



SMART DENTAL UPDATES

Vol 2 | Issue 27 | 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 contain

- Cone-beam computed tomographic assessment of the inclination of the articular eminence in patients with temporomandibular disorders and chewing side preference.
- Clinical Comparison of MEBO and Hyaluronic Acid Gel in the Management of Pain after Free Gingival Graft Harvesting.
- Facial Emphysema following Closure of Oroantral Fistulae- Case Report

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Looking forward to your valuable feedback

Best Regards,
Medical Team, Micro Labs Limited



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Cone-beam computed tomographic assessment of the inclination of the articular eminence in patients with temporomandibular disorders and chewing side preference

The glenoid fossa is the upper part of the temporomandibular joint (TMJ), encompassing the joint disc and condyle with the attached joint capsules and ligaments. It undergoes persistent morphologic remodelling to match with joint disc and condyle due to the alteration of functional load which is associated with chewing habit, gender, food texture, and age. One of the etiology of temporomandibular disorders is the Chewing side preference (CSP) as it can induce the structural changes of the temporomandibular joint.

TMD patients with CSP seem to have a deep glenoid fossa with steep eminence which might be considered one characteristic imaging feature.

The objective of this study was to compare inclination of the articular eminence (IAE) between subjects with Chewing side preference and without CSP.

To compare articular eminence and depth of the glenoid fossa, Cone-beam computed tomography images of 90 subjects with temporomandibular disorders and 20 subjects without temporomandibular disorders and Chewing side preference were measured. Chewing preference was assessed by self-report and a chewing gum test. On the center of the tongue dorsum, a piece of chewing gum was placed and the direction in which the gum was moved by the tongue in the first cycle of mastication was recorded as the preferred chewing side. Inclination of the articular eminence (IAE) was measured as the angle between two reference lines: highest point of glenoid fossa and the lowest point of articular eminence.



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The T group comprised 21 TMD subjects without Chewing side preference and the TC group consisted of 69 TMD subjects with Chewing side preference, 32 subjects with left CSP and 37 subjects with right CSP. Nonsignificant difference in the gender distribution between 3 groups was observed in the TC group, left CSP and right CSP. In the TC group, the symptomatic side was in accordance with the preferred chewing side in 69.6% of patients. Inclination of the articular eminence nor glenoid fossa showed significant differences bilaterally within the control and T groups. IAE between genders showed no significant differences except the male TMD subjects with CSP showed significantly greater glenoid fossa than the female counterparts. Positive correlation was observed between inclination of the articular eminence and glenoid fossa.

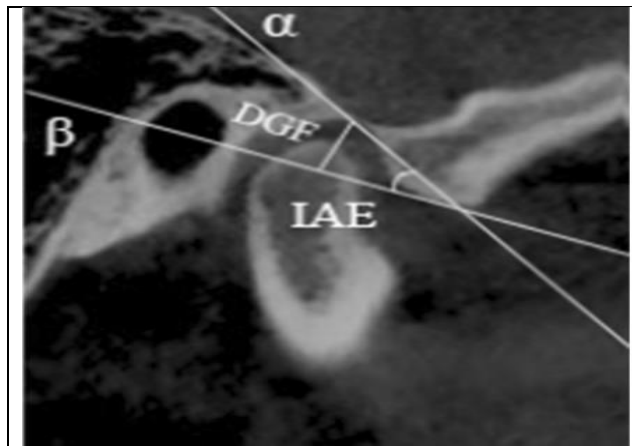


Fig. 1: The inclination of articular eminence (IAE) and the depth of glenoid fossa (DGF).

