement is directly related to PRF proprieties and not to the characteristics of the implant surface even if the results with SEM were not significant; perhaps due to chemical changes on implant surfaces (not visible by microscopy) thanks to PRF pretreatment. So the PRF could be used as a helper to make the osseointegration process faster by using a rough surface, which stimulates the cell differentiation, with an optimal wettability, which allows to improve the cell adhesion.

Keratocystic odontogenic tumor before and after marsupialization: a histological evaluation

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Aim: A keratocystic odontogenic tumor (KOT) is a benign neoplasm of the jaws that originates either from the dental lamina or from the primordial odontogenic epithelium. KOTs are more commonly found in the mandible than in the maxilla, usually in the posterior maxillary region. The treatment of KOTs includes enucleation and marsupialization. Moreover, resection and adjuvant therapy such as cryotherapy, peripheral ostectomy and Carnoy solution are applied to reduce recurrences. Several authors report that marsupialization reduces the dimensions of extensive KOTs allowing a second, less complex procedure to remove the neoplasm with low morbidity. After marsupialization, the fibrous capsule becomes thicker and less friable, facilitating the surgical procedure of enucleation and reducing the recurrence rate. The aim of the present study was the histological evaluation of the epithelial lining and fibrous capsule in histological specimens of keratocystic odontogenic tumors (KOTs) before and after marsupialization.
Methods: Ten patients were recruited at the oral surgery department of Careggi hospital of Florence. Participants signed an informed consent form. Patients who underwent marsupialization (incisional biopsy) and decompression followed by a second surgery to remove the neoplasm were included in this study. After marsupialization, the reduction in the size of their KOTs was examined quarterly through clinical and radiographs. The enucleation was performed when a dimensional reduction of the tumor could not be radiographically identified within a 3-month period. Keratocysts were kept in communication with the intraoral environment from a gauze impregnated with gentamicin ointment. Change of the gauze was performed once a week until the second surgery. Tissue samples were fixed in 10% buffered formalin and processed for hematoxylin-eosin staining. The thickness of the epithelial lining and fibrous capsule at the time of marsupialization and after enucleation was measured using Olympus dp-soft analysis software. The images of the specimens were viewed under a microscope and photographed using a Canon Power Shot A-640 digital camera. The morphology of the epithelial lining and fibrous capsule was observed and recorded both before and after the marsupialization.
Results: In all cases, it was clinically obvious upon enucleation that the appearance of the tumor had changed from the time of marsupialization, with a considerable thickening of the tumor's fibrous capsule. The thickness measurements of the epithelium during marsupialization ranged from 54,12 to 167,71 µm (median of 101,74 µm), whereas the thickness in the KOT specimens after enucleation ranged from 180.20 to 370,77 µm (median of 255.22 µm). This thickness difference was statistically significant ($p < 0,05$ Wilcoxon test). The fibrous capsules from the incisional biopsy (marsupialization, 1552.55 µm) were not as thick as the capsules obtained from the final enucleation (2804,51, $p = 0,0015$, Wilcoxon test).
CONCLUSION: In the present study, a morphometric evaluation demonstrated that the epithelium and fibrous capsule in the specimens from enucleation were statistically significantly thicker than in the specimens from the incisional biopsy. These modifications facilitate full surgical treatment and may well be related to a low KOT recurrence rate.

Genetic investigation in patients with non-syndromic supernumerary teeth and similarities with overproduction of dental tissues (as odontomas)

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