FDA says mercury dental fillings not harmful

But Susan Running, acting director for the FDA division that oversees dental devices, said there was no “causal link” between amalgam fillings and health problems. “The best available scientific evidence supports the conclusion that patients with dental amalgam fillings are not at risk,” she told reporters on a conference call. Over the past 20 years, the agency has received just 141 reports of problems in patients with the fillings, she added.

Green tea may help reduce periodontitis

A recent research shows that green tea, the most popular beverage worldwide, may help reduce periodontal disease. Green tea refers to a variety of tea that has during its processing undergone minimal oxidation, & hence contains good amounts of antioxidant chemicals. In India, tea is consumed mostly in the CTC (cut, tanned and cured) form that brings out strong flavors and color but loses out on the content of antioxidants such as polyphenols. These are chemicals that are currently under intense research for their cardiovascular, anticancer and anti-aging properties. Polyphenols, notably catechin, are believed to be responsible for most of these claimed health benefits. Lead investigator of this study, Dr. Yoshiro Shimazaki of Kyu-shu University, Fukuoka, Japan, said, “Few previous studies suggest that green tea polyphenols inhibit the growth and cellular adherence of periodontal pathogens and production of virulence factors by these pathogens.” Increasing trend of green tea consumption prompted her team to conduct this epidemiological study that shows a modest inverse association between the intake of green tea and periodontal disease, but the relationship was found to be weak. Adding caution, she further added, “Therefore, I think that it is difficult to prevent periodontal disease only by drinking green tea and that conventional oral care is the most important”. This study, however, did not confirm the mechanism of green tea providing this benefit.

Brooke Bonds, the leading tea company in India has recently released its green tea in the market fueling speculation on the increasing demand for this tea in the coming years.

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IPS
To commemorate the world oral health day, Indian Dental Association (IDA), announced the launch of Tobacco Intervention Initiative and Women Dental Council

Dr. Meera Verma, Vice Chair person of WDC said, “The WDC would take initiative in promoting the general and oral health of women and children.” “A lot of women dentist have come forward and have expressed their desire to be part of the body to attain the vision of WDC” she added.

Women Dental Council of IDA was conceptualized and inaugurated during the Nagpur, IDA annual conference in Feb 2009. The launch programme of the WDC in Northern India was held on September 12, to coincide with the oral health day.

The guest of honor at this function Dr. Kiran Bedi, after finding that in the present governing body of IDA there were few women office bearers, prevailed on the general secretary of IDA, Dr. Ashok Dhole, to commit reserving 50% of such posts only for women dentists in future. She felt, was the necessary first step for IDA to show its seriousness about the formation of WDC. Dr. Kiran Bedi is a well known social worker who has received the Magsaysay award for her contributions, and was adjudged the most admired woman in India in 2002. She also hosts a popular TV show on family disputes that helps raise public awareness to the legal solutions of such conflicts.

Acknowledging the sizeable presence of female dentist members, the Indian Dental Association (IDA), on the occasion of World Oral Health Day, raised the curtains to the formation of Women Dental Council (WDC) under its wings, with the purpose to provide them with an official platform to air their views and address their unique concerns. The need for such a step has been building up for quite sometime considering the fact that, today almost 80 percent of the dentists graduating from 240 colleges are women. Dental associations from US, UK, and Singapore already have similar official bodies in existence that represent female dentists.

Dr. Sabita Ram, chairman of WDC, on this occasion, outlining the main objectives said, “the mission behind this initiative is to create maximum working opportunities for women dentists, and to understand their unique requirements and addressing them. Given the current challenges that face women dentists who struggle keeping a balance between career and family in a constantly changing work environment, the WDC will act as a vehicle providing help ranging from finding jobs to setting-up practices, while simultaneously looking into the gender issues involved.”

On the World Oral health Day, the Indian Dental Association (IDA) launched an ambitious awareness program, Tobacco Intervention Initiative (TII), by pledging to engage its member dentists to sensitize their patients to health hazards of tobacco consumption, and help quit the addiction. The program is voluntary and interested dentists need to receive structured training at the designated centers before they can offer this free-of-cost service to their patients.

Dr. Ashok Dhole, secretary-general, IDA said, “For dentists to start TII centers in their practices, they would first need to undergo training by experts on how to assist patients overcome nicotine dependence through a certificate program.” “In this, a TII centre kit consisting of technique manual kit and CD, patient education CD and brochure, and a poster on patient education would be provided to each attendee,” he added. A TII website is also slated to come nicotine dependence and heart problems that can be linked directly to the abuse of tobacco. According to the third National Family Health Survey, a whopping 57% of males and 11% of females use nicotine in some form. The problem is more worrisome amongst young people between 17-22 years, almost half of whom are in the habit of having tobacco. Interestingly, almost 50% of tobacco is consumed in a chewable form along with betel leaves and lime, which, in certain regions of India, has resulted in highest rates of oral cancer in the world.

Government of India plans to initiate a nation-wide tobacco control program that will aim to discourage use of this product as well as encourage farmers to shift to non-tobacco crops in its 11th 5-year plan. In this direction, the health ministry recently was able to make it legally mandatory to display graphic warning in large-fonts on all the tobacco products, after battling stiff resistance from the pro-tobacco groups for several years. Smoking at all public spaces and offices is already prohibited in India. But, despite all such efforts, tobacco consumption continues to rise in India, while a reverse trend has been achieved in the western world. With such an enormous public health challenge to cope with, TII by dentists is one more effort to gather against tobacco, and the tangible gains of this initiative will only be known later.