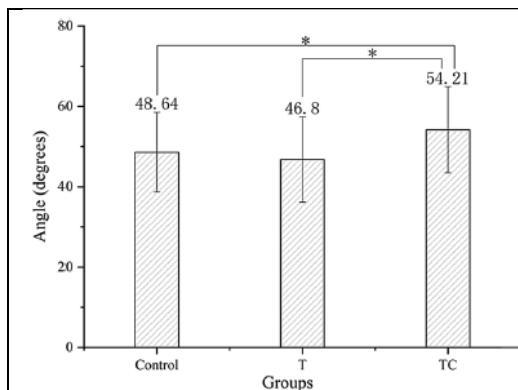


Fig. 2 The comparisons of IAE between groups

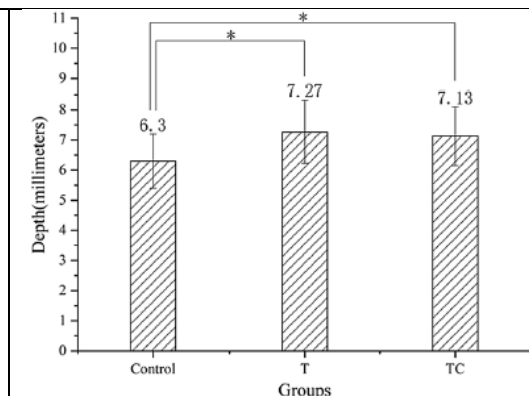


Fig. 3 The comparisons of DGF between groups



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In conclusion, a deep glenoid fossa with steep eminence might be taken as one characteristic imaging presentation for the temporomandibular disorders subjects with chewing side preference. For the development of temporomandibular disorders, CSP is a predisposing factor.

Reference: Ma J, Wang J, Huang D, Wang Z, Hu M, Liu H, Jiang H. Cone-beam computed tomographic assessment of the inclination of the articular eminence in patients with temporomandibular disorders and chewing side preference. BMC Oral Health. 2021 Aug;21(1):1-7.

Clinical Comparison of MEBO and Hyaluronic Acid Gel in the Management of Pain after Free Gingival Graft Harvesting

Surgical treatment of mucogingival defects aims at obtaining soft tissue coverage of exposed root surfaces or augmentation of gingival tissue dimensions. For increasing the attached gingiva, a free gingival graft is considered to be the most reliable method and is one of the most frequently used techniques.

The objective of this study was to compare the effect of Moist Exposed Burn Ointment (MEBO) versus 0.2% hyaluronic acid gel applied to the palatal donor site on postoperative pain reduction and wound healing after free gingival graft harvesting.

