



SMART DENTAL UPDATES

Vol 2 | Issue 26 | 2021

Dear Doctor,

Greetings from Micro Labs Limited. We are happy to bring you “**SMART DENTAL UPDATES**” which contains latest and interesting news in the field of Dentistry.

This issue contains

- Effects of Palatal Expansion with Tongue Activation using a Transpalatal Arch: A Preliminary Single-Blind Randomized Clinical Trial
- Dental Implant placement with inferior alveolar nerve repositioning in severely resorbed mandibles.
- Minimal Invasive Surgical Management of Familial Arteriovenous Malformation

free to contact us at medicalservices@microlabs.in

Looking forward to your valuable feedback

Best Regards,
Medical Team, Micro Labs Limited



SMART DENTAL UPDATES

Vol 2 | Issue 26 | 2021

Effects of Palatal Expansion with Torque Activation using a Transpalatal Arch: A Preliminary Single-Blind Randomized Clinical Trial

Transpalatal arch is a common orthodontic space management appliance which is used during the mixed or permanent denitions. It is a rigid wire passing over a palate and which connects to maxillary contralateral molars.

The objective of this study was to assess the effects of an active Goshgarian Transpalatal arch (TPA) in correcting nonfunctional single-tooth unilateral crossbite.

The Goshgarian TPA can be used with torque activation in order to deliver a more effective and faster correction of nonfunctional single-tooth unilateral crossbites with more favorable clinical results.

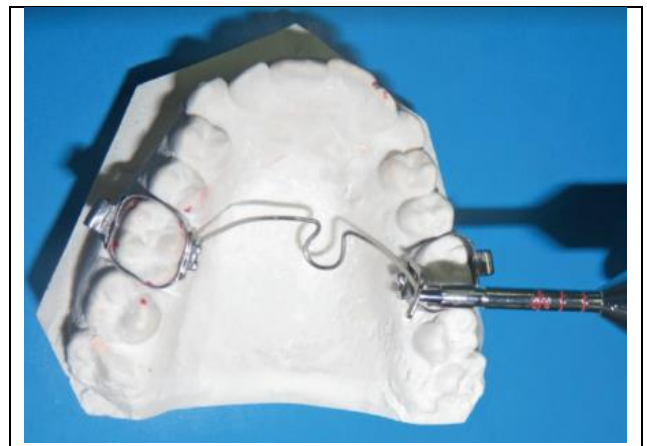
This was a single blind parallel randomized clinical trial. Initial treatment began with the correction of crossbite using TPAs only. The subjects were divided into 2 groups. Group 1 (control group) which included 15 subjects with an average age of 11.4 ± 2.1 years in which Goshgarian TPA was activated for simple symmetrical palatal expansion and group 2 (experimental group) which included 15 subjects in which the crossbite was corrected with a Goshgarian TPA activated to expand the palate in combination with buccal root torque on the normal side. Buccal root torque was delivered by twisting double-ended wire of TPA in the lingual direction and insertion in the lingual sheath and in the experimental group treatment was ended with the overcorrection of the first molars. Palatable arch length was measured by the distance between contralateral maxillary first molars on dental casts, using a flexible ruler. The ruler was held about 1 or 2 mm over the palate mouth. The prepared wire was placed in the sheaths soldered to molar bands, and its passivity and relationship with the soft tissue was checked. Orthometer was used to verify the palatable arch which was expanded for 2 mm/month and all the transpalatal arch and were assessed monthly. At the central loop all the transpalatal arch was deactivated and then reactivated during each examination session. Using a gauge on the dental cast and also in the mouth the force



SMART DENTAL UPDATES

Vol 2 | Issue 26 | 2021

magnitude was measured at each treatment session. Dentoskeletal alterations were assessed on dental records, posteroanterior frontal cephalographs, and occlusal radiographs taken before and after treatment. The Fisher test revealed that there was no significant difference between the groups in terms of the class, gender, and the crossbite side. Treatment duration was significantly shorter in the experimental group compared



An example of force magnitude estimation.

with the control group. After orthodontic treatment, anterior width increased over time in each group. The intermolar width showed significant changes caused by each treatment. The extents of dental displacement in the normal (noncrossbite) side differed significantly between the two groups. In the longitudinal axis of the teeth on the crossbite side both treatment methods caused a significant change and there were no differences observed in the magnitudes of changes caused by either treatment. The tooth under buccal root torque showed minimal displacement under the experimental animals. Minimal or no change after the treatment was showed in the occlusal plane.

