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Transverse
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in Palestinian Adults**

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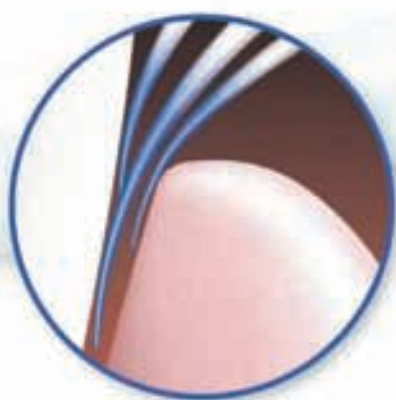


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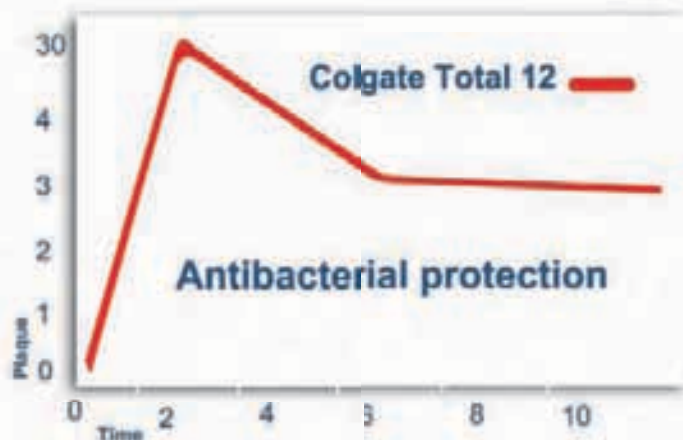
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- Finally, we believe that a **controlled content** of advertisements could be informative and beneficial especially in dentistry, where the armamentarium and pharmaceuticals are a major and integral part of the dental science.

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Amman, Jordan / 03 – 05 November 2009

50 1st Aesthetic Dentistry MENA Awards
Dubai, UAE / 05 November 2009

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Dubai, UAE / 06 – 07 November 2009

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Doha, Qatar / 13 – 15 December 2009

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Dental Practice Management During Slow Economy



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In the past, the performance of the economy was not a major factor in dentistry. Most people typically kept their six-month recall appointments and had their basic dental care performed regardless of economic conditions.

Things changed; competition increased and the role of insurance grew, therefore dental clinics had to adapt. The most obvious change over the years has been an expanded service mix in many (if not most) clinics. Dental clinics today offer numerous services, many of them are elective in nature. Elective services, like any discretionary purchase, will increase or decrease in popularity depending on trends in the economy.

THE EFFECTS OF A SLOWER ECONOMY

There will always be economic swings and cycles, it is inevitable. Dentists are well-advised to be prepared for these changes and all practices should have a plan for the darker days.

Economic declines will affect dentistry more significantly than in the past. Why? Because patients will be more reluctant to purchase elective services, which represent a greater percentage of many clinics' service mix now than at any point in history. In a slow economy, factors such as higher gas and home-heating costs combined with patients who have less disposable income create challenges for clinics trying to grow their elective services component.

When the economy slows, dentists are more likely to notice:

- A decrease in treatment acceptance
- An increase in uncollected fees from patients
- A higher rate of no-shows or last-minute cancellations
- An increase in patients who switch to clinics that fit their lower budget

Dental clinics should track their performance numbers (total production, average production per new patient, average production per patient, accounts receivable, and so forth) to determine if one or more of the preceding situations are occurring. If so, the clinic will need to adapt.

PRACTICE MANAGEMENT IN A SLOWER ECONOMY

A slower economy does not have to mean that clinics decline. However, certain actions should be taken to ensure that goals are achieved:



- Enhance case presentation skills: Improving case presentations will help patients to better understand why dental care may be a more desirable choice than another purchase. In an economic downturn, patients tend to weigh one purchase decision against another. Unfortunately, some patients will decide to reject or put off even treatment that has a direct effect on their health. This thinking is even more noticeable in the case of elective services.

- Tighten up accounts receivable and collection methods: In a downward economic cycle, patients will tend to pay much more slowly. Clinics should implement an effective collection system that asks patients to pay the complete fee (or a significant part of it) at the time of service. Patients should be aware of this policy through oral communication, signs and collateral materials. To reduce uncollected amounts, a member of the practice staff should make telephone calls regarding payment to patients whose payment is one day past-due. Follow-up telephone calls, as part of a collection system, should continue until the patient has responded. One of my friends in Dubai told me that his bank calls him when his credit card payment is due, and if he confirms that he will be paying the following day, they call again if their system shows no payment on the following day. This was not the case during the good old days where nobody called even if he was late for 2 weeks. In addition, during case presentation, practice staff members should give patients a variety of financing options, including major credit cards. These options can make treatment more affordable for patients.
- Enhance verbal skills to emphasize the importance and value of each appointment: By emphasizing that patients should keep their appointments, dentists will experience a decrease in no-shows and last-minute cancellations. Clinics also may want to request a 10 percent deposit of the total fee when longer appointments are being scheduled. It is reasonable to think that a 10 percent deposit could reduce the no-show and last-minute-cancellation rates dramatically.
- Increase and re-engineer the customer service system in the clinic: Customer service, when handled properly, increases patients' perception of the value of dental treatment. To prevent patients from switching to offices that offer lower prices, customer service needs to be paramount. Remember that customer service is a system that needs to be developed, maintained and enhanced, just like any other system in the practice. An excellent customer service experience often enhances patients' perception of the quality of clinical treatment. Conversely, poor customer service can cause patients to devalue the clinical treatment they received. Superior patient care and excellent customer service go hand by hand, providing both ensures that patients will continue to value the treatment they receive in your office.

Economic swings will affect dental practice. Dentists should not be dragged into a false sense of security during a good economic cycle; it is called a "cycle" for a reason and things will change. Steps need to be taken to ensure the future success of the practice, These steps will not only protect the clinic in a downward economic cycle, but they will also increase clinic's performance greatly during times of economic prosperity.

Calendar of Events

February

<p>8 - 10 13th King Saud University International Dental Conference & 21st Saudi Dental Society Meeting Riyadh, KSA www.sds.org.sa</p>		<p>25 - 27 145th Chicago Midwinter Meeting Chicago, USA www.cds.org</p> 
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March

<p>09 - 11 AEEDC 2010 Dubai, UAE www.aeedc.com</p> 	<p>18 - 20 Egyptian Dental Show Cairo, Egypt www.edsg-eg.com</p> <p>4 - 26 AOIA 8th international congress Alexandria, Egypt www.aoiaegypt.com</p> 	<p>30 - 02 22nd Jordanian Dental Conference Amman, Jordan www.jda.org.jo</p> 
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April

<p>07 - 10 IDEX 2010 Istanbul, Turkey www.cnr-idex.com</p> <p>15 - 17 ICOI European Symposium Istanbul, Turkey www.interium.com.tr</p> 	<p>15 - 18 International Dental and Laboratory Equipment Exhibition Damascus, Syria www.arabiangroup.com</p> 
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<p>04 - 06 May Qmedic 2010 Doha - Qatar www.conexqatar.com</p> 	<p>12 - 16 May 32nd Asia Pacific Dental Congress Colombo, Sri Lanka www.apdc2010.com</p> 	<p>13 - 14 May 4th CAD-CAM Dubai, UAE www.cappmea.com</p> 	<p>07 - 10 June 2nd JUST Conference Amman, Jordan www.just.edu.jo/jidc</p> 	<p>02 - 05 September FDI Congress Salvador da Bahia, Brazil www.fdiworldental.org</p> 
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Dentofacial Transverse Dimensions in Palestinian Adults



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Abstract

Objectives: To determine the posteroanterior cephalometric norms in Palestinian adults, and to compare the Palestinian norms with the norms of other ethnic groups.

Materials and Methods: PA cephalometric radiographs for 70 Palestinian adults aged between 17-23 years were selected on the basis of Class I molar relationship, good facial symmetry, and no history of previous orthodontic treatment. Fourteen transverse linear measurements, including 10 skeletal measurements and 4 dental measurements, were determined on each radiograph.

Results: Dentofacial transverse dimensions in Palestinian adults were generally similar to Rocky Mountain clinical norms. All skeletal transverse measurements demonstrated a significant increase in Palestinian men compared to women except for the inter-orbital distance. Regarding dental transverse measurements, both maxillary and mandibular inter-molar widths increased significantly in Palestinian males than in females, while the upper and lower midline deviations were nearly similar in both genders.

Conclusion: These posteroanterior cephalometric norms are recommended to be used when formulating a treatment plan for this particular ethnic group.

Key words: Palestinian adults, Posteroanterior cephalometric norms, Transverse dimensions.

Introduction

Cephalometric evaluation of the craniofacial structure plays an important role as a diagnostic guide in orthodontic treatment planning. Nevertheless, orthodontic treatment is best when the facial and cephalometric characteristics of the ethnic background of patients are considered.

Since the advent of cephalometric radiography by Broadbent¹ and Hofrath² in 1931, orthodontists focused on the lateral cephalograms as their primary source of skeletal and dentoalveolar data; however, posteroanterior cephalometric projections and relevant analyses constitute an important adjunct for qualitative and quantitative evaluation of the dentofacial region.

Several attempts have been made to report the lateral cephalometric standards of various ethnic groups including European-Americans,³ African-Americans,^{4,5} Puerto Ricans,⁶ Brazilians,⁷ Japanese,⁸⁻¹¹ Chinese,^{12,13} and Koreans¹⁴ but few for frontal cephalometric standards.¹⁵⁻²¹ The low percentage may be attributed to the fact that orthodontic educational centers do not emphasize the importance of PA cephalometric evaluation or the difficulties encountered in conducting such evaluation.

Assessment of posteroanterior cephalometric views are increasing in demand nowadays, particularly in cases associated with dentoalveolar and facial asymmetries, dental and skeletal crossbites and functional mandibular displacement.

In literature, there is lack in studies which describe the posteroanterior cephalometric norms in Palestinian adults, and as there is a marked increase in the number of Palestinian patients seeking orthodontic treatment, it is becoming crucial to determine the posteroanterior cephalometric values for this particular ethnic group and to base the treatment plan accordingly.

So the purposes of this study were **(1)** to evaluate the posteroanterior cephalometric features of Palestinian population and to establish PA cephalometric norms for this ethnic group, **(2)** to compare Palestinian norms with the norms of other ethnic groups, **(3)** to determine any sexual

differences between Palestinian men and women and (4) to evaluate the linear correlations among and between skeletal and dental measurements.

Materials and Methods

The subjects included 31 Palestinian men and 39 Palestinian women aged between 17-23 years, with a mean age of 20.5 years. All subjects were selected from the dental students of Ajman University of Science and Technology on the basis of the following criteria:

- Patients of Palestinian origin.
- Bilateral class I molar and canine relationship based on Angle classification.
- Balanced and symmetrical faces.
- No history of orthodontic, orthognathic and orthopedic treatment
- Minor or no crowding.
- Full set of normal permanent teeth in both jaws (excluding third molars).
- No history of facial trauma.

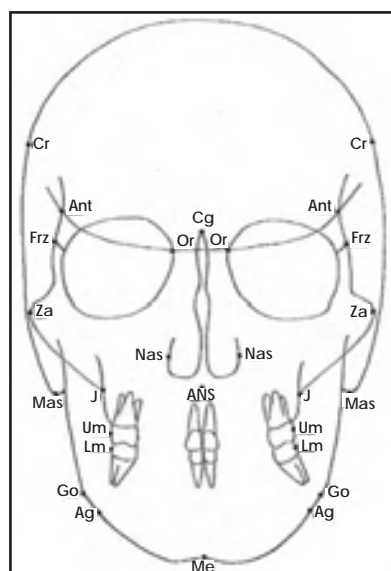
Frontal (Posteroanterior) cephalometric radiographs were taken for each subject under standardized conditions. During taking this view, the subject's face was directed toward the cassette by rotating the cephalostat at 90° to the lateral cephalometric view position, and the distance between the X-ray tube and the porionic axis was fixed at 5 feet.²² All radiographs were taken with the teeth in maximum intercuspation.

Tracings of the radiographs were made on 8" × 10" 0.003" matte acetate sheets (*Orthotrace; Rocky Mountain Orthodontics, Denver, Colo*).

All cephalometric radiographs were traced by hand by a single author to avoid interobserver variability. All measurements were taken to the nearest 0.5mm.

Twelve landmarks were identified on the right and left sides of the cephalometric tracings (**Fig. 1**):

- **Cr**: The most lateral points on cranium parallel to the superior aspect of the orbit.
- **Ant**: point located at the intersection of the radiographic shadow of the frontozygomatic process with outline of the anterior cranial base.
- **Frz**: the outer edge point of the frontozygomatic suture.
- **Za**: point at lateral border of center of zygomatic arch.
- **Mas**: point located at the apex of the mastoid process.
- **Or**: point located at the inner bony wall of the orbit, measured between the points where the radiographic shadow of the cribriform plate intersects the inner orbital margin.
- **Nas**: point located at the lateral bony walls of the nasal cavity.
- **J**: the intersection of the lateral contour of the maxillary alveolar process and the lower contour of the maxillozygomatic process of the maxilla.
- **Ag**: the lateral and inferior border of antegonial notch.
- **Go**: point located at the gonial angle of the mandible.
- **Um**: outermost point of maxillary first permanent molar.
- **Lm**: outermost point of mandibular first permanent molar.



(Figure 1)
Skeletal and dental landmarks as identified on PA cephalograms

Three midline landmarks were identified on the cephalometric tracings (**Fig. 1**):

- **Cg**: the most superior point of crista galli.
- **ANS**: the tip of the anterior nasal spine.
- **Me**: most inferior midline point in the mandibular symphysis.