In India, each year almost 900000 people lose their lives due to cancers (oral and lung), and chest and heart problems that can be linked directly to the abuse of tobacco. According to the third National Family Health Survey, a whopping 57% of males and 11% of females use nicotine in some form. The problem is more worrisome amongst young people between 17-22 years, almost half of whom are in the habit of having tobacco. Interestingly, almost 50% of tobacco is consumed in a chewable form along with betal leaves and lime, which, in certain regions of India, has resulted in highest rates of oral cancer in the world.
STA System keeps patients comfortable — even during the injection itself

Fred Michmersruitzen

SAN FRANCISCO, CA, USA: When it comes to getting from here to there, who wants to ride around in a horse and buggy? And when it comes to delivery of anesthetic before a dental procedure, who wants to use 160-year-old technology? Milestone Scientific, with its Single Tooth Anesthesia (STA) System, is changing the way local anesthesia is being delivered today.

You can set aside that scary syringe — which frightens patients and causes undue stress — and instead pick up a small handpiece and needle that you hold in your hand like a pen. Because the injection is administered below the pain threshold, your patient will be more comfortable.

According to Dr Eugene R. Casagrande, director of international and professional relations at Milestone Scientific, who spoke with Dental Tribune during the recent CDA meeting, the Dynamic Pressure Sensing (DPS) technology used by the STA System guides the dentist to the correct spot to give a comfortable and successful intra-lingual injection.

The system provides continuous visual and audio feedback, so the dentist knows when the needle has left the correct site or if the needle is blocked.

The STA System is also quite versatile. Casagrande says that despite the device’s name, STA System is not just for treating one tooth at a time. Any injection delivered with the traditional dental syringe can be administered more comfortably and more easily with the STA.

Two new, state-of-the-art palatal injections — the AMSA and the P-ASA — can be administered using the STA System in a comfortable manner to anesthetize multiple teeth and related tissue. Also, an interlignamental injection that is different from the traditional PDL can be administered easily, comfortably and successfully.

There are also benefits for the patient, who is able to have a more comfortable experience, and to the practice itself.

“I call it a win-win-win,” says Casagrande. “It is a win for the dentist because injections are very easy and stress-free to administer. It is a win for the patient because injections are more comfortable, and there is no collateral numbness to the lips, face or tongue. And it is a win for the practice because the STA System affords an efficiency factor that can result in increased productivity.”

As Casagrande explains, a patient can be treated in multiple quadrants without having to return for multiple visits. Even better, he says, it is not uncommon for patients to refer others to a particular dental practice because they are pleased with the way they are treated with the STA System.

“Patients appreciate the fact that dentists who use the STA are going out of their way to make the most difficult and important part of the dental experience as comfortable as possible,” Casagrande.

That conclusion counters a statement the agency made last June that the fillings may cause health problems in pregnant women, children and fetuses. The FDA’s decision could impact makers of metal fillings, which include Dentistry International Inc and Danaher Corp’s unit Kerr, as well as distributors such as Henry Schein Inc and Patterson Cos Inc.

According to the American Dental Association (ADA), about 50 per cent of fillings given to patients are mercury-filled, with a growing number of patients instead opting for lighter, tooth-coloured options such as resin composites. The ADA, which represents the dental industry, backed the FDA’s decision not to restrict mercury fillings, saying alternatives are also considered “moderate risk” by the FDA.

“The FDA has left the decision about dental treatment right where it needs to be — between the dentist and the patient,” ADA President Dr John Findley said in a statement. But Charlie Brown, a lawyer for Consumers for Dental Choice, said poorer people or those who receive their health care through large institutions such as the US military are more likely to receive the cheaper, silver-coloured fillings and are at greater risk for harm.

“Most consumers, and most dentists, have already switched to the main alternative, resin composite,” said Brown, whose group was part of the lawsuit settlement last June that called on the agency to issue more specific rules. His group is now weighing its legal options, he said. Moms Against Mercury President Amy Carson said she was disappointed in the FDA’s reversal. Her group, along with several others, filed a new petition with the FDA on Tuesday, again calling for a ban on mercury fillings, she added.

(Edited by Daniel Zimmermann)
DT Asia Pacific does well in readers poll

Dentists in Asia find Dental Tribune Asia Pacific to be highly up-to-date & applicable to their practice, a readers poll conducted at the FDI World Dental Congress in Singapore has revealed. More than 85 per cent of those interviewed said that they would recommend the newspaper to a colleague. Topics readers were most interested in were science & research (24%), followed by world news (21%) & news from Asia (20%).

According to the poll, readers would also like to read more about restorative dentistry, practice management, as well as paediatrics & special needs dentistry. Dental Tribune Asia Pacific was one of the first local editions published by the Dental Tribune International (DTI) media group. The first edition appeared in April 2002. Meanwhile, the newspaper reaches over 50,000 dental professionals in 25 countries including Singapore, Malaysia, Hong Kong, the Philippines and Australia, to name a few. Their office is based in Hong Kong and Leipzig in Germany.

In the last five years, DTI has grown from a rather small endeavour to a significant global publishing network. At present, DTI—with headquarters in Leipzig, New York, and Hong Kong—has publishers and editors in more than 20 countries that deliver the latest news & trends in dentistry to over 600,000 professionals worldwide. Local issues of DTI publications are currently available in all relevant markets, including Germany, the UK, Italy, Russia, China, Japan, the US, France and India.