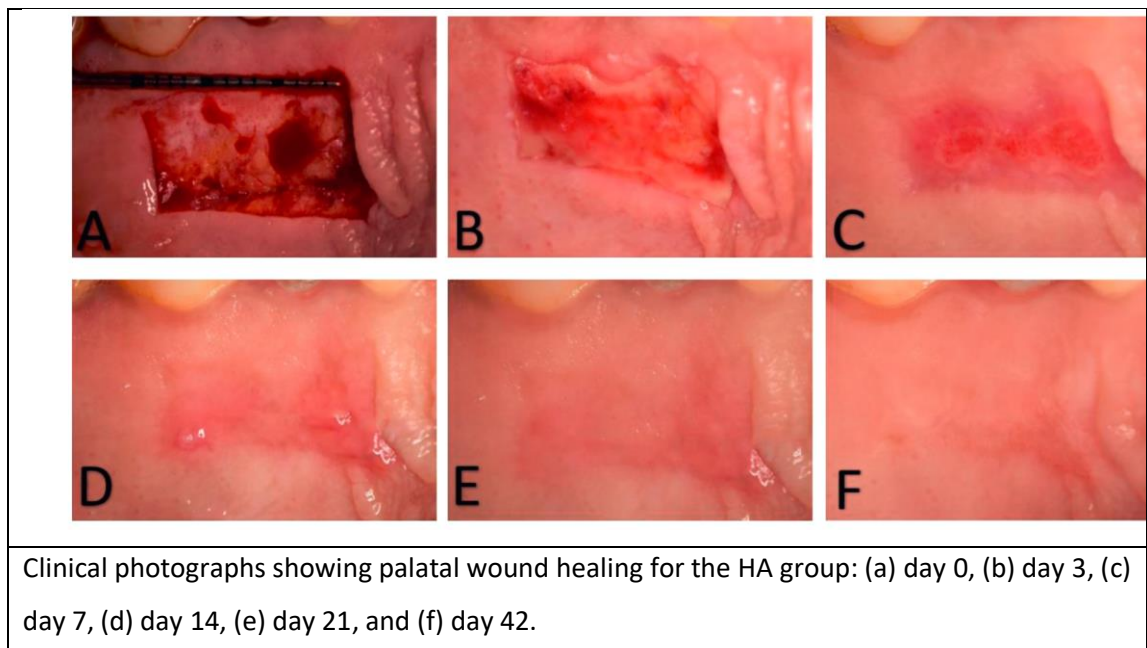
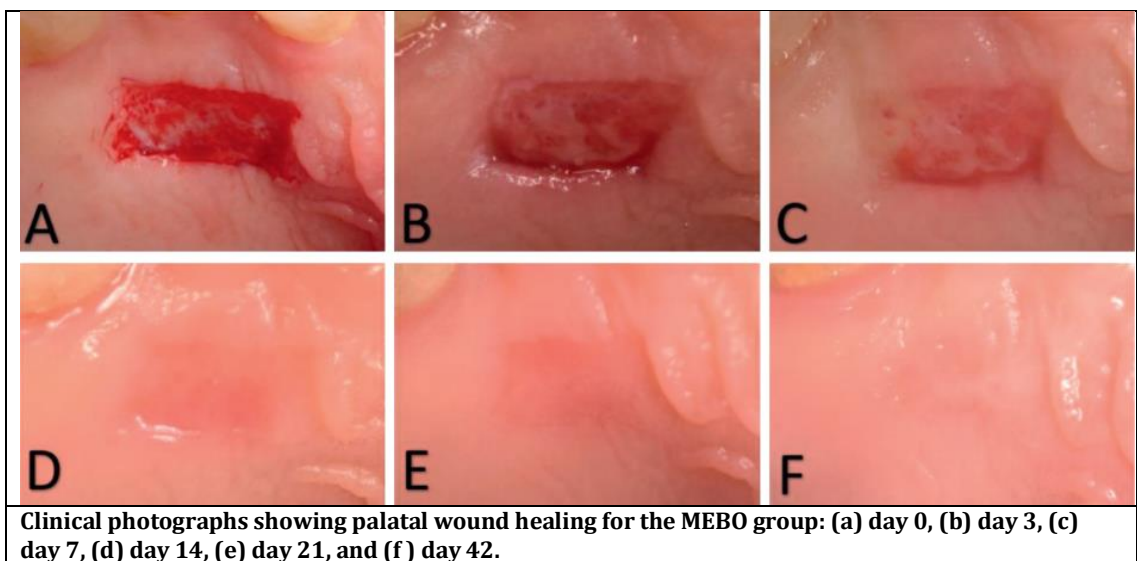
For harvesting a free gingival graft (FGG) for soft tissue augmentation thirty-nine subjects with different mucogingival defects were included in this study. Subjects were randomly divided into three equal groups; Group I-Moist Exposed Burn Ointment was applied to the palatal donor site and covered with periodontal pack, Group II-0.2% hyaluronic acid gel (Gengigel®) was applied to the palatal donor site and covered with periodontal pack and in group III (control group)-palatal donor site was covered with periodontal pack. Ultrasonic device and Gracey's curettes was used to perform full-mouth supragingival and sub-gingival debridement. Instruction regarding oral hygiene was given to the subject along with brushing the teeth 2 times daily by soft toothbrush. 0.125% Chlorhexidine HCL mouthwash was prescribed. Visual Analogue Scale (VAS) was used to measure the



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postoperative pain. Analgesic consumption was recorded for 7 days postoperatively. On days 3, 7, 14, and 21 wound size was measured. VAS score for color match was used on days 3, 7, 14, 21, and 42 to assess postoperative healing of the palatal wound.