A total of fourteen transverse linear measurements, including 10 skeletal measurements and 4 dental measurements, were used to assess the transverse dimensions of the face.

Skeletal Measurements:

1. Cranial width (Cr-Cr): width of the cranium from the most lateral points on the cranium parallel to the superior aspect of the orbits.
2. Anterior cranial base width (Ant-Ant): distance between right and left sides of anterior cranial base.
3. Bifrontozygomatic width (Frz-Frz): distance between the outer edges of the frontozygomatic suture.
4. Facial width (Za-Za): width of the zygomatic arch at its most lateral aspect.
5. Bimastoid width (Mas-Mas): distance between the apices of right and left mastoid processes.
6. Inter-orbital width (Or-Or): distance between the inner bony walls of the right and left orbits.
7. Nasal width (Nas-Nas): distance between the right and left lateral bony walls of the nasal cavity.
8. Maxillary width (J-J): distance between right and left Jugale points.
9. Antegonial width (Ag-Ag): distance between right and left antegonial points.
10. Bigonial width (Go-Go): widest distance between right and left gonions.

Dental Measurements:

1. Intermolar width of maxillary first molars (Um-Um): distance between the outermost points of the crowns of maxillary permanent first molars.
2. Intermolar width of mandibular first molars (Lm-Lm): distance between the outermost points of the crowns of mandibular permanent first molars.

3. Upper midline deviation (UMD): distance between the contact point of the maxillary central incisors and the mid sagittal plane.
4. Lower midline deviation (LMD): distance between the contact point of the mandibular central incisors and the mid sagittal plane.

(Table 1): Corresponding Intra-observer Correlation Coefficients

Cranial Width (Cr-Cr)	0.99
Anterior cranial base width (Ant-Ant)	0.96
Bifrontozygomatic Width (Frz-Frz)	0.96
Facial Width (Za-Za)	0.97
Bimastoid Width (Mas-Mas)	0.98
Inter-orbital width (Or-Or)	0.99
Nasal Width (Nas-Nas)	0.98
Maxillary Width (J-J)	0.98
Antegonial Width (Ag-Ag)	0.97
Bigonial Width (Go-Go)	0.97
Maxillary Intermolar Width (Um-Um)	0.96
Mandibular Intermolar Width (Lm-Lm)	0.95
Upper Midline Deviation (UMD)	0.97
Lower Midline Deviation (LMD)	0.96

(Table 2): Descriptive Statistics of PA Cephalometric Measurements (in mm) for 70 Palestinian Adults

	Minimum	Maximum	Mean	SD
Cranial Width (Cr-Cr)	134	164	148.71	6.12
Anterior cranial base width (Ant-Ant)	92	116	100.71	5.20
Bifrontozygomatic Width (Frz-Frz)	93	115	101.64	5.28
Facial Width (Za-Za)	124	153	135.88	7.84
Bimastoid Width (Mas-Mas)	104	125	115.15	7.84
Inter-orbital width (Or-Or)	19	36	25.42	3.45
Nasal Width (Nas-Nas)	21.5	39	32.19	3.42
Maxillary Width (J-J)	56	86	65.56	5.29
Antegonial Width (Ag-Ag)	74	100	87	5.93
Bigonial Width (Go-Go)	78	111	98.82	7.27
Maxillary Intermolar Width (Um-Um)	53	69	59.48	3.80
Mandibular Intermolar Width (Lm-Lm)	51	68	58.40	3.98
Upper Midline Deviation (UMD)	0	2.5	0.95	0.84
Lower Midline Deviation (LMD)	0	3	0.97	0.64

(Table 3): Comparison of Means & Standard Deviations of PA Cephalometric Measurements (in mm) Between 31 Men & 39 Women

	Men (n=31)		Women (n=39)		t Value	P Value
	Mean	SD	Mean	SD		
Cranial Width (Cr-Cr)	150.31	5.92	147.46	5.98	2.85	.049*
Anterior cranial base width (Ant-Ant)	103.99	5.77	100.25	4.00	3.74	.002**
Bifrontozygomatic Width (Frz-Frz)	104.02	5.72	99.80	4.03	4.22	.001**
Facial Width (Za-Za)	141.64	5.89	131.43	5.94	6.54	.000***
Bimastoid Width (Mas-Mas)	118.41	3.67	112.60	4.49	5.35	.000***
Inter-orbital width (Or-Or)	25.85	4.17	25.09	2.71	0.55	.585
Nasal Width (Nas-Nas)	33.54	2.77	31.14	3.94	2.92	.005**
Maxillary Width (J-J)	68.18	3.77	63.53	5.38	4.05	.000***
Antegonial Width (Ag-Ag)	90.48	5.41	84.30	4.75	4.49	.000***
Bigonial Width (Go-Go)	102.70	5.28	95.81	7.13	3.98	.000***
Maxillary Intermolar Width (Um-Um)	61.28	3.47	58.09	3.43	3.95	.000***
Mandibular Intermolar Width (Lm-Lm)	60.41	3.46	56.84	3.63	4.02	.000***
Upper Midline Deviation (UMD)	0.84	0.68	1.03	0.93	-0.96	.339
Lower Midline Deviation (LMD)	0.91	0.76	1.02	0.76	-0.57	.573

*P<.05; **P<.01; ***P<.001

To assess the intra-observer errors, the author traced 15 randomly selected radiographs at two different time intervals. Intra class correlation coefficient was applied to the first and second measurements in order to evaluate the author variability of repeated measurements (Table 1).

For each linear measurement, minimum value, maximum value, mean, and standard deviation were calculated (Table 2).

Differences between genders were evaluated with independent samples t-tests for different parameters.

Pearson product-moment correlation coefficient was used to evaluate relationships among and between transverse skeletal and dental measures.

Results

The results of the intra-observer correlation coefficient were greater than $r = 0.95$ (Table 1). The landmarks identified were generally well visualized on the PA radiographs.

Table 2 shows the arithmetic mean, minimum value, maximum value, and standard deviation for 14 skeletal and dental measurements, for a sample size of 70 Palestinian adults.

An independent samples t-test was used to compare men with women. Table 3 compares the mean and standard deviation of the PA cephalometric measurements between both genders. Nine of 10 skeletal transverse linear measurements (Cr-Cr, Ant-Ant, Frz-Frz, Za-Za, Mas-Mas, Nas-Nas, J-J, Go-Go, and Ag-Ag) showed significant differences between men and women, where the mean values of men subjects exceeded women in all skeletal width dimensions except for the Or-Or distance. Regarding the dental linear transverse measurements, both Um-Um and Lm-Lm distances were significantly increased in men compared to women ($P < .001$), while UMD and LMD showed no significant difference between both sexes.

The linear association among and between the skeletal and dental measurements was evaluated using Pearson correlation coefficient (Table 4). The association ranged from 0.96 to -0.23. The highest correlation was found between Frz-Frz distance and Ant-Ant distance, while the lowest correlation was determined between UMD and both Ag-Ag and Go-Go distances.

The standard deviations of most of the skeletal and dental measurements were relatively small when they were compared with their corresponding mean values.

Discussion

The racial, facial, and skeletal characteristics of the patient play a critical role in orthodontic and orthognathic treatment planning.

This research was the first to study normative values for cephalometric transverse linear measurements on a sample of 70 untreated Palestinian adults having good facial symmetry and ideal occlusion.

Nowadays, large numbers of Palestinian adults are seeking orthodontic and orthognathic treatments, so it has become increasingly important to determine the posteroanterior

(Table 4): Correlation Coefficients of All Parameters

	Cr-Cr	Ant-Ant	Frz-Frz	Za-Za	Mas-Mas	Or-Or	Nas-Nas	J-J	Ag-Ag	Go-Go	Um-Um	Lm-Lm	UMD	LMD
Cr-Cr	1	0.30	0.27	0.42	0.33	-0.02	0.25	0.41	0.20	0.23	0.19	0.25	-0.15	-0.14
Ant-Ant	0.30	1	0.96	0.67	0.42	0.57	0.20	0.31	0.40	0.44	0.36	0.39	0.01	-0.05
Frz-Frz	0.27	0.96	1	0.71	0.47	0.56	0.23	0.33	0.44	0.50	0.43	0.45	-0.02	-0.01
Za-Za	0.42	0.67	0.71	1	0.66	0.30	0.39	0.63	0.61	0.61	0.64	0.57	-0.08	-0.12
Mas-Mas	0.33	0.42	0.47	0.66	1	0.13	0.22	0.50	0.60	0.63	0.40	0.35	-0.21	0.01
Or-Or	-0.02	0.57	0.56	0.30	0.13	1	0.21	0.15	0.11	0.15	0.28	0.28	0.21	0.16
Nas-Nas	0.25	0.20	0.23	0.39	0.22	0.21	1	0.35	0.45	0.30	0.33	0.31	-0.11	-0.17
J-J	0.41	0.31	0.33	0.63	0.50	0.15	0.35	1	0.54	0.48	0.66	0.62	-0.06	-0.19
Ag-Ag	0.20	0.40	0.44	0.61	0.60	0.11	0.45	0.54	1	0.80	0.46	0.41	-0.23	-0.18
Go-Go	0.23	0.44	0.50	0.61	0.63	0.15	0.30	0.48	0.80	1	0.42	0.41	-0.23	0.12
Um-Um	0.19	0.36	0.43	0.64	0.40	0.28	0.33	0.66	0.46	0.42	1	0.87	-0.04	-0.20
Lm-Lm	0.25	0.39	0.45	0.57	0.35	0.28	0.31	0.62	0.41	0.41	0.87	1	-0.05	-0.21
UMD	-0.15	0.01	-0.02	-0.08	-0.21	0.21	-0.11	-0.06	-0.23	-0.23	-0.04	-0.05	1	0.41
LMD	-0.14	-0.05	-0.01	-0.12	0.01	0.16	-0.17	-0.19	-0.18	0.12	-0.20	-0.21	0.41	1

cephalometric norms for this particular ethnic group and to base our treatment plans accordingly.

Most of the facial and radiographic records in orthodontics are based on the profile. The frontal view of the face, and consequently the posteroanterior (PA) cephalograms, should be an integral part of facial evaluation, as man presents himself to the world face forward.²³ The relationship between the widths of maxillary and mandibular skeletal bases is presumably the most critical information sought from the PA record.

Among several analyses^{15, 24-27} Rocky Mountain analysis¹⁵ seems to be the most widely used for diagnosis of transverse relationship between the jaws, as it provides normative values for different ages.

Athanasiou²⁰ emphasized that the data obtained from PA cephalograms are of value for the diagnosis of various types of craniofacial anomalies and for monitoring the growth of persons or groups of corresponding age and race, and for comparison with other studies.

Wei¹⁶ presented the width dimensions obtained from PA cephalograms for Chinese subjects. Recently, Uysal *et al.*²¹ established PA cephalometric norms for 100 Turkish Adults, and stated that their findings can be used for diagnosis and treatment planning of orthodontic treatment and orthognathic surgery.

Therefore, the aim of the present study was to investigate the PA cephalometric values for selected skeletal and dental transverse linear measurements in Palestinian adults, and to compare those values with the norms of other ethnic groups.

Uysal *et al.*²¹ found that Turkish adults have cranial width (Cr-Cr) value of 159.72 ± 7.55 mm, with mean values for females and males of 155.35 ± 6.84 mm and 164.85 ± 4.56 mm respectively. In the present study, cranial width measurement was 148.71 ± 6.12 mm with mean values for females and males of 147.46 ± 5.98 mm and 150.31 ± 5.92 mm respectively, indicating that the cranial width is smaller in Palestinian adults than in their Turkish counterparts.

Regarding anterior cranial base width (Ant-Ant), Wei¹⁶ found that the mean values were 93.9 ± 0.45 mm and 91.8 ± 0.85 mm for Chinese men & women respectively, while in Palestinian adults the results showed that Ant-Ant distance exceeded considerably those of Chinese subjects with the values of 103.99 ± 5.77 mm and 100.25 ± 4 mm in men and women respectively.

According to Ricketts *et al.*¹⁵ they found that facial width (Za-Za) had a mean value of 115.7mm at age of 9 years with 2.4mm increases per year; which predicts that adults at the age of 18 would have Za-Za distance of 137.3mm. In the present study the mean value was 135.88mm, slightly less than the clinical norm of Ricketts *et al.*

Ricketts *et al.*¹⁵ found nasal width (Nas-Nas) to have a mean value of 25mm at age 9 years with 0.7mm increase per year. The estimated nasal width at the age of 18 is 31.3mm. Similar results were obtained by Uysal *et al.*²¹ who stated that nasal width in Turkish adults was similar to Ricketts norms (32.43 ± 3.85 mm). Our results showed that the mean value of nasal width in Palestinian adults was 32.19 ± 3.48 mm, which is very similar to the previous findings.

Ricketts *et al.*¹⁵ stated that the width of the maxilla (J-J), had a mean value of 61.9mm for a 9-year-old subject increasing 0.6mm per year. At age 18, the J-J distance is estimated to be 67.3mm.

Cortella *et al.*¹⁷ used data from the Bolton-Brush growth study to generate new norms for the PA analysis. In their study, they found that maxillary width (J-J) had a mean value at the age of 18 of 64.7 ± 2.7 mm. Our results showed that Palestinian adults have mean values for J-J distance of 65.56 ± 5.25 mm, very close to previous findings.

