



SMART DENTAL UPDATES

Vol 2 | Issue 19 | 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

- The impact of occluding pairs on the chewing patterns among elderly.
- Tooth replacement options for partially dentate older adults: a survival analysis..
- Sphenopalatine ganglion deficit syndrome: An unusual complication after septoplasty.

Should you require any specific article or medical information, please feel free to contact us at medicalservices@microlabs.in

Looking forward to your valuable feedback

Best Regards,
Medical Team, Micro Labs Limited

The impact of occluding pairs on the chewing patterns among elderly

The common dental problems among the elderly aged between 65 and 74 years include tooth loss, dental caries, periodontal disease, xerostomia, and oral cancer. Tooth loss is the most common predicament in an aging population that greatly impacts the mastication function and chewing efficiency. This cross-sectional study was conducted to estimate the association between occluding pairs (OPs) by Eichner classification and



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assess the habitual chewing patterns such as chewing time, strokes, mealtime duration, and bite force. Eichner classification is used to represent the different OPs conditions according to natural or restored tooth contacts between the maxilla and mandible in the bilateral premolar and molar areas.

It is important for the elderly to maintain as many occluding pairs as possible to preserve better chewing function.

A total of 100 patients including 52 women and 48 men were enrolled in this study. The age of the subjects ranged from 65 to 74 years (average, 71.2 years). The patients were constrained to those who can eat what they wanted. There was no temporomandibular joint disorder (TMD) and dysphagia history. Occluding pairs (Ops) were defined as 0, 1, 2, 3, or 4 by counting posterior occlusal support zone according to the Eichner classification. Number of chewing strokes and the time needed to complete the mastication, patients were instructed to perform the free habitual mastication of a cornstarch cookie. Digital chronometer was used to record the chewing time needed to consume each piece of food. After the placement of the food in the oral cavity chronometer was activated and stopped when each portion was swallowed. All the subjects were given the same lunchbox meal for the mealtime duration evaluation. The mealtime duration was timed and recorded in seconds from the first bite until they had finished all of the lunchbox meal. To measure bite force ,accurate and reliable computerized occlusal analysis (T-Scan III®)was utilized. To assess the impact of the occluding pairs on the chewing strokes, chewing time, mealtime duration, and bite force a linear regression analysis was used.

There were 76 patients with four occluding pairs , 12 people with three occluding pairs and 12 participants with two occluding pairs . The chewing strokes was 26.31 ± 0.034 , the chewing time was 24.24 ± 1.137 , the mealtime duration was 26.17 ± 1.488 , the right



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bite force was 12.93 ± 1.364 , and the left bite force was 13.41 ± 1.447 . Chewing strokes and time ($P = 0.02$) significantly increased by decreasing the OPs from 4 to 3 pairs. Chewing time and mealtime duration was not closely related. Significant association between OPs and bite force over the right side ($P < 0.05$) was seen.

Distribution of variables (N = 100).

Chewing strokes	26.03	26.37	26.31	0.034
Chewing time	16.45	27.30	26.24	1.137
Mealtime Duration	23.59	28.29	26.17	1.488
Right bite force	11.98	21.10	12.93	1.364
Left bite force	12.22	18.04	13.41	1.447

Abbreviation: N, numbers of subjects; SD, standard deviation.

Association between occluding pair, and chewing duration with chewing strokes, chewing time, and chewing duration (N = 100).

Outcome	Variable		Estimate	SE	P-value
Chewing strokes	Occluding pairs	2	0.92	9.77	0.93
		3	19.0	8.21	0.02*
		4	Ref.		
Chewing time	Occluding pairs	2	2.62	6.80	0.70
		3	13.1	5.71	0.02*
		4	Ref.		
Chewing time	Mealtime duration		3.850	3.235	0.237
Right bite force	Right occluding pairs	0	-25.8	9.60	0.008*
		1	-12.4	3.76	0.001*
		2	Ref.		
Left bite force	Left occluding pairs	0	-2.56	14.6	0.86
		1	-1.81	4.19	0.67
		2	Ref.		

Abbreviation: N, number of subjects; SE, standard error.

* $P < 0.05$.

In conclusion, Increasing occluding pairs significantly raised the bite force and shortened the chewing time and mealtime duration in the aging population. It is important for the elderly to maintain as many occluding pairs as possible to preserve better chewing function.

Source: Huang YF et al. Journal of Dentistry. December 2020. <https://doi.org/10.1016/j.jdent.2020.103511>



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Tooth replacement options for partially dentate older adults: a survival analysis.

This study was conducted to compare the two different methods for tooth replacement for partially dentate older adults. The two methods compared in this study are resin bonded bridgework (RBB) and removable dental prostheses (RDPs). These strategies were conventional full-arch rehabilitation with RDPs and functionally orientated treatment according to the principles of the shortened dental arch concept (SDA) with RBB used to replace missing teeth.

Shortened dental arch concept (SDA) treatment using resin bonded bridgework (RBB) can be successful than removable dental prostheses.

A randomised controlled clinical trial was conducted. Partially dentate subjects aged 65 years or older were included in this study. Subjects were divided into 2 different treatment groups: the RDP group and SDA group.