In conclusion, findings of the study suggest that Goshgarian transpalatal arch can be used with torque activation in order to deliver a more effective and faster correction of nonfunctional posterior dental crossbite in the first permanent molar area with appropriate clinical results comparable with those of conventional symmetrical expansion and without adverse effects beyond those of the conventional method.

Reference: Ghorbanyjavadpour F, Rakhshan V. Effects of Palatal Expansion with Torque Activation using a Transpalatal Arch: A Preliminary Single-Blind Randomized Clinical Trial. International Journal of Dentistry. 2021 Jun 2;2021.



SMART DENTAL UPDATES

Vol 2 | Issue 26 | 2021

Dental implant placement with inferior alveolar nerve repositioning in severely resorbed mandibles

In severely resorbed posterior mandibles implant placement is challenging because of the insufficient bone volume, diminished amount of attached and unattached mucosa, and superficial location of the inferior alveolar nerve.

The objective of this study was to assess medium-to-long-term implant success and survival rates, and lip sensory disturbance after placement of dental implants in combination with inferior alveolar nerve (IAN) repositioning.

Retrospective evaluation of the 15 subjects with bone defects of the posterior mandible who underwent implant placement with inferior alveolar nerve repositioning were included in this study. Cone beam computed tomography (CBCT) was used to assess bone height above the mandibular canal. All the mandibles were ranked as class V or class VI according to Howell-Cawood classification. Under a combination of local anesthesia and intravenous sedation the operations were performed. To expose the alveolar crest and lateral body of the mandible of the edentulous area a triangular mucoperiosteal flap an envelope flap was used. A full corticotomy was performed with a piezoelectric saw creating a rectangular bony window lateral to the inferior alveolar canal. By exposing the inferior alveolar canal the bony window was removed. Osteotomy window was extended anteriorly in cases of nerve transposition to expose the mental foramen and incisive branch. Titanium miniscrews were placed half-way on the lateral side of the mandible in subjects with



A full corticotomy performed with a piezoelectric saw creating a rectangular bony window lateral to the inferior alveolar canal



SMART DENTAL UPDATES

Vol 2 | Issue 26 | 2021

high IAN locations. The muco-periosteal flaps were repositioned and sutured with resorbable sutures. Cortical bony windows were utilized as a source of the autogenous bone for bone augmentation. The healing time was 6 months before the second stage. According to subjective reports 2 weeks, 1 month, 3 months, 6 months, 1 year, 3 years, 5 years, and 10 years after the operation the function of the inferior alveolar nerve was evaluated.

23 IAN repositioning surgical procedures with implant placement were performed in 15 subjects. Out of these 17 subjects underwent IAN lateralization and 6 subjects underwent IAN transposition. Mean residual bone height above the IAN was 4.3 mm. Because of the spontaneous mandibular fracture 10 days after surgery, one implant was removed and one more implant was lost after 5 years of loading. Implant survival rate was 95.8% and the implant success rate was 95.8%. Transient numbness during the first 2 weeks after surgery was reported by all the patients. Three patients experienced moderate mental nerve hypofunction by the end of 3 months. Two patients reported weak hypoesthesia after 1 year and at 3-5-, and 10-year follow-ups, weak hypoesthesia remained in 2 patients who were treated with inferior alveolar nerve transposition.

In conclusion, the study suggest that reconstruction of resorbed mandibles with dental implants in conjunction with IAN repositioning is an effective and reliable method, despite the complexity and risks of specific complications, such as a spontaneous fracture of the mandible. In most cases , neurosensory disturbances is high and it resolves after several months after the operation. Inorder to perform this technique advanced surgical skills are required. Subjects tolerated the surgery well and indicated that they would go through it again, considering the benefits they received.

Reference: Deryabin G, Grybauskas S. Dental implant placement with inferior alveolar nerve repositioning in severely resorbed mandibles: a retrospective multicenter study of implant success and survival rates, and lower lip sensory disturbances. International Journal of Implant Dentistry. 2021 June;7(1):1-4.