Regarding the Antegonial Width (Ag-Ag), the average value in Palestinian adults was 87 ± 5.93 mm. This finding matched with the results obtained by Ricketts *et al.* and Cortella *et al.* Ricketts *et al.*¹⁵ found that this value have a norm of 76.1mm at age 9 years with 1.4mm increases per year. At age of 18, the Ag-Ag distance is estimated to be 88.7mm. Cortella *et al.*¹⁷ stated that

Ag-Ag distance in young adults have a mean value of 86.40 ± 4.50 mm. On the other hand, Uysal *et al.*²¹ reported an Ag-Ag distance in Turkish adults of 98.03 ± 7.36 mm, which exceeded their previous counterparts.

Krogman²⁸ mentioned that growth in width of both jaws, including the width of the dental arches, tends to be completed before the adolescent growth spurt and is affected minimally, if at all, by adolescent growth changes. Similarly, Athanasiou *et al.*²⁰ studied the transverse dentofacial structure of 6- to 15-year-old Austrian schoolchildren and stated that the maxillary intermolar width during the period from 9 to 12 years did not present any increase, and the mandibular intermolar width remained approximately the same during the whole observation period. Furthermore, Snodell *et al.*¹⁹ reported that the increase in the maxillary intermolar width (Um-Um) occurs prior to age 16, and the average increase between ages 16 to 18 was only 1.4mm. Uysal *et al.*²¹ reported that Turkish adults have an Um-Um distance of 61.17 ± 3.45 mm, and an Lm-Lm distance was 59.52 ± 3.68 mm. In the present study, the mean value for Um-Um distance and Lm-Lm distances were 59.48 ± 3.80 mm and for men and 58.40 ± 3.98 mm, respectively.

Most of the previous studies have found that male subjects had greater facial widths than female subjects for each age group studied. Wei¹⁶ stated that craniofacial widths in Chinese males were significantly greater than Chinese females. Uysal *et al.*²¹ found that most of the Turkish PA cephalometric measurements showed statistically significant sex differences. Our results, not surprisingly, showed that significant sexual dimorphism was found in nine skeletal measures and two dental measures.

Numerous significant correlations were found among and between skeletal and dental measures. The highest correlation was found between anterior cranial base widths with bifrontozygomatic width. Cranial width correlated with the facial width. Facial width correlated with all skeletal transverse measurements. Maxillary width was correlated with maxillary and mandibular intermolar widths. All dental width measurements were highly correlated with each other.

Conclusions

- PA cephalometric norms for Palestinian adults were established.
- Dentofacial transverse dimensions in Palestinian adults were generally similar to Rocky Mountain clinical norms.
- In comparison of sexes, significant differences were found in all skeletal transverse linear measures except for inter-orbital width. Regarding dental transverse linear measures, both maxillary and mandibular inter-molar widths were increased significantly in Palestinian men than in women, while upper and lower midline deviations were nearly similar in both genders.

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The Vascularized Pedicled Bony Flap as an Access to the Maxillary Sinus



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Abstract

This study was done to evaluate clinically and radiographically the effect of vascularized pedicled bony flap performed by the reciprocating saw, as an access to the maxillary sinus. This clinical study was carried out on ten patients suffering from chronic maxillary sinusitis as a result of dental implications. The use of the vascularized pedicled bony flap showed rapid healing without tissue intrusion into the sinus and decreased the chance of postoperative infection while preserving the infraorbital bundle. All the radiographs showed gradual improvement, in which trabeculation is regained, cloudiness of the antrum disappear, and the clinical findings are of promising results.

Key words: Maxillary sinus, OAF, Pedicled bony flap.

Introduction

The maxillary sinus (antrum) is one of the most important anatomical structures related to dentistry, due to its intimate position which is close to maxillary teeth especially molars then premolars.¹

Maxillary sinus inflammation due to odontogenic cause is a common pathology, which may be due to acute or chronic dental infection.² Sinus infection of odontogenic origin represents approximately 10% of all cases of maxillary sinusitis because of the anatomic juxtaposition of the maxillary sinus and maxillary posterior teeth.³ Experimental evidences proved that maxillary sinusitis is present 48 hours after the creation of an oro-antral fistula (OAF).⁴

The maxillary sinus may be affected from different odontogenic causes such as; odontogenic cysts, periapical infection, and sinusitis after treatment of middle face trauma, upper impacted canines or closure of OAF.^{5,6}

The usual access to the maxillary sinus is achieved through a window created by removal of part of the anterior wall of the maxillary sinus (Caldwell-luc operation). However, complications rate from less than 10% to greater than 40% have been reported after this procedures.⁷⁻⁹

The use of the vascularized bony flap as an access to the maxillary sinus has the advantage of preserving the sinus as a closed chamber and guarantees adequate blood supply to the bony flap.^{10,11} This technique reduces complications associated with the conventional procedures and gives the surgeon a convenient access for sinus clearance and removal of foreign bodies such as remaining roots that were pushed into the sinus due to traumatic extraction, in addition to removal of impacted teeth into the sinus and cysts of odontogenic origin.¹⁰⁻¹³

Aim of the Work

The aim of this study is to evaluate clinically and radiographically the effect of vascularized pedicled bony flap made by the reciprocating saw, as an access to the maxillary sinus.

Patients and Methods

This clinical study was carried out on ten patients suffering from chronic maxillary sinusitis as a result of dental implications, such as long standing oro-antral communication following complicated dental extraction, ectopic eruption of canine into the maxillary sinus or cystic lesions of odontogenic origin. Patients were diagnosed at the out patient clinic of Oral Surgery Department, Faculty of Dentistry, Alexandria University.

I- History:

A detailed case history was recorded for each patient. Selected patients were either free from any

systemic disease or under stress reduction protocol (controlled by physician in systemic disease patients).

II- Clinical Examination:

Extra Oral Examination

By inspection

- The patient was examined for presence of swelling, facial deformity or Nasal discharge.

By Palpation

- Tenderness over the cheek area.
- Palpable Lymph nodes.

Intra Oral Examination

By Inspection

- Site of the OAF.
- Presence of polyps.
- Presence of purulent discharge from the stula or post nasal exudate.
- Presence of swelling buccally or palataly.
- Condition of the neighboring teeth whether carious, exposed, periodontally affected or absent.

By Palpation

- Tenderness at the OAF area.
- Condition of bone at the anterior wall of the antrum, and condition of swelling if present whether bony hard, crepitant, egg-shell crackling, or fluctuant.

By Aspiration

To detect the content of swelling whether it is pus, cystic fluid, blood or solid mass (failure to aspirate).

III- Radiographic Examination:

Periapical Radiograph

Panoramic Radiograph

IV- Pre-operative Preparation of the Patient:

1- In cases of oro-antral communication (OAC), antral lavage of the sinus was daily done with sterile normal saline (0.9% Sodium Chloride, product by Nile Co. for Pharmaceuticals Cairo-Egypt) by using flexible catheter and large syringe through the stula till clear washout was obtained and the infection subsided.

2- Cefadroxil Monohydrate (*Ceporex 500mg, Glaxowellcome*) as a systemic antibiotic therapy was prescribed. In case it was proved to be ineffective it was discontinued for four days then a culture and sensitivity test was done to detect the specific antibiotic.

3- Non-steroidal anti-inflammatory and analgesic drug (*Ibuprofen 400mg, kahira*) three times daily for one week.

4- Metronidazole 250mg (*Amrizole, Amriya*) tablets three times daily for one week was administered.

5- Nasal decongestant such as Xylometazoline Hydrochloride (*Otrivin 1% nasal drops, Novartis*) three times daily for one week to relief nasal obstructions and encourage drainage.

6- Oral hygiene care was achieved by regular use of tooth brush and mouth wash. Supra and subgingival scaling was also performed.

V- Pre-operative Investigations:

Blood Analysis

The following blood tests were done for all patients:

- Bleeding time.
- Fasting blood sugar level.
- Coagulation time.
- Blood haemoglobin concentration.
- Prothrombine activity.
- Blood urea.
- Serum creatinin.

Radiographic

Plain chest radiograph was taken for those who were to be operated under general anaesthesia to reveal chest condition and to avoid complication.

VI- Operative Phase:

Anesthesia

The surgical procedures were carried out under general anesthesia in the operating theatre at the Oral Surgery Department, Faculty of Dentistry, Alexandria University.

Surgical Steps

1- The operative site was scrubbed with Povidone Iodine (*Betadine*) surgical scrub solution and then routine surgical draping was performed.

2- A vestibular supraperiosteal incision was made at the canine fossa that extends down to the periosteum (**Fig. 1**).

3- Then a supraperiosteal mucosal flap was raised toward the infraorbital nerve, care was taken not to expose or injure the nerve.

4- Then a U shaped incision slightly larger than the size of the bony window was made in the soft tissue and periosteum over the anterior sinus wall (**Fig. 2**).

5- After elevation of the marginal periosteal soft tissue the U shaped bone flap was created with a reciprocating saw.



◀ **(Figure 1)**
Vestibular supraperiosteal
Incision



◀ **(Figure 2)**
U shaped incision in the
soft tissue and periosteum
over the anterior sinus wall

- First; the inferior portion of the sinus wall above the root apices of upper premolars was osteomatized obliquely to create a bevel using the saw.
- Then, smaller blade was used to obliquely osteomatize the medial and lateral portions of the sinus wall.
- At last, the vascularized bone flap was in-fractured and pedicled on periosteal soft tissue (Cutting with a small spatula osteotomy on the superior edge of the bone flap made in-fracture easier).

6- After raising the bone flap, exploration of the sinus was done, followed by sinus clearance, in which curettage of the sinus through the U shaped opening and removal of all diseased maxillary sinus lining and any remaining root or foreign bodies present was performed.

7- The bone flap was repositioned, then the periosteal soft tissue covering the osteomatized site and mucosal flap was sutured with 3-0 black silk. Because of the bevel done in osteotomy and the exact repositioning of the bony flap, sutures for its fixation was not required.

8- In cases of OAF:

- A circular excision around the orifice of the fistula (Decoring) was made using No.11 Bard Parker Blade.
- The entire epithelialized tract was dissected out to get freshened margins.

A palatal pedicle flap based on the greater palatine vessels was used to close the oro-antral defect, this abundant blood supply promotes satisfactory healing of the flap. The advantage of palatal pedicle flap compared to the buccal sliding is that it does not affect the buccal vestibular height. For this reason many surgeons favor the palatal flap for closure of small to moderate size defects. When adequate local tissue is available, palatal mucoperiosteum is the tissue of choice for repair.

VII- Postoperative Phase:

Postoperative Care

Each patient followed the following instructions:

- Application of extra-oral ice compress over the operated site in the first 24 postoperative hours to minimize the surgical oedema.
- Patient was instructed to have soft diet for the first week and to avoid hot, salty and acidic foods.
- The patient was instructed to avoid any maneuver that might cause negative or positive pressure inside the sinus (e.g. drinking straw, blowing the nose, sneezing with mouth closed and smoking).

Postoperative Medication

- All patients were advised to use warm normal saline mouth wash after 24 hours.
- The same antibiotics given pre-operatively were continued for two weeks post-operatively.
- Anti-inflammatory & analgesic medications were also continued for two weeks.
- Metronidazole tablets 250mg three times daily for two weeks.
- Nasal decongestant such as Otrivin 1% nasal drops three times daily for two weeks to relieve nasal obstruction and encourage drainage.

In cases of OAF that is closed with palatal pedicle flap, the palatal raw area was covered with whitehead's varnish and co-pack or stent to decrease pain arising from exposed bone and promote healing by secondary epithelialization.

Postoperative Follow-up

All patients were followed up both clinically and radiographically.

Clinical Follow-up

Clinically, all patients were examined after one week, two weeks, one month and three months postoperatively for evaluation of:

- Wound healing.
- Bleeding (oral or nasal).
- Facial pain.
- Facial edema.
- Presence or absence of paresthesia hence presence or absence of infra-orbital nerve injury.
- Facial asymmetry.
- Nasal congestion or presence of postnasal discharge.
- Passage of air through the wound.

Radiographic Follow-up

Radiographically, panoramic and periapical x rays were taken at one month, two months and six months intervals to detect clouding of the sinus, closure of OAF and amount of bone formed for repair and therefore showing the condition of the sinus.

Results

All patients were examined on the first postoperative day and then one week, two week, one month, three months and six months postoperatively (Figs. 3-5).

Immediate Post-operative Follow-up

The early post-operative period started directly after the end of the operation till the end of first week.

Bleeding: In all cases saliva stained with blood was present in the day of operation only; there was no sign of active bleeding in any case.

Pain: All cases suffered from mild to moderate pain during the first three days of operation.

Edema: All cases had mild extra-oral edema starting from 2nd day of operation till the 5th day post-operative except 2 cases the edema resolved at the end of 1st week, there was no facial asymmetry by the end of the first week.

Infection: No signs of postoperative infection or bad odor were detected.

Numbness: One case only showed numbness in the left side of the upper lip due to trauma of the infraorbital nerve during dissection of the mucosal flap.

Delayed Follow-up

Clinical results

- Clinical evaluation of the wound healing after first week postoperatively revealed uneventful healing of all cases.

- Only one case complained of nasal obstruction of the affected side with clear serous discharge which improved with the use of decongestant nasal drops.
- Shallowing of the vestibular depth was not observed in all cases.
- No cases complained of post-nasal discharge.
- Two cases complained of intermittent headache at first two weeks postoperatively.
- One case complained of numbness of the infra orbital area for first two weeks postoperatively.

Radiographic Follow-up

Assessment of all cases by using plain radiographs (periapical, panoramic views).

One month post-operative follow-up

Radiographs did not show difference from the preoperative radiographs except for removal of the impacted teeth, remaining roots and four cases in which the cloudiness lost its uniform pattern.