New organisation makes dentists ‘conebeam-ready’

The International Cone Beam Institute is a new independent organisation of cone-beam computed tomography (CBCT) experts that aims to provide the highest level of education, training & product information for 3-D technology to dental professionals worldwide.

As a vendor-neutral organisation, it is an industry first for a company to provide information to dental professionals, future imaging centres and vendors at an international level. General information, such as the various cone-beam scanners available in the US & international markets, as well as general information on available third-party software, will be available to everyone without charge. ICBI also provides in depth and customised vendor analysis to help practitioners understand this comprehensive technology.

Members of ICBI’s website (www.exploreconebeam.com) are able to review case studies & gain advice from CBCT experts. They also have access to special consulting services, online training and training seminars. In addition, ICBI offers a connection to oral maxillofacial radiologists who can provide reading services to aid in the interpretation of CBCT scans. The organisation also has a blog where users can exchange case studies, ideas and techniques regarding capturing the highest quality images. The International Congress of Oral Implantologists, the world’s largest implant education organisation, fully endorses the ICBI. Partners of ICBI include Dental Tribune International and the Dental Tribune Study Club.
Cone Beam CT the change of paradigm in modern dentistry–clinical applications in endodontics and periodontology

By Prof. Dr. Liviu Steier

Panoramic radiography changed the paradigm of diagnosis when introduced in the early 1960s. The limitations of two-dimensional radiography are:
1. Magnification,
2. Distortion,
3. Superimposition,

Due to this the use is and was limited

Cone beam technology (CBCT) is a recent introduced technology in dentistry which succeeded to change and continues to change diagnosis, treatment indication and treatment approach– having as such a more comprehensive impact than the introduction of panoramic radiography. Of course on the most impressive topic is the availability of software for 3D– reconstruction.

It is of great importance to mention that CBCT provides data at lower cost and absorbed doses than conventional CT. The author has resumed this article for the purpose of demonstration how CBCT helped tremendously to routine dental practice.

1. Use of CBCT in endodontics
2. CBCT in periodontics

1.1 CBCT and soft tissue

In 2008 Januario et al published in the Journal of Esthetic Restorative Dentistry (J Esthet Restor Dent 20: 566-574, 2008) a paper called: ‘Soft Tissue Cone Beam Computed Tomography: A Novel Method for the Measurement of Gingival Tissue and the Dimensions of the Dentogingival Unit’. In this paper, the authors described a simple method to diagnose the thickness of the gingiva especially in the anterior aesthetic zone. The scans were performed with an iCAT (Imaging Science International, Inc., Hatfield, PA; USA). The authors positioned the subject for the scan wearing a plastic lip-retractor.

A 28-year-old female patient was referred to our practice for evaluation and treatment planning of the periodontal status. No special remarks regarding medical or dental history. The patient has undergone orthodontic over a couple of years. The patient was referred for the completion of the diagnostic to take a CBCT at CTDent (2 Devonshire Place, W1G 6HJ, London, see also www.ct-dent.co.uk). The CBCT confirmed the preliminary diagnosis. A treatment plan has been elaborated.

2.2 CBCT and hard tissue

Vandenbergh and coworkers researched periodontal bone architecture using 2D CCD and 3D full-volume CBCT-based imaging modalities.

Their investigation concluded that CBCT offered a significant benefit over conventional radiography. The authors concluded that CBCT can be used to diagnose the bony support as well as surrounding soft tissue and may reveal valuable information for example regarding furcation involvement. A 55 old human patient was referred to our practice for evaluation, treatment planning and execution. Of major concern was the first upper molars. After performing the routine diagnostic approaches such as ROP, periodontal probing, etc, the patient was referred to CTDent for a CBCT.

Summary

Information provided by this modern technology represents an invaluable milestone in diagnostic, treatment planning as well as evaluation of treatment outcome specially for periodontal applications, especially in the areas of intrabony defects, dehiscence and fenestration defects, and periodontal cysts, and in the diagnosis of furcation-involved molars.

Conclusion

1. For periodontology, CBCT proves to be superior to 2D imaging for the visualisation of bone topography & lesion architecture as well as for the covering.

2. For endodontics CBCT seems to be the most promising applications for diagnosis, treatment planning and treatment evaluation.

CBCT images and 3D reconstructions allow for visualisation and exact measurement of dimensions. Diagnosis built on the combination of clinics and CBCT are a reliable aid in planning and execution of simple as well as advanced dental procedures.

References are available on request.

About the author

Dr. med.dent. Liviu Steier is a visiting professor at the School of Dental Medicine in Florence, visiting professor at Tufts School of Dental Medicine on its endodontic postgraduate programme; and an honorary clinical associate professor at Warwick Medical School. He is a registered specialist in endodontics (GDC) and specialist funder for Prosthodontics (www.dgpw.de). He can be reached at Steier@medi-dentistry.co.uk
Four ways to increase case acceptance

Roger Levin, DDS

‘A pessimist sees the difficulty in every opportunity; an optimist sees the opportunity in every difficulty.’
—Winston Churchill

Everyone wants new year to be better than last one. Well, here’s how: improve your system for presenting treatment to patients — especially larger need-based and elective cases. When I say that to dentists at my Total Practice Success™ seminars, a few attendees will inevitably respond, “I’m doing everything I can, but nothing seems to work. About the same percentage of patients accept treatment year-to-year no matter what I do.”