SMART DENTAL UPDATES

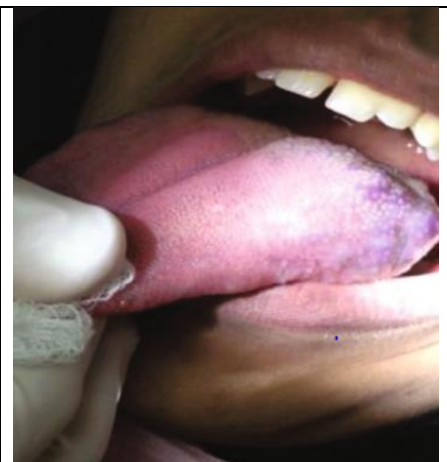
Vol 2 | Issue 26 | 2021

Minimal Invasive Surgical Management of Familial Arteriovenous Malformation

Patient Description: A female subject 16 years of age presented with persistent swelling of 10-year duration in the tongue. Medical history of the patient did not reveal any significant findings. Swelling of the tongue was not associated with pain and had been increasing in size gradually. No other symptoms was observed which was associated with swelling.

The lesion was multilobulated and bluish with intact overlying mucosa. It was present at the left lateral border and dorsum of the tongue opposite to the mandibular left second molar. The lesion measured 4 cm by 6 cm by 0.7 cm.

Swelling consistency was soft and palpation did not reveal any tenderness. Hematological parameters were within the physiological limit. With the aid of plain radiographs the potential bone involvement was ruled out. The diagnosis of arteriovenous malformations (AVM) was inferred using the findings from the MRI. Conservative surgical management using boiling saline injection was advised to the patient. After she was given a lingual nerve block the subject was injected with 5 ccs of boiling saline. To control bleeding the pressure was applied to the lesion. Postoperative instructions were given to the patients and recalled after 2 weeks and the same procedure was repeated. After 1 week, the lesion was examined and fibrosis was observed with open wound on the surface at the center of the lesion.



Arteriovenous malformations
AVM primary lesion of the left
posterior region of the tongue

The subject was prescribed with Levofloxacin Tab 500 mg, one tablet a day for 5 days and Ibuprofen Tab 200 mg 2 tablets twice a day for 5 days. The lesion had healed three months after



SMART DENTAL UPDATES

Vol 2 | Issue 26 | 2021

the first injection. The subject was followed up for a period of 3 years and the tongue lesion was free from any symptoms or recurrence.

Another arteriovenous malformation at the labial mucosa on the left side opposite, the left lower canine tooth was noticed two years into the treatment of the tongue lesion. The size of the lesion was about 4×3 cm and about 0.5 cm in height. After giving her a mental nerve block the patient was administered with the first boiling saline injection.

The saline (4 ccs) was injected around the lesion while pointing the needle towards the depth of the lesion. After the first injection the subject was injected with boiling saline on two other occasions for this lesion that are two and three months after the first injection. Lip lesion started healing four months after the first appointment and there were no signs of any complications or recurrence at the six-month and one-year follow-up.



Second lesion which appeared after the tongue lesion had resolved by 2 years

In conclusion, Arteriovenous malformations of the oral cavity might be associated with several complications. Hence, prompt diagnosis and treatment is necessary for such lesions. For intraoral AVMs sclerotherapy with boiling saline provides an effectively safe therapeutic modality. There was complete remission and alleviation of their symptoms, with no complications by this method. During the follow-up period no recurrence of the lesions was observed.

Reference: Abdel-Latif MM, Patil S. Minimal Invasive Surgical Management of Familial Arteriovenous Malformation. Case Reports in Dentistry. 2021 Jun 10;2021.



This scientific input is prepared from the Department of Medical Services, an initiative of M/s Micro Labs Limited under the aegis of Micro Knowledge Academy. The information contained herein is for education purpose only. The content is developed by compiling information from various authentic and published literatures. Although great care has been taken to assure the accuracy of the publication, M/s Micro Labs Limited shall not be responsible or in any way liable for any inaccuracy, errors, or omissions resulting from negligence or otherwise howsoever or any consequences arising there from. In spite of best efforts, the information in this publication may become outdated over time. M/s Micro Labs Limited shall not be responsible in any manner whatsoever, for any action taken, opinions expressed, advice rendered or accepted, any direct, incidental, special or consequential loss and damage caused on the basis of any material or information presented in this publication / update