Two months post-operative follow-up

Panoramic radiographs showed considerable clearance of the affected sinuses.

Six months post-operative follow-up (Fig. 6)

- Maxillary sinus showed the normal sinus shadow.
- In all cases the thickening of the maxillary sinus lining was improved.
- In five cases formation of bone in the stula tract was observed.
- Periapical radiographs revealed fine trabeculation at the stula site in five cases.
- Panoramic radiographs showed complete clearance of the maxillary antrum.

Discussion and Conclusion

Various techniques and indications have been proposed for the use of the vascularized pedicled flaps in the field of reconstruction surgery. The vascularized pedicled bony flap has been employed in this study to evaluate the healing power and the probability of complications associated with maxillary sinus entry.

All patients of this study, suffered from chronic maxillary sinusitis as a result of odontogenic causes such as ectopic eruption of teeth associated with cystic degeneration or oro-antral communications following complicated tooth extraction. A small oro-antral communication of less than 2mm in diameter resulting from tooth removal will usually close spontaneously if the sinus is clear and the blood clot fills the socket. However, defects that are larger than 5mm in diameter rarely heal spontaneously and typically will require surgical intervention for closure.¹⁴

Patients with OACs mostly are due to extraction of the upper first molar. Sex distribution in this study indicates predominance of males, which is in harmony with the other publications. And age distribution does as well (20-40 years).¹⁵⁻¹⁶

Panoramic radiographs were used to evaluate the antrum condition regarding the presence of cloudiness compared to the contralateral side. In addition, they showed the position of the ectopic tooth into the sinus. Also it showed the inferior

border of the antrum which was helpful in evaluating the disruption of the antral floor at the stula site. This property could not be offered by other plain radiographs like (occipito-mental view) which are helpful in detection of the presence of fluid level inside the antrum. The use of the reciprocating saw for achieving the U shape osteotomy is found to be the least traumatic technique, in which no bone loss occurred or dishing of the bony flap and no formation of bony gaps, which prevent postoperative edema and asymmetry. And that explain the uneventful healing at the end of the first postoperative week follow-up for those patients.

Suturing the periosteum over the bony flap guaranteed adequate blood supply and helped for stability of the precisely positioned bony flap.

In our study the bony window gave the same advantage of the Caldwell-luc opening.¹² Which is probably the most commonly used surgical procedure for the maxillary sinus, as it enables better visualization of the sinus allowing a good assessment of the diseases involving the antrum.¹³

In our study, nasal antrostomy was not used for drainage, that is because the copious irrigation of the sinus through our access with removal of all the inflamed/diseased sinus lining



◀ (Figure 3)
Two weeks postoperatively



◀ (Figure 4)
One month postoperatively
Showing better healing



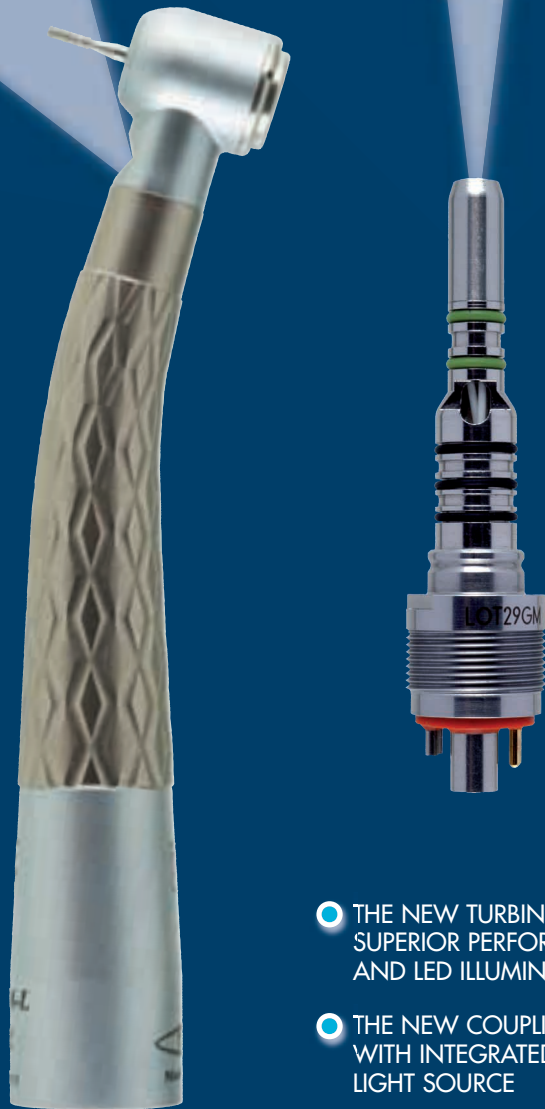
◀ (Figure 5)
6 months clinical follow-up shows complete healing



◀ (Figure 6)
6 months radiographic follow-up shows clear sinus shadow

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in addition to the use of the appropriate antibiotics according to the culture sensitivity test gave us the same results, which agrees with Flanagan 2005¹⁷ who claims that no difference between the Caldwell-luc procedures with and without nasal drainage as long as adequate clearance of the sinus is proved.

In our study only one case suffered from numbness of the upper lip that lasted for two weeks, which is considered iatrogenic. This showed that the vascularized pedicled bony flap is less traumatic than any other technique.

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Innovative Cementing Light Guide, a Case Report



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Abstract

Background: The author describes a technique for cementing anterior crown over short non-retentive abutment where the crown could not be placed and aligned easily without a special guide.

Case Description: This case report describes an innovative guide that holds and aligns the crown in place during cementation over non-retentive abutment. Initial light curing was done through the guide to tack the crown during excess cement removal.

Clinical Implication: This guide is desirable when cementing metal free restorations in order to achieve better excess cement removal. It is also more desirable for cementing multiple individual metal-free restorations.

Key words: Dental abutments, Crowns, Excess cement, Light curing, Resin cements.

Introduction

There are two principal methods used to retain restorations in crown and bridge work. The conventional method, which has been used for many years, involves preparing the tooth to a retentive shape then cementing the crown with a luting cement, which is not usually chemically adhesive to either the tooth surface or the int surface of the crown. The second method is to use an adhesive luting cement that bonds either chemically or micromechanically to both the tooth surface and the restoration.¹

For these cements, it is important to adopt a proper technique for cementation and removal of excess cement. It is wise to tack the restoration in place by initial light curing in order to remove excess cement before complete setting.^{2,3}

In this case report, the author implemented an innovative guide that holds the crown in place during cementation for short non-retentive abutment.

Case Presentation

A 32 years old female patient attended to the dental center; Dr. Soliman Fakeeh Hospital, Saudi Arabia, complaining from her crown at upper right central incisor. The patient wanted the new crown to be done without extra preparation. She had this tooth done many times before and still she was not satisfied with the esthetic result. Her complaint from the previously made crowns was the color and the shape. Most of these crowns were porcelain fused to metal. But the last one that she wanted to replace was full ceramic.

By clinical and X-ray examination, the tooth was vital and the periodontium was healthy. Lips retractor (*OptraGate, Ivoclar Vivadent, Switzerland*) was placed for better access and to control the lips during the procedure. Then the crown was cut carefully and removed in pieces. The tooth looked non-retentive and extremely short (**Fig. 1**).

After that an impression was taken (*Imprint II Garant, 3M ESPE, USA*) and a dental technician fabricated a full ceramic crown (*OPC 3G, Pentron, USA*).

Try-in paste (*RelyX Try-in Paste, 3M ESPE, USA*) was used to select the best shade of cement. But the new crown could not be aligned easily in the correct position as proximal displacement was noticed during try-in. At that moment, a solution for cementation dilemma had to be reached (**Fig. 2**).

The Innovative Cementing Light Guide

Silicon-based impression material (*Amnis putty soft, Coltène/Whaledent, Switzerland*) was used in the laboratory to make a cementing light guide (CLG) that holds and aligns a metal free restoration (the ceramic crown in this case) during dual-curing cementation. CLG was extended over seven teeth; the abutment with the restoration, three teeth on the left and three teeth on the right. It covered the palatal and incisal/occlusal surfaces of these teeth. The labial surface was not covered to allow the dentist to check the fitting and alignment of the restoration during initial light curing (**Fig. 3**).

CLG had a palatal hole at the center of palatal surface of the restoration. This hole was tested with the conventional light cure (*Avanté, Jeneric/Pentron, USA*) and it showed that there is no light leakage through the silicon (**Figs. 4,5**). This hole was made for the initial spot light curing (2 seconds with a conventional polymerization device*) in order to tack the restoration prior to excess cement removal.

The internal surface of this glass ceramic crown should be treated according to the manufacturer's instructions by applying hydrofluoric acid to etch the inner surface, rinsing thoroughly with water for 15 seconds, drying with air free of water and oil, and then applying a silane.

The resin cement (*RelyX Unicem, 3M ESPE, USA*) was mixed according to the manufacturer's instructions and applied inside the crown and was seated directly over the abutment. CLG was put firmly over the anterior teeth and held in place by two fingers (**Fig. 6**).

Careful checking was made to the labial and proximal surfaces to make sure of complete seating before activating the light cure. Then the conventional light cure was applied through the palatal guide hole for 2 seconds. At that moment, CLG still held firmly in place. After removing CLG, remaining excess cement was removed before proceeding with the final curing.

Discussion

According to the history of multiple crowns done for this tooth, the author considered that there might be fragile parts of the tooth underneath the current crown. So the crown removal instrument was not tried in this case.

The options for similar cases were to do root canal treatment followed by post and core build up, placing retentive pins with large amounts of buildup material, or to modify the existing preparation to get better retention.^{4,5} But the author decided to cement the new crown using the previously mentioned guide technique without any further preparation because the tooth would not reach better retentive preparation without root canal treatment and post; and taking into consideration the patient's desire to have her tooth crowned without any further tooth preparation as the previous crown was cemented perfectly on the current preparation for one year using regular non-resin cement. Resin bonding cement that was used in this case would provide higher retentive strength comparing to glass-ionomer or zinc phosphate cements.⁶ Furthermore, the retentive strengths of resin cement of short (3mm) or tapered



◀ **(Figure 1)**
The abutment was short and non-retentive as shown in this model



◀ **(Figure 2)**
The new crown could not be placed correctly without a special technique. Note the proximal displacement due to crown rotation during try-in



◀ **(Figure 3)**
Labial surface of the guide was free to allow the dentist to check the fitting and alignment during initial light curing. Note the palatal hole at the arrow



◀ **(Figure 4)**
Before activating the light cure



◀ **(Figure 5)**
After activating the light cure. Note the light spot through the opaque silicon



◀ **(Figure 6)**
The guide was put over the anterior teeth during cementation to hold the crown in place

(35-degree) abutments are higher than the retentive strengths of zinc phosphate cement of regular abutments (5mm, 12-degree).⁷

Remaking anterior crowns to get better aesthetic outcome is a big challenge especially for upper single central incisor. This is because less than 50 percent of such restorations match

* According to 2006 instructions for use of 3M ESPE, RelyX Unicem Aplicap/Maxicap

the adjacent natural central incisor the first time during try-in. In fact, it may be necessary to have the laboratory make the crown a second - and sometimes a third - time to achieve an acceptable match. The alternative solution to this problem is to restore the adjacent natural central incisor, but this adds the cost of a second restoration in addition to the biologic cost.⁸

For this reason, the new crown should exactly mimic the adjacent natural teeth. This can be achieved by the fluorescence of full ceramic restorations. Fluorescence adds to the vitality of a restoration and minimizes the metameric effect between teeth and restorative materials.⁹ (The metameric effect means shade mismatch is more apparent under some light conditions. In other words, where two colors appear visually identical until the light source is changed).^{10,11}

This advantage of optimum esthetics of full ceramic restorations is fulfilled by using correct shade of cement. Resin based cements are available in many shades for this purpose. The technique of resin cement removal has an effect on the quality of the cement adaptation at the marginal interface.² CLG helps the dentist to achieve better excess cement removal by two stages (Table 1). The first stage is before light curing where the labial cement has easy access for partial excess removal. It is imperative to leave some residual cement at the margins to prevent voids and to compensate for its polymerization shrinkage.¹² The second stage is after initial light curing through the palatal guide hole. At this stage, all the remaining excess cement can be safely removed. Excess cement must be removed before the material is set completely to prevent any marginal leakage.³

(Table 1): Stages of excess cement removal before proceeding with final light curing

Stage 1	1: Before light curing where the labial cement has easy access for partial excess removal. It is imperative to leave some residual cement at the margins to prevent voids and to compensate for its polymerization shrinkage.
Stage 2	2: After initial light curing through the palatal guide hole. At this stage, all the remaining excess cement can be safely removed. Excess cement must be removed before the material is set completely to prevent any marginal leakage.

Similar tacking devices are Pin-Point light probes, Ceri-Taper Tacking tip and Tack-Ease Tacking Tips.¹³⁻¹⁵ These are used for tacking restorations before excess cement removal.

Pin-Point light probes and Ceri-Taper Tacking tip are accessories for bluephase curing light (*Ivoclar Vivadent, Austria*) and Sapphire Plasma Arc curing light (*Den-Mat, USA*) respectively. They are mainly used for tacking veneers and Lumineers.

In comparison with these tacking devices, CLG has the advantage of precise alignment of the restoration before and during light tacking. Also, all the materials of CLG are available in most dental clinics.

CLG is desirable for multiple individual metal-free restorations. As it could hold multiple restorations and align them at the same time for easier light tacking. The same principles of CLG could be applied but the design will differ depending on the restoration type. A palatal hole for each unit will be made for

CLG of multiple crowns. Cementation of veneers with palatal extension as well as full-prep Lumineers will get the advantage of CLG with 2mm labial coverage and incisal holes instead of palatal (Table 2).