This is when I start asking questions about their case presentations:

• Is your team involved? Does your hygienist regularly educate patients about all practice services?
• Do you emphasize patient benefits right from the get-go?
• How up-to-date are your marketing materials? Do they promote all of your services, especially cosmetic dentistry and implants?
• Do you offer flexible financial options to every patient?

As you can probably guess, the majority of the responses are in the negative. That’s because most people, including dentists, have difficulty accurately evaluating their performance. We all want to believe that we’re doing the best that we can. Of course, we often are, but sometimes we are not. Admittedly, changing can be difficult. It often takes a major event, such as the worst economy since the Great Depression, to shake us out of our complacency.

While the past several months have certainly been a wake-up call, this is no time to dwell on the negative. We’re starting a new year — a time brimming with possibilities — so, let’s focus on the one indisputable fact that I can’t emphasize enough to dentists everywhere: Your practice is the best investment you ever made.

Now is the time to re-invest in your practice by improving your system for case presentation. Levin Group helps our clients increase case acceptance with a systematized approach called Greenlight Case Presentation. These four “green light” action steps can help you do the same.

Promote comprehensive dentistry

Successful practices take a long-term view of patients’ oral health. Most patients are potential candidates for any number of traditional and elective procedures, yet too many practices take a shortsighted view and focus exclusively on the patients’ current needs and treatment. Yes, practices should address a patient’s immediate concerns, but there also should be a focus on lifelong dentistry that takes a comprehensive view of the patient’s dental future needs and wants. Unfortunately, a high percentage of dental appointments are still single-tooth treatments. Offering comprehensive care to all patients can result in a significant increase in production and profitability.

Focus on benefits right from the start

Dentists love the technical aspects of treatment, but most patients couldn’t care less. They just want to know how treatment will benefit them. Let’s take implants, for example. Patients want to hear how implants will improve their smile, prevent bone loss, increase their quality of life, etc. It’s not that clinical explanations should be avoided entirely, but it’s just that they should be de-emphasized. Save technical details for later in the case presentation, and keep them to a minimum unless the patient asks specific questions. Remember, patients generally have one thing in mind: “What’s in it for me?” Only by focusing on benefits can patients become truly motivated. Without motivation, it’s doubtful patients will move forward with treatment.

Educate patients

Just as billion-dollar corporations run the same TV commercials repeatedly to create product awareness, a practice must also educate patients about all of its services multiple times during each and every visit. Case presentation shouldn’t be solely the doctor’s responsibility, each team member must do his or her part to educate and motivate patients about practice services. In addition, marketing materials — brochures, posters, infographics on monitors, etc. — should be featured in patient areas throughout the practice.

Present flexible financial options

Practices can dramatically increase case acceptance by offering a broad array of financial options to all patients. Many doctors make the mistake of assuming which patients may or may not be able to afford certain cases. Case acceptance dramatically increases when patients see the value in the recommended treatment and are presented with a variety of flexible financial options that suit their budget. Levin Group recommends that practices use these options:

• 5 percent discount for full payment in advance for larger cases,
• credit cards,
• half upfront, half before completion of treatment,
• outside or third-party financing.

Conclusion

Case acceptance drives practice success. These four action steps can help you and your team get more patients to say “yes” to recommended treatment. Combat a tough economy by increasing your case acceptance and give the green light to more success in 2009!

Dental Tribune readers are entitled to receive a 20 percent courtesy on the Levin Group’s Total Practice Success™ Seminar held for all general dentists on May 28 & 29 in Nashville. To register and receive your discount, call (888) 975-0000 and mention “Dental Tribune” or email customerservice@levingroup.com with “Dental Tribune TPS” in the subject line.

About the author

Dr. Roger P. Levin is chairman and chief executive officer of Levin Group, the leading dental practice management firm. Levin Group provides clients with Total Practice Success, the premier comprehensive consulting solution based on the implementation of high performance systems. A third-generation dentist, Levin is one of the profession’s most sought-after speakers, bringing his Total Practice Success Seminars to thousands of dentists and dental professionals each year.
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Think Out Of The Box!

Dr. Sujata Goyal, MDS
India

Teeth have people attached to them! And it is never easy to break the news about an impending loss of a tooth, especially a front tooth, to our patients. The cause of tooth loss or the hopelessness of the situation not withstanding, the decision to sacrifice the natural tooth always seems very cruel to the patients. Moreover, if the loss is inevitable, every patient wants an immediate replacement to escape the social embarrassment of a “window”, in their smile. And as clinicians we are expected to meet patients’ expectations who seek a fixed, non-invasive, highly esthetic, non-metallic restoration, which should not also be expensive! All of us have faced this challenging situation many a times in our clinical practice.

Various conventional restorative options to replace missing teeth are: removable partial dentures; porcelain fused to metal or all ceramic fixed restoration; resin-bonded fixed partial dentures; or implant-supported prostheses. However, these restorative alternatives carry their own limitations such as:

• Lack of adequate bone support for abutment teeth or placing the implants
• Excessive removal of healthy tooth structure for abutment preparation, which is considered to be further mutilation by many patients
• Dependence or delay involved in the fabrication which is not acceptable to people who have an active social life. They will also need a provisional restoration
• Multiple appointments which is normal for the fabrication of indirect prostheses
• Repair is difficult and expensive in case of a failure.