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Wound size		Mean	Std. dev.	Std. error	95% confidence interval for mean		Min	Max
					Lower bound	Upper bound		
Day 0	Group I	128.00	30.84	9.75	105.94	150.06	70.00	150.00
	Group II	132.90	27.32	8.64	113.36	152.44	75.00	160.00
	Group III	122.50	40.71	12.87	93.38	151.62	50.00	180.00
Day 3	Group I	120.90	31.24	9.88	98.56	143.24	67.00	150.00
	Group II	131.20	26.53	8.39	112.22	150.18	75.00	160.00
	Group III	117.00	43.18	13.65	86.11	147.89	47.00	180.00
Day 7	Group I	109.90	31.49	9.96	87.38	132.42	60.00	147.00
	Group II	109.50	33.12	10.47	85.81	133.19	52.00	148.00
	Group III	104.50	39.11	12.37	76.52	132.48	45.00	159.00
Day 14	Group I	97.80	33.12	10.47	74.11	121.49	52.00	146.00
	Group II	90.20	26.71	8.45	71.09	109.31	48.00	130.00
	Group III	91.30	38.75	12.25	63.58	119.02	36.00	140.00
Day 21	Group I	81.40	33.50	10.59	57.44	105.36	35.00	130.00
	Group II	72.30	20.19	6.39	57.85	86.75	44.00	100.00
	Group III	79.40	34.26	10.83	54.89	103.91	28.00	130.00

Significance level: $p \leq 0.05$; ns = nonsignificant.

Results for mean and SD values for intergroup comparison of wound size (mm) measured by UNC 15 probe and transparent paper (mm) on days 0, 3, 7, 14, and 21 between the three studied groups are presented in Table. On day 0 and day 3, the highest mean value was recorded in group II; however, the difference between groups did not reach the level of statistical significance. On day 7, the highest mean values were recorded in group I and group II, respectively; however, the difference between groups was not statistically significant. On day 14 and day 21, the highest mean value was recorded in group I; however, the difference between groups did not reach the level of statistical significance.

There was a statistically significant decrease in VAS by time in the three groups. On day 3, there was a statistically significant difference between the three groups in pain score being statistically significantly lower in group I and statistically significantly higher in group III. On day 7, all the subjects in the three groups reported no pain. Postoperative pain measured by analgesic consumption (mg) daily from day 1 to day 7 in the three groups showed a statistically significant difference in analgesic consumption between the three groups on days 2 and 3, where the highest values were recorded in group III and the lowest values were recorded in group I. On day 6 and 7, all subjects in the 3



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groups reported no analgesic consumption at all. No statistically significant difference was observed between groups for wound size. Moist Exposed Burn Ointment showed statistically significant higher VAS for color match.

In conclusion, on palatal wound following FGG harvesting topical application of MEBO or 0.2% HA gel (Gengigel®) could significantly reduce postoperative pain and promote palatal wound- healing. Pain reduction and better color match which reflects the healing process was observed by the application of Moist Exposed Burn Ointment.

Reference: Hassan A, Ahmed E, Ghalwash D, Elarab AE. Clinical Comparison of MEBO and Hyaluronic Acid Gel in the Management of Pain after Free Gingival Graft Harvesting: A Randomized Clinical Trial. International Journal of Dentistry. 2021 Aug 14;2021.