(Table 2): Different designs of CLG

Metal free restoration	CLG design		
	Hole(s) position	Covering surfaces	Free surface
Full coverage crown	1 palatal hole	Palatal and incisal/occlusal surfaces	Labial surface
Multiple individual crowns	A palatal hole for each unit	Palatal and incisal/occlusal surfaces	Labial surface
Veneers with palatal extension & full-prep Lumineers	An incisal hole for each unit	Palatal, incisal/occlusal surfaces & 2mm of labial surface	Remaining labial surface

Conclusion

The cementing guide with palatal hole is found to be useful in the cementing process for the non-retentive abutment tooth. Currently the author has no experience of applying this treatment modality to other type of restorations. However, the same principles could be applied to veneers, Lumineers and indirect onlays.

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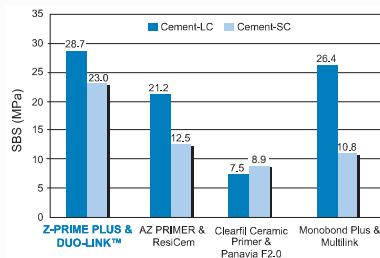
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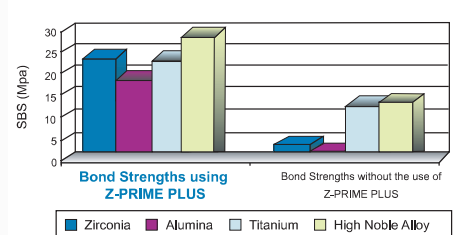


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Abstract

Bracket placement is one of the most important keys to a successful orthodontic treatment outcome as stated by Roth. The need for accurate bracket positioning began after the introduction of the Pre-adjusted Edgewise Appliances (PEA). Different bracket positioning methods have been advised by various authors and systems. On the one hand there was the mid point bonding while on the other hand was the prescribed height using the incisal edge as a reference. Therefore, a 2D bracket positioning gauge was designed, using both horizontal and vertical planes and evaluated for its accuracy in bonding of PEA brackets.

Key words: Bracket positioning gauge, 2D gauge, PEA gauge, Metal ramps on probe.

Introduction

With the introduction of the PEA brackets, tooth positioning became individualized with all a 3 planes of space.¹ In order to gain full expression of a PEA bracket, precise bracket positioning added to a full size archwire would be necessary.² Mid point bonding as a guide has various drawbacks:

1. Individual variability of tooth anatomy
2. Manually positioning of each bracket is time consuming
3. Lacks chairside efficiency and accuracy

All the above factors usually lead to rebonding or repositioning of the brackets at a later date resulting in increased chair time, which lead to prolonged treatment time. Studies have shown that bracket positioning using the incisal edge as a reference is more appropriate than midpoint bracket positioning.³

This led to the use of gauges using the incisal edges as a reference. *3M Unitek*[®] came out with their own bracket positioning gauge,⁴ which is useful in improving the vertical positioning of the bracket. This may improve the positioning of the brackets but still archwire bending or bracket repositioning may be necessary for inaccuracies in bonding.³ We also noticed that this gauge failed to provide the brackets with ideal angulations not only due to faulty bracket positioning along the horizontal plane but also be due to irregular incisal margins, attrition, gingival recessions, excessive length of clinical crown or operator-caused errors.

In order to improve the precise positioning of the bracket during bonding it is essential to involve both the vertical and horizontal references. Therefore, a 2D bracket positioning gauge was designed in our department at Al-Adan Dental Center Kuwait, using both planes and evaluated for its accuracy in bonding of PEA brackets.

Materials and Design

The basic design of this gauge is as follows:

A straight metal probe is used. A metal ramp is soldered at the base of the probe. This ramp is designed to lie on the incisal edge of the tooth while bonding. A metal piece that fits into the bracket slot is soldered to the metal probe at the preferred distance from the metal ramp. Finally, the straight probe acts as a horizontal guide by coinciding with the long axis of the root (Figs. 1,2).

This design helps the practitioner to position the bracket with correct vertical and horizontal



◀ **(Figure 1)**
Clinical use of the 2D
bracket positioning
gauge



◀ **(Figure 2)**
Side view of the 2D
bracket positioning
gauge

relationships simultaneously. This 2D bracket positioning gauge should be used in conjunction with a panoramic view as well as clinical assessment of the long axis of the root. This in turn reduces the need to reposition the brackets or adding additional 2nd order bends in the wire.

Conclusion

Bonding errors can be minimized by making multiple wire bends or by rebonding the brackets in order to correct the tooth position and some may even underfill the slot to deal with bracket inaccuracies to help in ideal bracket positioning. Therefore this gauge will be a very useful guidance tool for those orthodontists who enjoy the direct bonding technique.

Acknowledgements

We would like to thank Dr. Yousuf Al Duwairy, Dr. Rahood H. Al-Rashood and Dr. Ibrahim Taqi for their support.

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An Instrument Innovation for Primary Endodontic Treatment: the Revo-S® Sequence*



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Abstract

A new NiTi file sequence has been developed by Micro-Mega®. Its purpose is to simplify the initial endodontic treatment and to optimise the cleaning. The asymmetrical cutting profile of the Revo-S® facilitates penetration by a snake-like movement, and offers a root canal shaping which is adapted to the biological and ergonomic imperatives. This system delivers a thorough root cleaning, and also offers apical finishing that is closely adapted to the anatomical and ecological criteria of the canal.

Key words: Endodontics, Rotary files, Nickel Titanium, Asymmetric cross section.

Introduction

Endodontic therapy is quite complex. Each clinical situation is unique, but the final objective remains identical: to preserve the natural tooth in a functional, asymptomatic and if possible aesthetic manner. This objective is not always easy to reach, and depends upon numerous factors among which the most important is probably the shaping performed in order to optimise the root canal disinfection.

Indeed, this shaping has a direct effect on irrigation, temporary medications and root canal filling procedures. It is influenced not only by the clinician's experience and dexterity, but also by the complexity and variability of the root canal anatomy,¹⁻³ and the difficulty to visualize this complexity on pre-operative radiographs as well.^{4,5} The curves do not allow the instruments to work symmetrically and induce a variable shift, according to the system and/or the selected technique, as well as the initial pathway of the root canal. Moreover, some root canal areas (the accessory canals and apical deltas),^{6,7} are not mechanically accessible: only the irrigation solutions will allow their cleaning, assuming sufficient quantity and flow are provided.⁸

Today, two main instrument groups are available. The first, which is the oldest, presents radial lands on the periphery of the instruments. The role of these radial lands was to center the instruments inside the canal, which abraded and burnished the dentin more than they would cut it.^{9,10} This group is now being supplanted. The second group, so-called the active blade series, is developing more and more since the creation in 1996 of the HERO 642® (Micro-Mega®, Besançon, France). Today, it includes more than ten different systems. Numerous parameters characterize them (section type, taper, pitch length, helix angles, cutting angles, clearance angles, etc), and render their machining quite specific.

These characteristics have required instrument sequence protocols which are also specific. Although these instruments have demonstrated their superiority to the standard steel manual instrumentation, in terms of following the root canal pathway,^{11,12} and obtaining less preparation aberrations,¹³ they do not allow the dynamic upward removal of the machined dentine debris:¹⁴⁻¹⁶ as soon as their grooves (hollow parts between two flutes) is packed, the debris is then pushed back laterally into the canal cracks and tubules^{9,17-19} or apically beyond the instrument tip.

The idea of an instrument able to improve this upward removal of debris and to optimise the root canal cleaning has motivated the development of new NiTi files, thus revolutionizing the features of the previous instrument designs. The upward removal of dentinal debris depends on the characteristics of the main cutting edges on the active part of the instrument: the spacing between two edges (pitch length), the depth of the grooves, and the orientation of the edges (helix and cutting angles). An additional innovating parameter may also be added to these main characteristics: the asymmetrical cross-section.

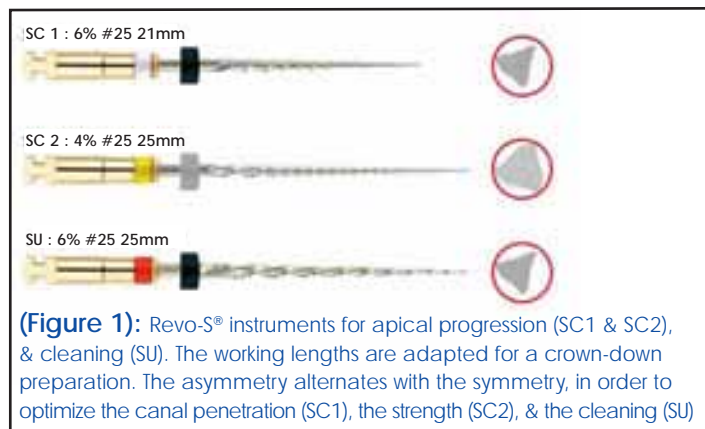
* Reprint: First published in French; *Clinic Magazine*, Nov. 2008-Vol.29

The instrument will then work out through the canal according to a cutting/clearance cycle of cleaning. On one hand, this revolution improves canal penetration, upward removal of dentinal debris, avoiding their packing inside the grooves, and therefore the pushing of debris in front of the instrument tip apically and beyond. On the other hand, this asymmetry reduces instrument stress during the canal preparation.²⁰

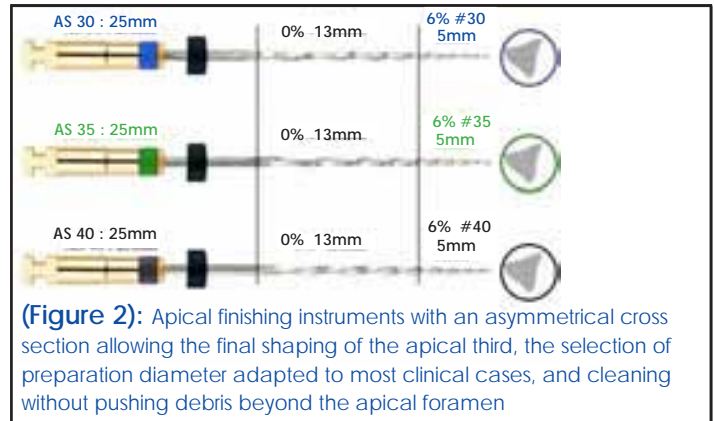
The Revo-S® Sequence

Based on this innovating characteristic, an instrument sequence was proposed that adapts to more than 80% of the clinical cases encountered in general practice. It is composed of only two instruments for apical penetration (SC1 and SC2), and a recapitulating and cleaning instrument (SU) (g. 1). The area of the apical third will thus be shaped to a .06 taper, and an apical diameter of 25/100, which are optimal for debridement and disinfection, according to the biological imperatives of the initial endodontic treatment. The sequence may be completed using apical preparation instruments (AS 30, 35 and 40) according to the initial foramen diameter and to the canal septicity (g. 2). This sequence allows functioning according to a cutting, clearance and cleaning cycle (g. 3).

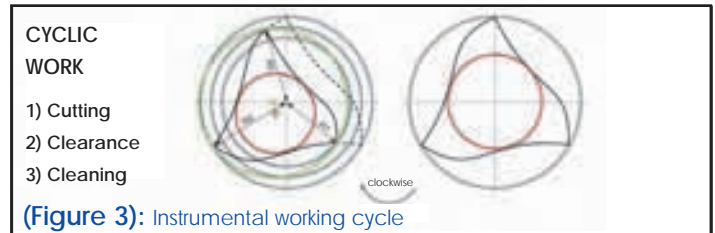
The operating protocol and the shaping are illustrated in gures



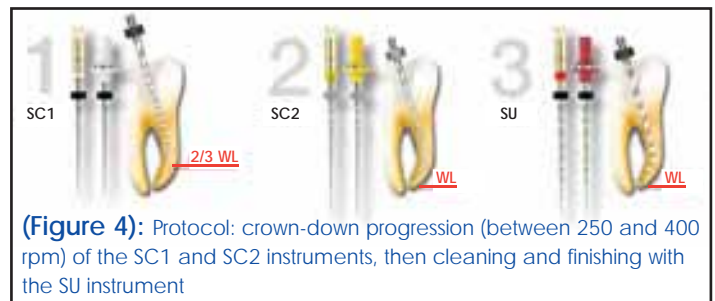
(Figure 1): Revo-S® instruments for apical progression (SC1 & SC2), & cleaning (SU). The working lengths are adapted for a crown-down preparation. The asymmetry alternates with the symmetry, in order to optimize the canal penetration (SC1), the strength (SC2), & the cleaning (SU)



(Figure 2): Apical finishing instruments with an asymmetrical cross section allowing the final shaping of the apical third, the selection of preparation diameter adapted to most clinical cases, and cleaning without pushing debris beyond the apical foramen