Increased patient demands cause thus clinicians to seek materials and techniques that enable minimally-invasive approaches for chair-side applications. Adhesive dentistry permits dental treatment that were previously considered impossible with conventional techniques, opening new frontiers in modern dental restorations. Adhesive dentistry has undergone considerable maturation since its introduction to dentistry in the early 1950s by pioneers in the field. In the last decade only, however, our knowledge of adhesive materials has grown exponentially and consequently, there has been a significant increase in the role adhesives play in daily dental practice. With the advent of minimally-invasive dentistry, there has been a paradigm shift, moving away from metal restorations towards adhesive dentistry for the conservation of tooth structure. When minimal tooth structure is removed, bonded composite resins can be placed, which restore the tooth to 90-95% of its original strength and 100% of its original appearance.

The use of adhesive techniques and composite materials reinforced with fiber systems allows clinicians to respond to these demands. Fiber-reinforced materials have highly favorable mechanical properties, & their strength-to-weight ratios are superior to those of most alloys. When compared to metals they offer many other advantages as well, including noncorrosiveness, translucency, good bonding properties, and ease of repair. Since they also offer the potential for chair-side and laboratory fabrication, it is not surprising that fiber-reinforced composites have potential for use in many applications in dentistry. Polyethylene fibers improve the impact strength, modulus elasticity, and flexural strength of composite materials. Unlike carbon and Kevlar fibers, polyethylene fibers are almost invisible in a resinous matrix and for these reasons, seem to be the most appropriate and esthetic strengthens of composite materials.

The case presented here illustrates an alternative solution to every day clinical problem in an attempt to meet rising demands of our patients.

Case report

A 58-year-old female patient reported to our practice with pain in the left lower lateral incisor (Fig. 1). On clinical examination the tooth had grade 4 mobility, was partially avulsed, and sensitive to palpation and percussion. Intra-oral periapical x-rays revealed severe bone loss and a periodontal abscess. The tooth had a hopeless prognosis and a mutual decision to extract it was taken. Nevertheless, the young patient was heartbroken and didn’t want to let go of her natural tooth. Idea of a RPD was devastating to her. Adjacent teeth didn’t fulfill requirements of ideal abutment so we couldn’t promise her a conventional tooth-retained FPD as well. Implant was an expensive option for her at that time, so we had to think out of the box! There are a number of reports in the literature vent the failures, which resulted in difficulty to clean, and collection of plaque, leading to further progression of periodontal disease.

The challenge here was to place a thin, but strong natural looking restoration that was non-invasive. I’ve been using modulus of the composite resins and hence resists cracking.

As part of the therapy, complete prophylaxis was carried out, the tooth in question was extracted (Fig. 2) and the site allowed to heal for two days. Complete isolation of the site free of oozing or any moisture is mandatory for bonding, so this delay was considered necessary. When the crown of the tooth is in good condition, it can be easily bonded temporarily to the adjacent teeth with light-cured restorative material. This technique has been used several times by us in the past producing satisfying results. Using the natural tooth as a pontic offers the benefits of being the right size, shape and color. Moreover, the positive psychological value to the patient by using his or her natural tooth is an added benefit. Extracted tooth to be used as pontic was first of all trimmed into the size as per the space available. The open root canal was sealed with composite and polished after being shaped into a modified ridge lap design as this design will meet both esthetic and hygiene requirements. It was decided that all remaining lower incisors would be splinted using Ribbond extending from one canine to the other canine as all the remaining mandibular incisors were also mobile due to periodontal disease.

Two days later patient reported back with a nicely healed site (Fig. 3). Teeth were thoroughly cleaned on the facial, lingual and interproximal surfaces with pumice paste, finishing strips and a prophylaxis cup to remove any traces of surface impurities, which could affect the adhesion adversely. Required length of the fiber was measured with the help of well adaptable soft tin foil provided

“Using the natural tooth as a pontic offers the benefits of being the right size, shape and color”
in the pack. At all times, plasma-treated polyethylene fiber should be handled with care to avoid contamination. It should be taken out of the pack with clean cotton pliers and cut with special Ribbond™ scissors. Another alternative to cut this tough fiber cleanly is using a wire-cutter. After wetting the fiber is wetted with adhesive resin, it should be covered to avoid light exposure till the time of use (Fig. 4).

All surfaces in the canine to canine region were etched for 30 seconds with a 32% phosphoric acid gel. Teeth were then rinsed with air-water spray and gently dried. The lower anterior area was isolated with cotton rolls and adhesive resin was applied with the help of a brush on all the etched surfaces. At this point LC block-out resin was used to block the gingival embrasures so that excess composite does not flow into the gingival embrasures. The unfilled adhesive resin applied on etched surfaces was cured at this point. After this, the extracted trimmed lateral incisor was placed and adjusted in its final position between central incisor and canine to stabilize it using few drops of flowable resin on its proximal sides. The resin was cured according to the manufacturer’s instructions (Fig. 5). Then, composite resin was placed on the middle one-third of the lingual surface from canine to canine. Fiber ribbon was embedded into the composite resin adapting it well onto the teeth surfaces with the help of a plastic filling instrument (Fig. 6). Excess resin was removed and then cured for 20 seconds at least for each tooth. The ribbon should remain completely covered with the resin during this process. Then, composite resin was shaped, finished and polished to achieve an esthetic restoration. To ensure long-lasting functional restoration, occlusion was checked to rule out any contact of the opposing teeth in function or at rest. The restoration done for the patient was found to be stable and functional even after five years.