Facial Emphysema following Closure of Oroantral Fistulae: A Case Report

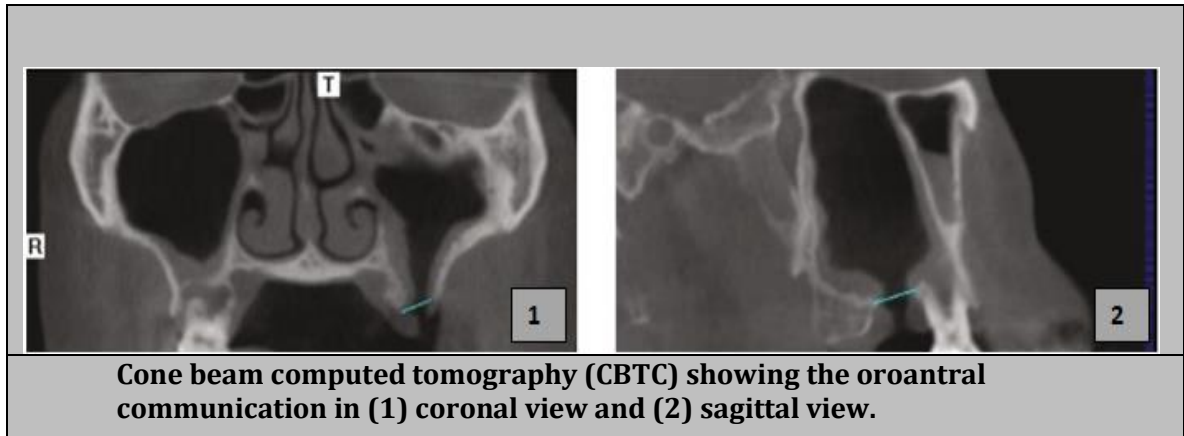
Patient Description: A 45-year-old male patient presented with the complaint of a persistent hole in the 27-socket area. He had tooth 27 extracted 5 years back and noted an opening at the socket which had never closed.

The subject occasionally developed symptoms of chronic sinusitis such as nasal congestion nasal discharge and fluid discharge from the opening. He had no underlying medical illnesses. On Examination it was observed that there was a fistula of 1:5 cm × 1 cm in the area of the extracted 27. Tooth 16 was present, but 18 was missing and no fluid discharge was observed. Cone beam CT revealed an oroantral fistula measuring 9:4 mm × 7:7 mm. Sinus lining was thickened.



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Under local anesthesia the subject underwent closure of the oroantral fistula. Around the fistula the buccal mucoperiosteal flap was elevated. The periosteum under the flap was incised to give access to the Buccal fat pad. To achieve two-layered closure of the fistula the buccal mucoperiosteal flap was advanced over the Buccal fat pad. Advancing flaps were approximated with vertical mattress suturing. Throughout the procedure bleeding was minimal and the subject was discharged with antibiotics, antihistamine, and nonsteroidal anti-inflammatory analgesia.

Instructions to sneeze with the mouth open and avoid blowing the nose, forceful spitting, and use of straws were advised to the subject. Around 2 hours postoperative, he had a facial swelling that developed over a few seconds. This swelling was observed immediately after he tried to clear his throat. There was no pain or bleeding during the development of swelling.

On examination, crepitation was felt on palpation. Emphysema was diagnosed based on the sudden progression of swelling after a trigger and clinical



Immediately after swelling developed at the left malar region



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findings. Swelling reduced 8 hours after its initial appearance. Three days later the swelling significantly reduced and on the 7th day the swelling completely resolved. No dehiscence was seen, and the oroantral fistula was completely closed. The patient was followed up few weeks later, and no reoccurrence of swelling or oroantral fistula (OAF) was observed.

		
Postoperative 8 hours shows resolving of the left malar swelling.	Postoperative day 3 shows that residual left malar swelling remains.	Postoperative day 7 shows that the swelling is completely resolved.

In conclusion, subcutaneous emphysema is a possible complication following a closure of oroantral communication. This occurs due to air escaping the paranasal sinuses via an opening at the socket into the subcutaneous tissue of the malar area. Pathognomonic feature of subcutaneous emphysema is a crepitus sensation and sound upon palpation of the swelling. To avoid this complication, postoperative instructions should be explained very clearly to the subject.

Reference: Nizar MA, Nabil S. Facial Emphysema following Closure of Oroantral Fistulae. Case Reports in Dentistry. 2021 Aug 5;2021



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