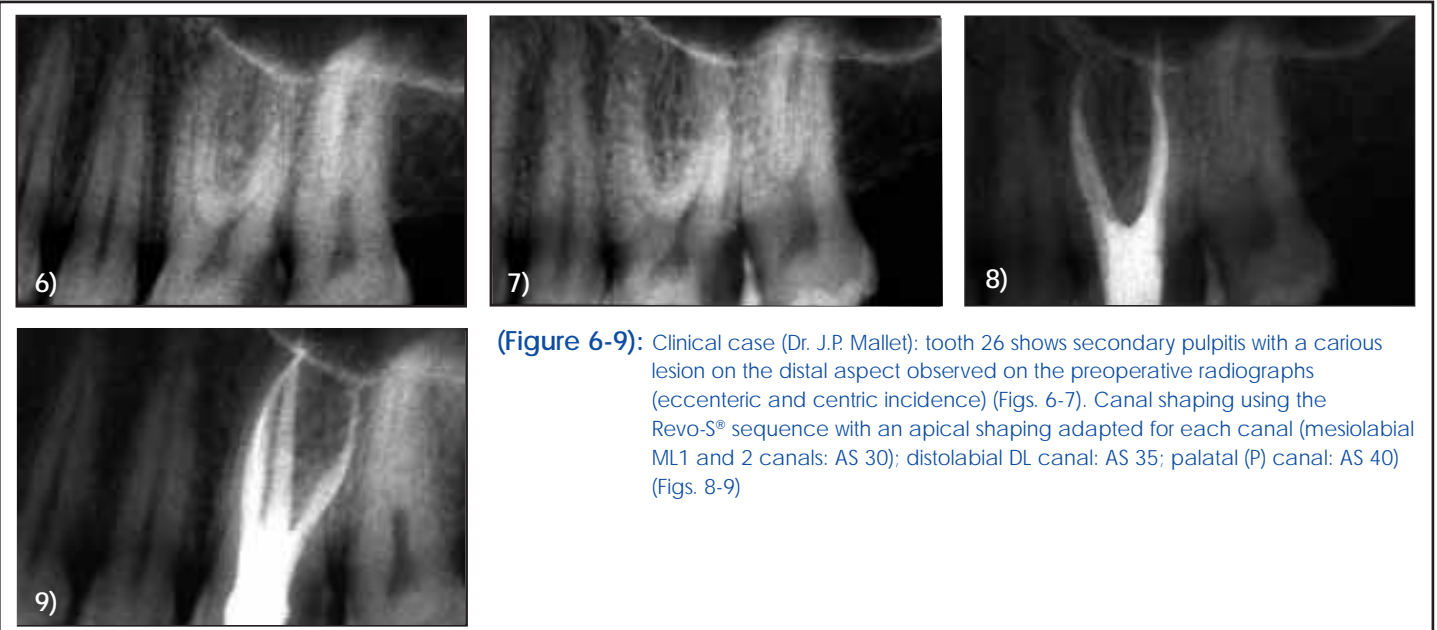
(Figure 3): Instrumental working cycle



(Figure 4): Protocol: crown-down progression (between 250 and 400 rpm) of the SC1 and SC2 instruments, then cleaning and finishing with the SU instrument



(Figure 5): Apical shaping: a step-back sequence (35 mm- 0.5mm, 40mm-1mm) is also possible



(Figure 6-9): Clinical case (Dr. J.P. Mallet): tooth 26 shows secondary pulpitis with a carious lesion on the distal aspect observed on the preoperative radiographs (eccentric and centric incidence) (Figs. 6-7). Canal shaping using the Revo-S® sequence with an apical shaping adapted for each canal (mesiolabial ML1 and 2 canals: AS 30); distolabial DL canal: AS 35; palatal (P) canal: AS 40) (Figs. 8-9)

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4 and 5. They are followed by a clinical case report (gs. 6-9).

Conclusion

The development of new NiTi instruments, based on an asymmetry of the blades, has allowed to perform a simplified instrument sequence that preserves both the biological (efficient shaping and cleaning) and ergonomic (simplification and safety) imperatives which are crucial to perform primary endodontic treatment in general practice.

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We received the following comments on two different articles published in Smile Dental Journal; both comments were written by Dr. Zbys Fedorowicz, Director of the Bahrain Branch of the UK Cochrane Centre, The Cochrane Collaboration. The comments are published as received, followed by the authors' replies.

First Letter:

"Dear Sir

I read with interest the article: *"The Clinical Applications of Tooth Mousse TM and other CPP-ACP Products in Caries Prevention: Evidence-Based Recommendations"* Mar. 2009 Volume 4, Issue 1. Whilst the concept remains interesting in terms of an adjunctive measure to reduce or possibly prevent dental caries over and above existing methods it does nevertheless remain just that a concept or option.

I would also hesitate to add that "evidence based recommendations" is probably an overstatement with respect to the title as the recommendations appear to be essentially 'reference-based'.

Sweeping statements and generalizations such as *"proven efficacy of CPP-ACP products through clinical and laboratory studies"* or *"CPP-ACP products are recommended to be used twice daily"*, require assessment by either a systematic review of the evidence of the effectiveness of these interventions, or at least a comprehensive assessment of the methodological quality or risk of bias of any of the clinical trials which have been cited in this paper.

I would encourage the author to undertake a systematic review such that the totality of evidence for the effectiveness of CPP-ACP products in terms of benefits can be submitted to rigorous assessment.

Regards
Dr. Zbys Fedorowicz"

The following reply was received from the author; Dr. Ola Barakat Al-Batayneh:

"With regards to the comments made regarding the article titled: *"The Clinical Applications of Tooth Mousse TM and other CPP-ACP Products in Caries Prevention: Evidence-Based Recommendations"* Mar. 2009 Volume 4, Issue 1. First of all, I would like to thank Dr. Zbys for his interest in the article and for his valuable comments and hence, to clarify a few issues.

Due to the increasing interest in minimal approach dentistry, it was the author's intent to shed more light on the concept of CPP-ACP complexes as an adjunctive measure to prevent dental caries. This article discussed the literature related to CPP-ACP products with regards to clinical applications and recommendations. Studies cited under the statement *"proven efficacy of CPP-ACP products through clinical and laboratory studies"* were discussed to provide the reader with literature available at the time of the review regarding effectiveness of the product and implicate certain recommendations for clinical use of the product. Most of the studies provided, were clinical, laboratory or in situ studies conducted on humans or animals. An assessment of anticariogenic mechanisms was given through discussion of the growing body of literature which has been cited in the paper.

Frequency of use stated in the article as: *"CPP-ACP products are recommended to be used twice daily"* was mentioned as a clinical recommendation. The manufacturers recommend application in patients at night before bed, since the salivary clearance rate is low during sleep. In patients who need intensive treatment, then twice daily application is recommended. Actually, frequency of use may be decided upon according to caries risk, indication for use, age and fluoride content with MI paste containing fluoride (for children) so that could mean once or twice daily frequency of use. However, according to the author's knowledge, there are no studies that evaluated frequency of use."

Second Letter:

"I would be obliged if you could publish this comment in the Letters to the Editor Column of the next issue of Smile Dental Journal.

I read with interest the article *"Bad Breath: What's The Story"* in the **June issue of Smile**.

The story is an 'old' one and thus it was very disappointing but perhaps not surprising, given the rating of 4/10, to see that treatment i.e. that which is of importance to patients was inadequately covered. Clearly the references were somewhat dated and there was a conspicuous absence of two more recent Cochrane systematic reviews (1,2) which have not only evaluated the methods used to assess relevant outcomes but have also comprehensively reported on the strength and direction of current best evidence for the effectiveness of the available range of interventions.

With respect if we are to advance the oral healthcare research agenda, 'old' stories (i.e. date-expired literature reviews) are neither beneficial or appropriate. Moreover, if Smile Dental Journal is attempting to get indexed to one of the major healthcare databases then up to date assessments, not 'stories', of current best evidence which can be used to inform treatment options, are the type of publications that should be its focus.

1. **Tongue scraping for treating halitosis**
Trent L Outhouse, Rashad Al-Alawi, Zbys Fedorowicz, James V Keenan
Year: 2006
2. **Mouthrinses for the treatment of halitosis**
Zbys Fedorowicz, Hamad Aljufairi, Mona Nasser, Trent L Outhouse, Vincenzo Pedrazzi
Year: 2008
Available at: <http://www3.interscience.wiley.com/cgi-bin/mrwhome/106568753/HOME>

Regards and best wishes
Dr. Zbys Fedorowicz"

The reply received from the authors, Dr. Raaf Tayara and Dr. Riad Bacho was:

"We read with interest Dr. Zbys's comments towards our article, and some clarifications should be in order:

- 1- The aim of the article "Bad Breath: What's the story?" was to expose and review globally and on a scientific basis the subject of halitosis on its different aspects (etiology, types, diagnosis, treatment, etc.) and NOT specifically to focus on Fully covering the "treatment".
- 2- References used through the article were some quite recent. Others, if less recent, are considered as "classics" or "pioneer articles", and were of a great importance supporting the subject.
- 3- On the other hand, one of the two Cochrane reviews mentioned (co-authored by Dr. Zbys!) was published almost during our article submission; we also just discovered the "rate" concept of the articles, while reading what Dr. Zbys mentioned about it, and we noted that the actual rate of our article was 8/10.

Again, we appreciate any comments and constructive critics, as such shared ideas tend to "sometimes" improve the quality of our journals and push us to always look for what's next and better.

Thank you"

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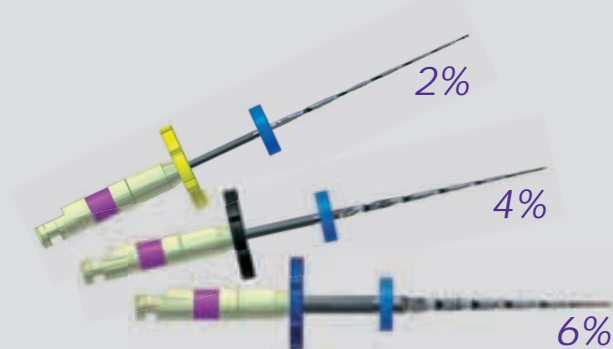
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- Four chair positions – stored chair positions can be selected at the press of a button
- Luna Vue surgical lamp – uniform illumination with a virtually natural light
- Assistant tray - with telescopic arm
- Autoclavable suction handpiece with various attachments
- Saliva ejector with manual non-return valve
- Swivel-mounted cuspidor and automatic tumbler filler – increased patient comfort and simplified workflow
- Comfortable headrest – kinematics based on the natural movements of the neck
- Automatic water rinse systems – no residual water in the instrument hoses
- Easy cleaning of the vacuum system
- One-touch connections – quick, easy removal of the handpieces
- Highly developed Sterapore M bacteria filter
- T.AR cleaning system integrated in the handpiece

www.jmoritaeurope.de

DUO-LINK *Dual-cured composite luting cement by Bisco*

DUO-LINK is a dual-cured, radio-apparent, composite luting cement with ultra-fine particles especially formulated for cementation of all ceramic/porcelain or composite crowns, inlays and onlays as well as light-transmitting fiber posts. DUO-LINK is a 70% filled composite with glass fillers of an average particle size of 1µm resulting in unsurpassed physical properties. DUO-LINK is available in two shades: CLEAR and TRANSLUCENT UNIVERSAL. Both shades are offered in a new convenient auto-mix dual-syringe delivery system.

- Highly filled means high strength, low solubility.
- Does not affect shading of tooth or prosthesis.
- Light-cures for immediate finishing.
- Dual-cures for complete polymerization under inlays & crowns.
- Smooth, resists wear and stain.



www.bisco.com

Satin Steel®XTS® *the new standard for performance and feel in composite instruments*

Hu-Friedy's Satin Steel XTS instruments allow for perfect non-stick placement of composite material without discoloring the restoration. Made from Hu-Friedy's exclusive Immunity Steel® for longer life, XTS instruments can be cleaned and sterilized by any method.

The exclusive Aluminum Titanium Nitride coating creates an extremely hard, smooth surface that resists scratching and sticking. The unique black finish offers enhanced contrast between the instrument, tooth structure and composite material. In addition, XTS instruments feature a smooth, large, lightweight handle design. This handle allows for quicker, easier cleanup, maximum comfort and improved control with less hand fatigue.

XTS instruments are available in an extensive assortment of designs for all composite placement needs. Hu-Friedy also offers Satin Steel XTS instrument kits – Anterior and Posterior. Each kit consists of five specially designed instruments for placing, condensing and carving of composite materials.



www.hu-friedy.com



FIBER OPTIC

Symmetry IQ

MULTI-FUNCTIONAL PIEZO DEVICE



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Fiber-optic lighting enhances visibility, reduces eye strain and helps maintain a neutral body position.

A Multi-Functional Piezo Device with **Touch-pad controls** and a **memory feature** for more efficient patient treatment.

Piezo Scaling Tips



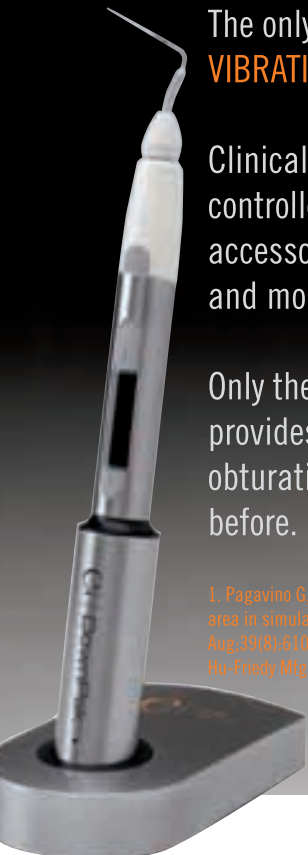
Introducing the DownPak

The only **CORDLESS** Obturation Device that combines **VIBRATION** and **HEAT** for a complete **3-DIMENSIONAL FILL**.

Clinical studies prove that the combination of precisely controlled heat and vibration fills primary root canals, accessory canals and surface irregularities more completely and more homogeneously than systems using only heat.¹

Only the DownPak device with 3D Precision™ Technology provides this exclusive pairing of heat and vibration, making obturation simpler, faster, and more predictable than ever before.