**Conclusion**

Many a times there is a need for quick and direct replacement for a single lost anterior tooth. For such cases a fiber reinforced restoration not only meets the demands of the patient but also act as a splint for the adjacent mobile teeth. These restorations are esthetic, non-invasive, biocompatible and long-lasting if there is a judicious case selection and protocol of adhesive dentistry is followed.

**References available on request.**
The keys to early cancer diagnosis: Careful examination and timely biopsy

Sara Gordon DDS, MS, FRDCDC

The young man was just 19 when he came to see his dentist after Halloween because of a sore on the side of his tongue. A non-smoker and non-drinker, he did not seem to be at risk for cancer, so his dentist decided to re-check the lesion before Christmas. By then the lesion was bigger. When he finally had a biopsy in January, it was an invasive squamous cell carcinoma.

Oropharyngeal cancer continues to claim the life of about one American every hour, accounting for 7,590 deaths in 2008, according to the American Cancer Society. Oral cancer takes a terrible toll if it is not caught early as it can rob its survivors of the ability to eat, speak and taste.

Dentists often fail to detect oral cancer until it has invaded deeply because it can mimic common traumatic, infectious or immune diseases. When oral cancer is detected early enough, it can be cured; recognized in its precursor stages, it can even sometimes be prevented.

The screening examination includes looking at and palpating the neck, scalp and face as well as the mouth and oropharynx. About two-thirds of oral cancers arise in the lateral/ventral tongue and the floor of the mouth, but other common sites include the retro-molar pad, the tonsillar pillars, the soft palate and the oropharynx. The dentist should thoroughly examine the lateral tongue by gently pulling it forward with a gauze, and check the floor of the mouth when the patient rolls the tongue back against the palate.

The gagging dental patient is a perennial problem, but it is more important than ever to make the effort to inspect this difficult region. There has been a recent increase in human papillomavirus (HPV)-associated squamous cell carcinoma of the base of the tongue and tonsils in young patients, a change that is attributed to a rise in high-risk HPV infection in the oral cavities of sexually active young adults. Nevertheless, the most common risk factors for oral cancer remain tobacco and alcohol use.

The dentist should routinely depress the tongue and examine the soft palate and oropharynx while the patient says “ah.” Even the act of gagging presents a momentary opportunity to glimpse the oropharynx and soft palate.

About 90 percent of oropharyngeal malignancies are squamous cell carcinoma of the surface mucosa. Precancerous mucosal lesions are often white and may appear slightly rough; unexplained white lesions are often called leukoplakia. Lesions such as that shown in Figure 1 look rough because the proliferating epithelium piles up on the surface, and the thickened epithelium hides the red color of the underlying blood vessels.

Malignancies of surface tissues, as seen in Figure 2, are often red and enlarged, and unexplained red lesions are often called erythroplakia. Unexplained red lesions are more likely than white lesions to be diagnosed as malignancies when they are biopsied because the expanding malignancy causes inflammation & secretes molecules that stimulate the formation of new blood vessels. However, both red and white lesions are capable of representing malignancy. Malignancies may also cause spontaneous pain or parasthesia. The general rule of thumb is that unexplained red, white and/or ulcerated lesions that persist for more than 10 days should be biopsied.

Lichen planus, or lichenoid mucositis, has generated heated debate about its premalignant potential for years. It is now recognized that there are several conditions that can share the clinical appearance of lacy white lines on a red background and also the microscopic feature of a dense lymphocyte infiltrate along the basement membrane. Lichenoid conditions are probably not all equally likely to generate squamous cell carcinoma.

A lichenoid drug reaction, for example, is a reaction to a systemic medication that disappears when the medication is withdrawn. Lichenoid reactions also can result from contact with an allergenic material, such as a metal, in susceptible patients (Fig. 3), and for other reasons.

There are many reports in the literature of cancer arising in a patient previously diagnosed with lichen planus but some retrospective analyses have confirmed that the original clinical or even microscopic diagnosis of lichen planus was incorrect. Apparent malignant transformation of oral lichen planus (OLP) may represent “red and white lesions that were dysplastic from their inception but that mimicked OLP both clinically and histologically.” Figures 4 and 5 demonstrate this concept.

Warty-looking verrucous conditions also may confuse dentists. Many diseases in this group are caused by HPV. Benign members of this group include verruca vulgaris, the common wart (Fig. 6), which is self-limiting in most patients, and condyloma, genital warts (Fig. 7), which can be widespread in the immunosuppressed patient.

There are also premaligancies and malignancies in this group. Proliferative verrucous leukoplakia (PVL) is a multifocal verrucous disease that eventually turns into carcinoma in a substantial proportion of cases. Figure 1 may represent a case of PVL. Verrucous carcinoma is a large wart malignancy that is slow to invade but can degenerate into squamous cell carcinoma.

A number of commercial chairside applications such as toluidine blue staining, tissue reflectance, fluorescence imaging and brush tests have appeared on the market in the past decade, and they are intended to help the dentist with early cancer detection. Despite their attractive marketing and their convenience, they have not been shown by rigorous Cochrane analysis to either help or hinder early cancer detection in the general population. Even visual screening programs have not been proven to help reduce oral cancer deaths, and more study is needed in this field. Table 1 summarizes the currently available adjunctive technologies.

This leaves the dentist with a very powerful tool: the biopsy, which is still the only technique that definitively diagnoses oral cancer. When coupled with a thoughtful patient history as well as a thorough head and neck examination, it can allow the dentist to diagnose oral lesions with as much confidence as possible.