Subjects from the removable dental prostheses (RDP) group had all missing natural teeth which was replaced with RDPs fabricated with cobalt–chromium frameworks and patients from the shortened dental arch concept (SDA) group was restored to a premolar occlusion of 10 occluding pairs of natural and replacement teeth using RBB. In resin bonded bridgework (RBB) standardised protocol was provided with each with each unit of bridgework designed with a nickel chromium wing which was sand blasted chairside prior to cementation using a resin cement.

A single operator with postgraduate training conducted all the operative treatment during a 24-month period. Subjects were followed up for 36 months with review



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appointments at 6, 12, 24 and 36 months. Success rates were generated according to defined success criteria. To compare the success of the two treatment strategies Log-rank tests and Cox's proportional hazard models were used.

After 36 months, 89 patients completed the randomised controlled clinical trial; n=45 in the Removable dental prostheses (RDP) group and n=44 in the shortened dental arch concept (SDA) group. Success rate of the SDA treatment group was 90.4% compared to 73.0% for RDPs (p=0.005). Compared to RDPs 86.4% for RDPs (p=0.019), the upper arch SDA treatment was 100% successful. Lower success rates in the lower arch were reported for both the SDA treatment (80.0%) and RDPs (60.0%). Survival analysis using a Cox proportional hazards model demonstrated that SDA treatment was almost 2.5 times more successful than RDP treatment. Upper arch treatment was also significantly more successful than the lower arch (HR: 3.9, p < 0.05).

Kennedy Classification	SDA Group				RDP Group			
	Upper Arch (n=38)		Lower Arch (n=35)		Upper Arch (n=44)		Lower Arch (n=45)	
	n	Success Rate (%)	n	Success Rate (%)	n	Success Rate (%)	n	Success Rate (%)
I	4	100	14	85.7	4	100	23	34.8
II	1	100	1	100	15	86.7	10	80
III	23	100	11	90.9	17	76.5	8	87.5
IV	10	100	9	88.9	8	100	4	100

Three year success rates according to treatment group, Kennedy Classification and arch



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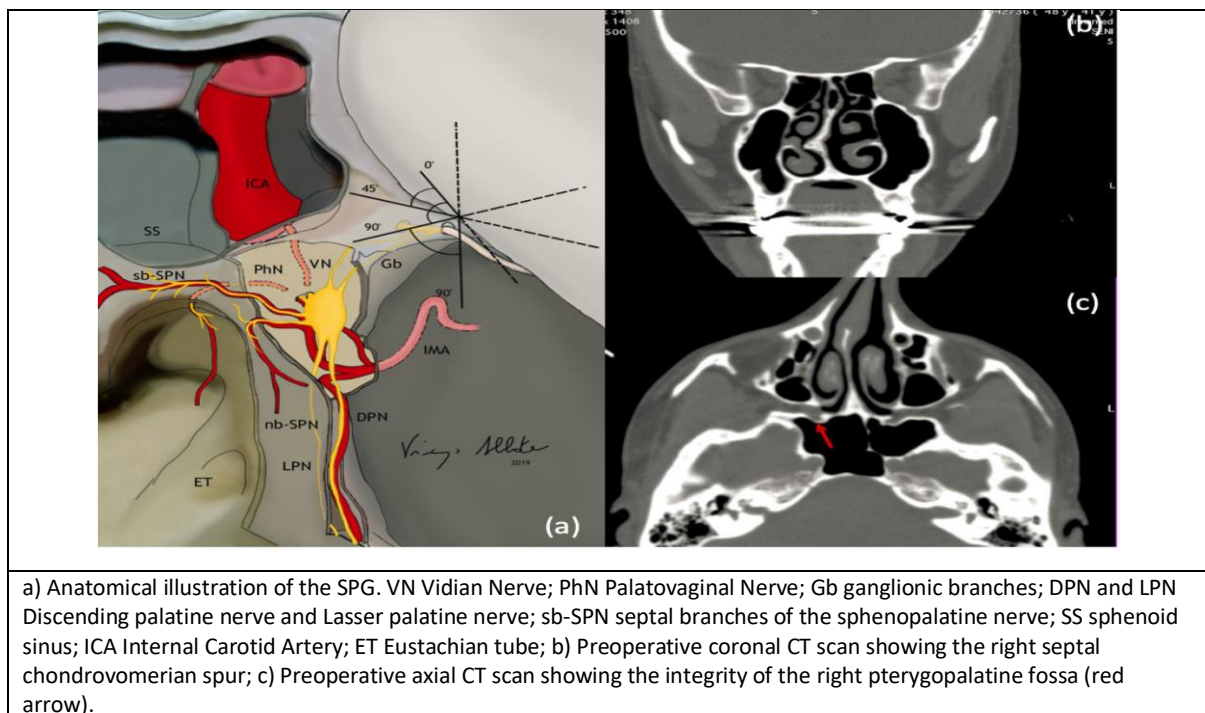
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In conclusion, Shortened dental arch concept (SDA) treatment using resin bonded bridgework (RBB) was more successful than removable dental prostheses used for conventional full-arch rehabilitation in partially dentate older adults.