1. Pagavino G, Giachetti L, Nieri M, Giuliani V, Scaminaci Russo D. The percentage of gutta-percha-filled area in simulated curved canals when filled using EndoTwin, a new heat device source. Int Endod J. 2006; Aug;39(8):610-5. ©2007 Hu-Friedy Mfg. Co., Inc. All rights reserved. HU-FRIEDY is a trademark of Hu-Friedy Mfg. Co., Inc., registered in the USPat&TMOff.



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MICRO-MEGA taken over by a German Dental Manufacturer



In 2006, Dr Martin Rickert took over SycoTec GmbH, after splitting away from the Kavo group (Biberach / Germany), specialized in high-tech drive technology and maintenance devices for dental equipment. Now, this dental market expert widens his core business with the purchase of MICRO-MEGA, a French traditional company. Both SycoTec and MICRO-MEGA will be more attractive to their customers of the dental field. For Dr Martin Rickert, the take-over of MICRO-MEGA is part of a development strategy for both firms and for the stabilization of the Besançon company counting around 200 employees.

About SycoTec:

The high-tech company SycoTec, based in Leutkirch / Allgäu comes from the company EWL of the Kavo group. For more than 50 years and on the same premises, this company of 350 employees develops and manufactures drive and device solutions for industrial and medical.

About MICRO-MEGA:

In 1907 MICRO-MEGA manufactured its first nerve broach. Until today, this company has enjoyed a good international reputation as a dental instruments specialist. The founder's family was looking for an industrial buyer well established in the dental market and with an industrial and sale strategy in which MICRO-MEGA would have its place. Indeed, maintaining the premises in Besançon was essential for the founder's family.

MICRO-MEGA has more than 200 employees and has its headquarters in Besançon.

www.sycotec.eu / www.micro-mega.com

Triodent Opens new Innovation Center in Katikati

Recently the Prime Minister of New Zealand, John Key, opened Triodent's new Innovation Center in Katikati and met Dr Al-Atroushi, Middle East Manager for Triodent, maker of the V3 Sectional Matrix System. The Prime Minister was especially interested to discuss how Dr. Al-Atroushi was able to assist Triodent in establishing markets for products in the Middle East.



Triodent's products have won many dental industry awards, especially in the United States. The V3 is the top matrix system according to The Dental Advisor and Reality, while the Wave-Wedge and TrioTray are also current top products.

The business has also won many awards. This year Triodent won the New Zealand International Business Award for Research and Development, and the American Chamber of Commerce Award for Exports to the United States. Last year Triodent was New Zealand's fastest-growing manufacturer, with a growth rate of 340% averaged over three years.

Triodent distributors in the Middle East are Arab Medical and Scientific Alliance Shocair (Syria, Palestine, Jordan and Lebanon), Dubai Medical Equipment (United Arab Emirates, Oman and Qatar), Kazemeini Trading (Iran), Issam Bureau Group (Iraq), Extra Care (Egypt) and Practice Smart Dental Supplies (Saudi Arabia).

www.triodent.com

FKG Dentaire Indicator of wear on endo hand instruments

The SafetyMemoDisc (SMD) system, originally on FKG RaCe rotary NiTi instruments, is a success. FKG Dentaire applied the same concept to stainless steel hand files which is called SafetyMemoGrip (SMG).

The information on the number of uses/sterilisations is recorded all along the file life.

Practitioners will scratch one or more petals off after each use – depending on the effort on the blade and the canal curvature. The remaining petals indicate how many more times the instrument can be used.



SafetyMemoGrip at the back of the new handle

www.fkg.ch



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Benefits of COREGA denture Fixatives:

- Forms a protective cushion to keep irritating food particles out
- Increases the bite force up to 5 times even for well fitting dentures
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- Eliminates 99.9% of the odour causing bacteria
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“New Perspectives...”

Beirut, Lebanon / 23 – 26 September 2009

Venue: Congress Palace, Dbayeh

Attendees: more than 1200



Prof. Mounir Doumit & Dr. Antoine Karam



Arab delegates



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Email: ace@cedra-group.com





6th Annual Meeting

“*Esthetic Objectives - Achievements and Potentials*”

Paris, France / 25 – 27 September 2009

Venue: Hotel Pullman - Rive Gauche

Speakers: 20

Attendees: 200

Exhibitors: 15



Dr. Wolfgang Richter, President of ESCD & Miss Solange Sfeir



Mr. Joel Fuentes



Workshop by Dr. Ajay Kakar



DMG-Hamburg



Dr. Fay Goldstep lecturing



Shofu



Made In Labs



Lecture room



Memorial picture

WAMkey® Drill, Twist, The crown is out....!



Speed:

Simply, WAMkey helps you to remove a crown in 1 to 2 minutes. The temporary or permanent reuse of the prosthesis will save your precious time. In addition, eliminating the need to cut through the entire crown will increase the life of your burs and contra-angles.



Delicacy:

Classical methods for crown removing generate fracture risks. Surprisingly, the pressure applied to the supporting tooth by the WAMkey is progressive until the crown is removed. The use of WAMkey is completely painless without the use of anaesthesia.



Preservation of the crown:

The essential parts of the prosthesis (cervical margin, occlusal surface and contact points) are preserved. Thus the prosthesis can still preserve its function with a simple filling or could be repaired by the technician. A temporary or permanent re utilization of the prosthesis is possible.



Interested to be a distributor in one of the Middle East or Gulf countries?

solange.dfeir@wamkey.com

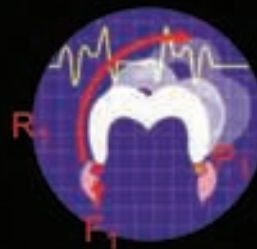
Even when you are not planning to reuse the crown, it is always faster and safer to remove it with WAMkey than to cut it.

THEY SAID ABOUT IT

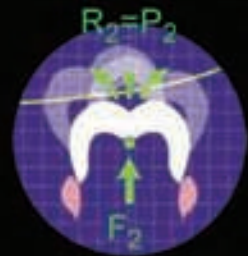
*Absolutely brilliant product !
Has saved my life !*
Dr Jerry WATSON - STANFORD (United Kingdom)

*Very Fast! Crown can be used as temporary.
Saves a lot of time and energy !*
Dr Sabine KUSCHE (endodontist) WARBURG (Germany)

*Fantastic product !
Very predictable. Had no problems with taking off crowns neatly since WAMkey !*
Dr ODEYEMI - London (United-Kingdom) 2008



With the conventional crown remover



With WAMkey

With the conventional crown remover
The abutment is under serious fracture risk. A major part of the energy is lost in the periodontal ligament, this explains the weak efficacy of all pulling instruments, and the pain that the patient feels.

With WAMkey
The prosthesis freely chooses its path of removal, thus the necessary forces are minimal and the fracture risk is inexistent.

Wamkey is a French concept that is adopted by numerous European and North American Dental Schools

38th Congress of Arab Dental Federation & 17th International Scientific Congress of Syrian Dental Association

Damascus, Syria / 14 – 16 October 2009

Venue: Ommayad Palace for Congress, Damascus-Ebla

Speakers: 126

Attendees: more than 2800

Exhibitors: more than 70



Arab delegates



Dr. Omar Bahgat at Chatta Dental Supplies booth



Mr. J-P. Treyvaud at Bakdounis For Dental Equipments booth



Mr. Luca Vaccari & Ms. Silvia De Stefani at Kayali booth



Miss Solange & Mr. Patrick Olibet (Anthogyr)



Eng. Houssam Jurdi (W & H)



Mr. Imad Najjar & Prof. Ali Jbara



Cedra Group Of Companies



Dr. Pierre Salloum



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MAIN SPEAKERS



Dr. Ronald Goldstein

Lectures:

- The Essential Elements in Smile Design
- The changing Face of Esthetic Dentistry
Limited Course
- Maximizing your Artistic Talent in Esthetic Dentistry



Prof. Franklin Tay

Lectures:

- The Limitations of dentin bonding and experimental methods in increasing the longevity of resin-dentin bonds
- Oburation with methacrylate resin based sealers: Four Weddings and a Funeral



Prof. Harold Preisack

Lectures:

- Knowledge comes, but wisdom lingers
- The Overdenture: Prosthodontic Haven or Honey Trap
Limited Course
- Milestones in Prosthodontics



Prof. Allan Farman

Lectures:

- Digital imaging in the dental office
- Cone beam Tomography: Uses in Implantology and Endodontology
Limited Course
- Case studies in Cone Beam Computed Tomography



Dr. Charles Fleir

Lectures:

- Cellular therapies for craniofacial regeneration
- Craniofacial regeneration strategies - for signaling and nanostructured materials to delivery system



Dr. Nelson Rhodes

Lecture:

- **Limited Attendance Course**
- Oral Cancer Early Detection: Improving Outcomes



Dr. Ronald Glauser

Lecture:

- Minimally Invasive Implant Surgery



Dr. Jose Ignacio Garberena

Lecture:

- Predictable Esthetics on teeth and implants



Dr. Andreas Kurbad

Lecture:

- Predictable Esthetics with all ceramic restorations

الرياض، مركز الملك فهد الثقافي، 24 - 26 صفر 1431 هـ
RIYADH, KING FAHED CULTURAL CENTER, FEB 8 - 10 2010

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Professor Kifah Jamani
Dean, Faculty of Dentistry
University of Jordan



Professor Mounir Doumit
Dean, Faculty of Dentistry
Lebanese University



Dr. Barakat Ja'bari
President, Jordan Dental Association
General Secretary, Arab Dental Federation