A biopsy is simply the removal of tissue from a living patient for the purposes of diagnosis. Whether the dentist uses a scalpel, surgical scissors or a surgical punch, the aim is to retrieve a piece of tissue that is representative of the entire lesion and preserve it en route to the oral pathology laboratory (Fig. 8). At the lab, the specimen is processed on a glass slide and diagnosed microscopically. Usually it takes a week or less for the oral pathologist to finalize the biopsy report.

The American Academy of Oral and Maxillofacial Pathology recommends that all tissue removed from the oral cavity should be sent to an oral pathologist as a biopsy, unless it results from a routine procedure such as a ginsengectomy for esthetic and functional reasons. Most oral pathologists’ services are covered by the patient’s medical insurance. General pathologists will also accept biopsies from dentists, but oral pathologists receive at least three years of specialty training after dental school and are truly specialists in oral disease.

By routinely examining every patient thoroughly for signs of head and neck cancer, and ensuring that any potentially
suspicious lesion that persists for more than 10 days is appropriately biopsied and sent to an oral pathologist for diagnosis, dentists may indeed save lives.

**Literature**


The 2009 FDI Annual World Dental Congress in Singapore has come to a close for another year. This year’s event ran seamlessly thanks to the tireless efforts of the Local Organising Committee (LOC) & volunteers. I would like to make a special mention of the FDI staff, which has been working in collaboration with the Singapore LOC in addition to relocating the FDI head office from Ferney-Voltaire, France, to Geneva, Switzerland.

The AWDC brought together 107 speakers from many disciplines of the dental profession to share knowledge & best practices on treatment advances with colleagues from around the world. Congress participants were dazzled with the latest developments in products & equipment at the Exhibition, which featured more than 150 international vendors. During the week, important business meetings designed to set the agenda for global health advocacy took place, as well as the 2009 FDI Elections. Congratulations to Council & Committee members who were appointed during the General Assembly B and Council C meetings (see 2009 FDI Elections).

One of the highlights of the Congress was the Welcome Ceremony this year, which was a special evening for me. Singapore’s Health Minister, Mr Khaw Boon Wan, delivered an inspiring account of the positive improvements to oral health in his country, emphasizing as well the need to continue working in collaboration across the region. I will forever cherish the moment I received the presidential chain from my distinguished colleague, Past-President, Dr Burton Conrad, in a symbolic change of FDI presidency. During his term as president, Dr Conrad has supported important FDI initiatives to increase global awareness about oral health issues, including Live.Learn.Laugh., the publication of ‘The Oral Health Atlas’ and the Global Caries Initiative. In my Welcome Ceremony speech, I affirmed my commitment to the continuation of these and other FDI activities. Later we enjoyed a colourful performance that took the audience through Singapore’s history, represented through dance and music.

Looking at the year ahead we have many exciting projects on the horizon, including upcoming events for the Global Caries Initiative & the FDI Regional Continuing Education Program-mme. I feel proud to have been given this opportunity to serve as FDI President, particularly at a time when next year’s AWDC will be in my home country. The 2010 AWDC Local Organizing Committee has been working steadily towards welcoming us all in Salvador da Bahia next year & I look forward to seeing you there!

Dr Roberto Vianna
FDI President

Message from the president

FDI Policy Statements

Fluoride in Restorative Materials
Infection Control in Dental Practice
Post-Exposure Prophylaxis for HBV, HCV and HIV
Research

The FDI Policy Statements on Dental Unit Water Lines and Tuberculosis and the Practice of Dentistry were withdrawn at General Assembly B and Open Forum 1, respectively.

Revised Policy Statements

The Association between Oral Health and General Health
Dental Bleaching Materials
Effect of Masticatory Efficiency on General Health

The 2009 FDI elections

There were two seats open for election on the FDI Council, including President-Elect, and ten seats open for election on the Committees at the 2009 FDI Annual World Dental Congress. In total, 36 nominations were received for the available positions, with four nominations for Council positions and 22 nominations for Committee positions.

Congratulations & welcome to the following FDI Council and Committee members who were elected in Singapore.

FDI President-Elect

Dr Orlando Montenegro da Silva (Portugal)

FDI Council

Councillors

Dr Norberto Laiana (Brazil)

FDI Committees

Communications & Member Support Committee

Dr Jun-Sik Moon (Korea)

Dental Practice Committee

Dr Ward van Hijk (The Netherlands)

Science Committee

Dr Armando Hernandez Ramirez (Mexico)

Dr Claudio Pinheiro Fernandes (Brazil)

World Dental Development & Health Promotion Committee

Dr Jo E. Frencken (The Netherlands)

Dr Kevin S. Hardwick (United States)

FDI Policy Statements

The FDI General Assembly adopted three new and nine revised FDI Policy Statements at the 2009 Annual World Dental Congress.

New Policy Statements

- Dentin Hypersensitivity
- Edentulism & General Health Problems of the Elderly
- The Use of Academic, Professional and Honorary Titles

Revised Policy Statements

- The Association between Oral Health and General Health
- Dental Bleaching Materials
- Effect of Masticatory Efficiency on General Health

2009 FDI launches new Oral Health source book

Participants and delegates of the 2009 congress joined incoming FDI President, Dr Roberto Vianna, FDI Executive Director, Dr David Alexander, and authors Ruby Beagloebe, Habib Beniaz and Jon Creall at the FDI Pavilion for the official release of FDI’s new Oral Health Atlas’, in commemoration of World Oral Health Day (WOHD) on 12 September, 2009.