Reference: McKenna G et al. Tooth replacement options for partially dentate older adults: a survival analysis. Journal of Dentistry. 2020 Dec ;103:103468.

Sphenopalatine ganglion deficit syndrome: An unusual complication after septoplasty

A 43 years-old woman presented with obstruction and breathing difficulty was admitted to our Maxillo-Facial Surgery Unit for elective septoplasty. Medical history showed that no prior trauma or surgery. She was under treatment with Proton-pump inhibitors for Gastro-Esophageal Reflux Diseases (GERD).





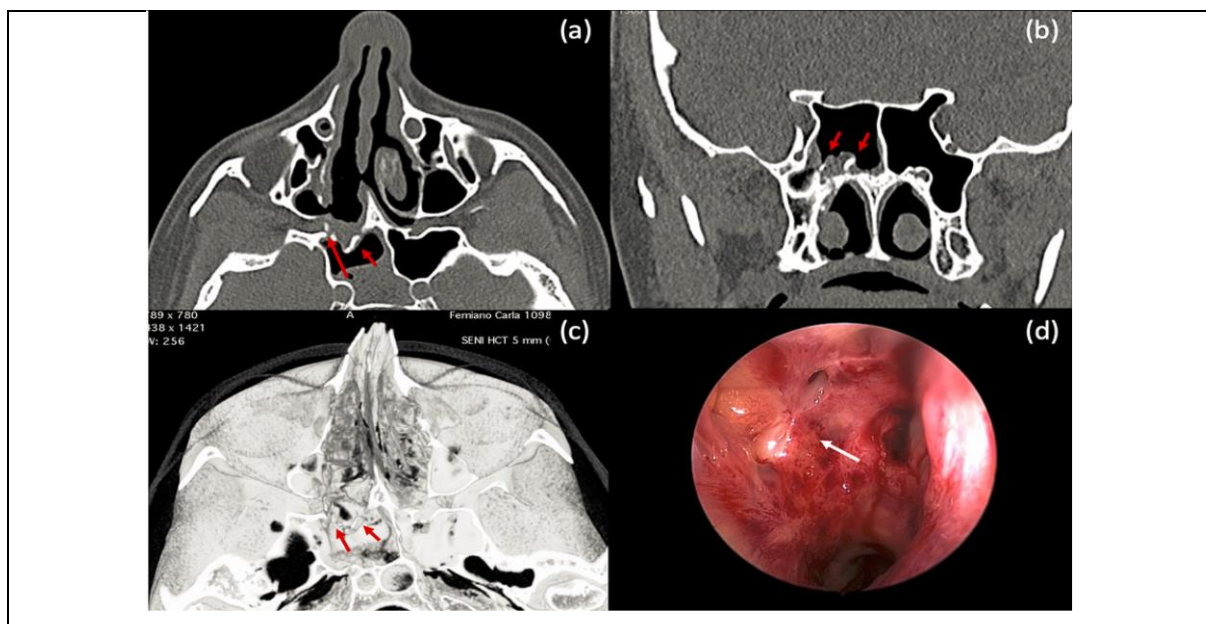
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Condro-vomerian septal spur in the right nasal cavity was observed in Pre-surgical Computer Tomography (CT). The right septal spur was removed with use of a nasal osteotomy under general anaesthesia. Closed septoplasty time was 65 min. No abnormalities found during the procedure.

Nasal packing was applied and awakening from anaesthesia occurred without complications. Third day the patient complained of right xerophthalmia, dryness, hypoesthesia of palate and nose and episodes of right migraine without aura after the nasal packing removal. Post-surgical CT revealed a linear bone lesion at the posterior wall of the maxillary sinus extended to the Preganglionic Parasympathetic Fibers (PPF).

Schirmer test revealed positive result for hypo-lacrimation (<5mm). Videoendoscopy showed the mucous membranes in the right nasal cavity appeared dry and covered with abundant crusts adhering to the surface. Frequent clinical checks were required for crusts removal





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Postoperative CT scans showing the collapse of the right pterygopalatine fossa with scattered bone fragments (red arrows); a) CT axial view; b) CT coronal view; c) 3D axial reconstruction; d) Postoperative endonasal endoscopic vision of the right nostril

The subject was candidate for Corticosteroid (CCS) infiltration in the right PPF via endonasal endoscopic approach under local anaesthesia because of the symptoms and non-responsiveness to migraine therapy. Subject showed an improvement in migraine. At 22 months follow-up after second surgery, the syndromic picture remained unchanged and the subject was currently under ophthalmological and maxillofacial follow-up for nasal crusts removal and prevention of keratitis.

Even septoplasty is not free of consequences. “ Sphenopalatine ganglion deficit syndrome” can be an unusual complication to observe. The main drawback of this study was the absence of MRI due to the subjects refusal and the lack of treatment option for this syndrome, that may be the subject of other future studies.

Reference: Abbate V et al. Sphenopalatine ganglion deficit syndrome: An unusual complication after septoplasty. Oral and Maxillofacial Surgery Cases. 2020 Dec ;6(4):100191.



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