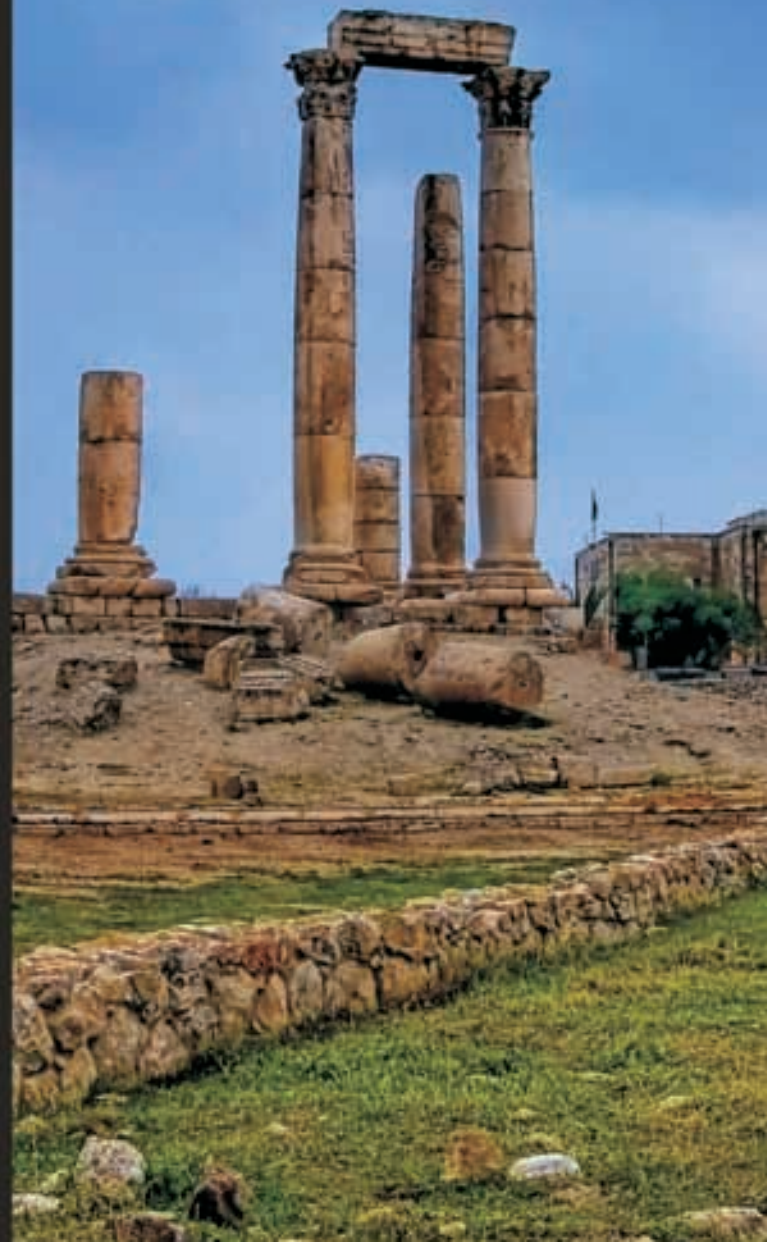


المؤتمر الأردني الثاني والعشرون لطب الأسنان

The 22nd Jordanian Dental Congress

March 30th - April 2nd, 2010
Le Royal Hotel, Amman - Jordan

www.jda.org.jo



Amman, Jordan / 19 – 22 October 2009

MidEast Medical / Pharmaceutical International Comprehensive Exhibition 2009



VIP officials & guests at the opening of the exhibition



Royal Medical Services representatives



During one of the lectures



ALBA Medical Supplies, STERN WEBER representatives



Participants enjoying Dabka dance



Dr. Ra Jobari; President, Iraqi Dental Association & Miss Solange



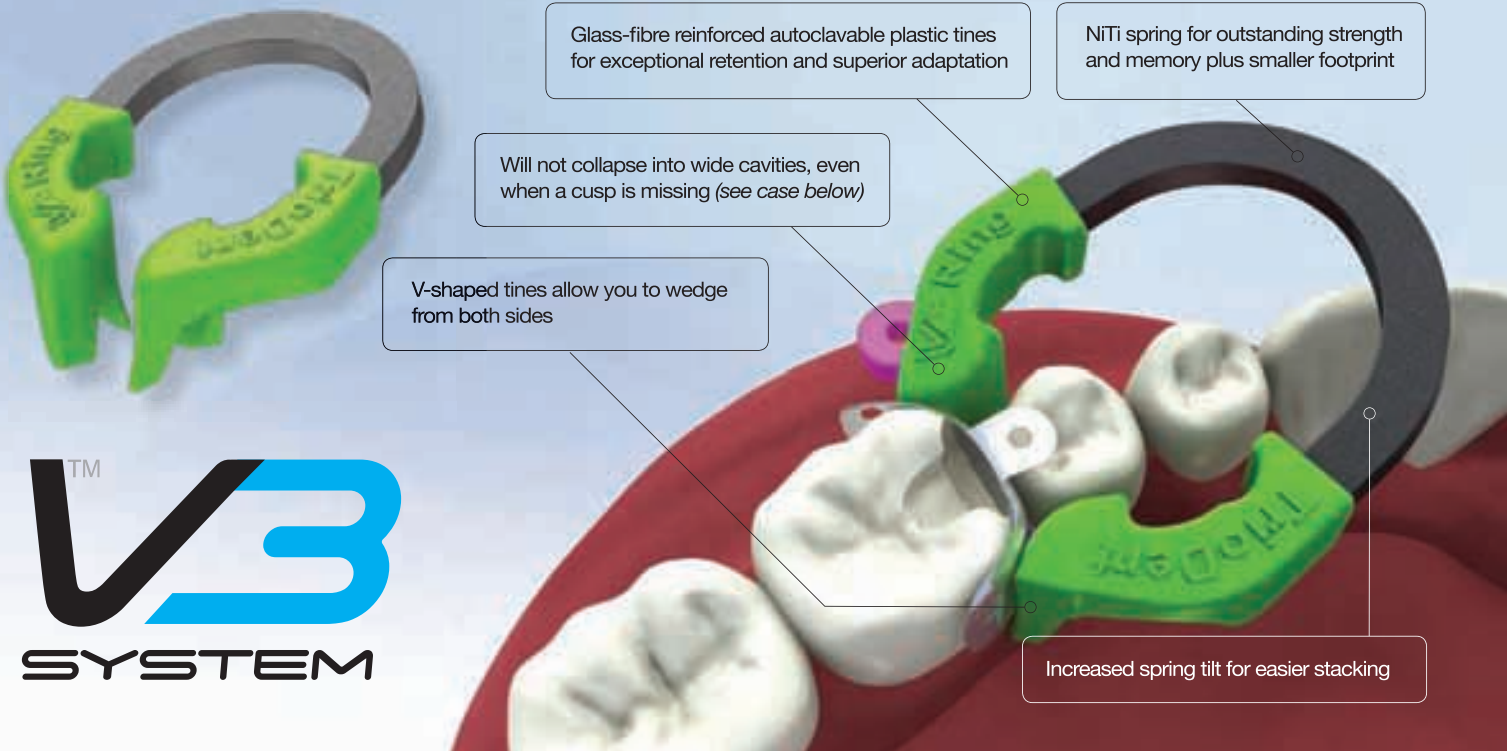
Gala dinner (Friadent Course)



Friadent course certificates

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Case kindly submitted by **Dr Graeme Milicich BDS**



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Kazemeini Trading (Iran), **Issam Bureau Group** (Iraq), **Extra Care** (Egypt)



5th Bahrain Dental Society Conference



Arab delegates

Manamah, Bahrain / 27 – 29 October 2009

Venue: Isa Cultural Center

Speakers: 43

Attendees: 300

Exhibitors: 13



Dr. Abdel Hay Al Awadi; Representative of the Minister of Health of the Kingdom of Bahrain & Dr. Rajaa Kadhem; President of Bahrain Dental Society



Dr. Rajaa Kadhem & Dr. Ma'moon Salhab; Director of Smile



Opening ceremony



Dr. Barakat Al-Jobari; President of JDA



Winner of Best Poster Prize; Miss Aysha Mohammad



VIP guests with Dr. Khaled Al-Turki



Dr. Hammo, Dr. Abutteen, Dr. Oudhah, Dr. Jallad, Dr. Rashdan & Dr. Salhab



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& 1st Pan Arab 2nd Endodontic Conference

Amman, Jordan / 03 – 05 November 2009

Venue: Landmark Hotel, Amman

Speakers: 16

Attendees: 400

Exhibitors: 16



Dr. Ibrahim Abu Tahoun, Dr. Barakat Al-Jabari & Dr. Nayef Younes



Mr. Malek, Miss Sfeir, Mr. Badoz, Dr. Bahgat & Mr. Hakeem



Prof. Pierre Machtou (2nd left) with Dentsply representatives



Dr. Mike Byrom lecturing (BioEden UK)



Acteon representatives at Basamat Pharmadent booth



Mr. Jean-Pierre Treyvaud & Mr. Carlos Lafuente (FKG)



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1st Aesthetic Dentistry MENA Awards

Dubai, UAE / 05 November 2009

Winners

Conservative Best Case

- 1st Place: Lamberto Villani, Oral Design Laboratory, Dubai
- 2nd Place: Dr. Michael Ziegler, American Dental Clinic Dubai
- 3rd Place: Dr. Michael Ziegler, American Dental Clinic Dubai

Orthodontic Best Case

- 1st Place: Dr. Edgard Irany, Al Zahra Private Hospital, Sharjah
- 2nd Place: Dr. Mazen Hamadi, Ghoudousi Medical Centre, Dubai
- 3rd Place: Dr. Vishwanath Kedilaya, NMC Hospital, DUBai

Prosthodontic Best Case

- 1st Place: Dr. Ajay Juneja The Dental Studio, Dubai
- 2nd Place: Prof. Jean-Marie Megarbane, Lebanon
- 3rd Place: Dan Stenkilsson, Middle East Dental Laboratory

Charity Best Case

- 1st Place: Dr. Dushan Motwani Al Musalla Medical Centre
- 2nd Place: Dr. Muhammad Sherani, Munir Shaheed Dental Clinic
- 3rd Place: Dr. Sanaz Soheilifar, Hamdan, Iran

Implantology & Red Aesthetic Best Case

- 1st Place: Dr. Angela Husung, German Dental Clinic Dubai
- 2nd Place: Dr. David Rose, Drs. Nicholas & Asp, Dubai
- 3rd Place: Prof. Jean-Marie Megarbane, Lebanon

Facial Reconstruction Best Case

- 1st Place: Dr. Ali Jameel, Iraqi Dental Association
- 2nd Place: Dr. Joseph Kamal Muhammad, Rabha Hospital
- 3rd Place: Dr. Vishalakshmi Sunethra, Rashidiya Private Polyclinic



Organizers & members of the Jury



Dr. Dobrina Mollova



Memorial picture



Dr. Munir Silwadi



Announcing the winners



Jury members



Sirona Group



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Dubai, UAE / 06 - 07 November 2009

Venue: Jumeirah Beach Hotel

Speakers: 16

Attendees: 715

Exhibitors: 25



Dr. Aysha Sultan & Dr. Mollova with Iraqi delegates



Dr. Wolfgang Richter & Dr. Munir Silwadi



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Sirona representatives; Platinum Sponsor



GSK representative receiving the trophy



Memorial picture with Iranian delegates



Mr. Flavio Moscardi (Dento ex)



3M ESPE representatives



Dubai Medical Equipment stand



Mr. Alfred Bauer (DeguDent)



Prof. Abbas Zaher lecturing



Dr. Tardieu (Photography course)

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1st Qatar Health 2009 &

Qatar International Dental Conference

Doha, Qatar / 13 – 15 December 2009

Venue: Doha Exhibition Center

Speakers: 12

Attendees: 250

Exhibitors: 15



Dr. Mohammed Al-Darwish; President, Qatar Dental Society



Arab delegates



Smile Team & Dr. Naeema Al-Wakeel (Colgate)



Dr. Ehab Heikal (Morita) & Dr. Amro Adel (Sirona)



Mr. Zudi Al Jaouni (Ali Bin Ali)



Dr. Medhat Abdalla lecturing



Prof. Abdullah Al Shammery



Mr. Ziad Najdawi & Mr. Hisham Tinaoui (Cesca)



During a tour in the exhibition



Exhibition view

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Congress of
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12-15 January 2010
Olympic Hotel
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Clinical Approach in New Dental Findings

Clinical Panels

- 1-The ways to a Successful Endodontic Treatment.
- 2- Biomaterials in Endodontics: MTA, NEC (Nobel Endodontic Cement)
- 3-Diagnostic Benefits of CBCT in Dental Implantology
- 4-Selective Grinding in Complete Dentures, Before and After Curing
- 5-Composite Veneers: Design and Applications
- 6-Achievements in Performing a Triumphant Crown Lengthening
- 7-Impacted Wisdom Tooth Surgical Removal; from a Perfect Flap to Delicate Final Sutures
- 8-In office Behavioral Management of Pediatrics
- 9-Soft Tissue Surgery in Aesthetic Dentistry
- 10-All you need to know about All-Ceram Prosthesis

Workshops

- 1-Porcelain Laminate Veneer Preparation
- 2-A Walkthrough among all Endodontic Rotary Systems available
- 3-Esthetically Acceptable FRC Bridges; Step by Step Instructions.
- 4-Anterior Direct Composite Veneers; A Minimally Invasive Restorations Techniques.
- 5-Dental Implants; Prosthetic aspects, Impression techniques on alveolar models.
- 6-Overview on Different Obturation Techniques
- 7-Where and How to Apply SM, SS-crown and T-band in Pedo-patient; preparation on cast

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Students	120 Euro	180 Euro	220 Euro	80 Euro

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Volume 25, No. 1
Jan-Feb, 2008



Outstanding Product
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Joint Meeting

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& Accademia Italiana di Ortodonzia

January 21 & 22
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Cairo - Egypt

2010



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UAE International Dental Conference & Arab Dental Exhibition



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Do you suffer from dry mouth?



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Visit www.biotene.com to learn more about dry mouth.

Time to talk about dry mouth?

Dry mouth is an increasingly common condition, primarily related to disease and medication use. In fact more than 400 medicines can cause dry mouth¹ and the prevalence is directly related to the total number of drugs taken.²

Ask your patient

Some patients develop advanced coping strategies for dealing with dry mouth, unaware that there are products available that can help to alleviate the symptoms, like the biotène system.

Diagnosis may also be complicated by the fact physical symptoms of dry mouth may not occur until salivary flow has been reduced by 50%.³

Diagnosing dry mouth

Four key questions have been validated to help determine the subjective evaluation of a patient's dry mouth:⁴

- 1 Do you have any difficulty swallowing?
- 2 Does your mouth feel dry when eating a meal?
- 3 Do you sip liquids to aid in swallowing dry food?
- 4 Does the amount of saliva in your mouth seem to be too little, too much or you do not notice?

Clinical evaluations can also help to pick up on the condition, in particular:

- use of the mirror 'stick' test - place the mirror against the buccal mucosa and tongue. If it adheres to the tissues, then salivary secretion may be reduced
- checking for saliva pooling - is there saliva pooling in the floor of the mouth? If no, salivary rates may be abnormal
- determining changes in caries rates and presentation, looking for unusual sites, e.g. incisal, cuspal and cervical caries.

Consequences of unmanaged dry mouth include caries, halitosis and oral infections.

Saliva's natural defences

Saliva's natural defences contain a mixture of proteins and enzymes, each of which plays a specific role:⁵

Protein:

- lactoferrin – chelates iron. Deprives bacteria of iron, which is essential for bacterial growth.

Enzymes:

- lysozyme – disrupts cell walls of bacteria, resulting in cell death
- lactoperoxidase – synthesis of hypothiocyanite, a potent antimicrobial agent.

The biotène patented salivary LP3 enzyme system

The biotène formulation supplements natural saliva, providing some of the missing salivary enzymes and proteins in patients with xerostomia and hyposalivation to replenish dry mouths.

The biotène system allows patients to choose the right product to fit in with their lifestyles:

- relief products - Oral Balance gel.
- hygiene products - toothpaste and mouthwash.

The range is specifically formulated for the sensitive mucosa of the dry mouth patient:

- alcohol free
- SLS free
- mild flavour.

The biotène formulation:

- helps maintain the oral environment and provide protection against dry mouth
- helps supplement saliva's natural defences
- helps supplement saliva's natural antibacterial system - weakened in a dry mouth.



GSK welcomes biotène to its oral care family

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leaders in dry mouth treatment

1. Evison JW. 'Xerostomia'. Periodontology 2000. 48: 85-91. 2. Sreebny LM, Schwartz SS. 'A reference guide to drugs and dry mouth - 2nd edition'. Gerodontology 1997. 14: 1, 33-47. 3. Dawes C. 'How much Saliva is Enough for Avoidance of Xerostomia?'. Caries Res 2004. 38: 236-240. 4. Fox PC, Busch KA, Baum BJ. 'Subjective reports of xerostomia and objective measures of salivary gland performance'. JADA 1987. 115: 581-584. 5. Tienhuu J. 'Clinical applications of antimicrobial host proteins: lactoperoxidase, lysozyme and lactoferrin in xerostomia: efficacy and safety'. Oral Disease 2002. 8: 23-29.

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All KOS & KOS A (and BCS) implants may be equipped with "angulation adapters". These adapters are cemented or glued onto the original implant head and help to overcome differences in the direction of insertion of 15 or 25 degrees. Implant analogues for these adapters are available

The KOS concept allows the implantologist to treat virtually all cases without bone augmentations, a tremendous advantage compared to tradition two-piece systems requiring more width of bone

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