The annual WOHD is an opportunity for diverse segments of the population to reflect upon their own situations when it comes to managing oral health and ‘The Oral Health Atlas’ is designed to illustrate oral health globally. Using short texts, colourful maps, graphics and images, along with statistics and facts, the atlas presents a global picture of oral health in a visually intuitive and easy-to-understand format.

Following the official release at congress, the Singapore Dental Association announced it would purchase copies of ‘The Oral Health Atlas’ for distribution to public libraries across the city-state. Other members associations have demonstrated interest in translating the atlas for readers within their regions.

FDI head office relocates to Switzerland

The FDI has relocated its global headquarters to Geneva, Switzerland, completing the final stage of a plan that has been several years in the making. The driving forces for the move were logistical and financial: the FDI sought to be in a country where it could conduct business as a single entity—versus the current structure of six distinct companies—which could also offer favourable taxation and simplified management accounting on commercial activities.

Switzerland was a top contender due to its proximity to the FDI’s previous head office, which allowed the possibility of keeping the majority of existing staff. Furthermore, the city is a hub for international governmental and non-governmental organisations such as the United Nations, World Health Organization, World Heart Federation and the International Council of Nurses, which facilitates collaboration in integrated health promotion.

The new office is walking distance from the Geneva Airport, making it convenient for out-of-town visitors. It has 475 sqm of space and has been renovated to create an open concept workspace, with 560 degrees of windows. Earlier this year, FDI introduced a “Sponsor a Window” programme as a way to raise funds for the move. FDI Executive Director, Dr David Alexander, reported on the progress of the initiative: “The response to the Sponsor a Window programme has been significant and I would like to thank contributing member associations and individual donors for their generosity.”

New address of FDI head office: FDI World Dental Federation, Tour de Cointrin, Avenue Louis Cassai 84, Case Postale 3, 1216 Cointrin—Geneva, Switzerland.

What makes dental professionals smile

The FDI and Wrigley Photographic Award are: • Asia-Oceania region: Pujan from Tehran, Iran • Europe region: Jan Eric from Alstätten, SG, Switzerland • Latin America region: Gunther from Cartago, Costa Rica • Middle East region: Neda from Tehran, Iran

Each regional winner received the same regional prize noted above. Also, in addition to the regional winners this year, 50 other names were chosen at a reception hosted by the two organisations in Singapore on 5 September. They are:

• Sagar Abichandani (India)—“Evaluation of the Quality of Root Canal Fillings in Mumbai, India”
• Myat Nyan (Japan)—“Effects of simvasatin and alpatricalium phosphate combination on the early healing of bone defects”
• Yun-Ching Chang (Chinese Taipei)—“Study of invasion patterns of oral squamous cell carcinoma with a new device of modified grading system”
• Victor T.W. Fan—“Alveolar Bone Preservation and augmentation with scaffold for implant therapy”

“Oral healthcare professionals play a significant role in creating healthy smiles around the world, and we were thrilled that professionals took the opportunity to share what makes them smile”, said Maureen Jones, Wrigley Oral Healthcare Program Manager. Winning photographs from this year’s competition were displayed at the FDI Pavilion during the 2010 FDI World Dental Congress in Salvador da Bahia, Brazil. Additionally, he received a regional prize: a voucher worth $1,000 US for photographic equipment, a one-year subscription to the International Dental Journal, and a year’s supply of Wrigley sugar-free chewing gum.

The other five regional winners of the 2009 FDI & Wrigley Photographic Award are:

• Africa region: Sandy from Gauteng, South Africa
• Asia-Oceania region: Pujan from Singapore
• Europe region: Jan Eric from Alstätten, SG, Switzerland
• Latin America region: Gunther from Cartago, Costa Rica
• Middle East region: Neda from Tehran, Iran

More than 120 submissions were received by the FDI for the competition this year. The host posters were selected as finalists prior to the congress & they were then invited to present their posters & research to a panel of judges, followed by a question & answer session at the congress. All winners received a free registration to a future FDI Annual World Dental Congress & 1,500 towards his or her participation in the congress. A FDI Unilever Poster Award Competition will be held once again in 2010. More information can be found on the FDI website once it becomes available.

FDI/Unilever Poster Award Competition

The six winners of the 2009 FDI/Unilever Poster Award Competition were announced at a reception hosted by the two organisations in Singapore on 5 September. They are:

• Manisha Kukreja—“Comparative evaluation of hand wrist radiographs with cervical vertebrae for skeletal maturation in 10–12 yr old children”
• Mohanad Al-Sabbagh—“Genetic variations in periodontally involved smokers”

Meeting of the Section Defence Forces Dental Services (SDFDS) in Singapore

On 31 August, Brigadier General (Dr) Benjamin See, Chief of the Singapore Armed Forces Medical Corps, officiated at the Opening Ceremony of the Military Programme for the 2009 FDI Annual World Dental Congress. The meeting, which attracted more than 60 military dentists from 18 countries, provided a forum for military dental officers to discuss scientific and military dental issues.

In his opening address, Brig. Gen. (Dr) Benjamin See emphasised the relevance of this year’s theme: Dental Healthcare for the Next Generation of Armed Forces. With healthcare services of many armed forces transforming to meet a wider spectrum of geopolitical and military challenges, this meeting offered participants an opportunity to network and share knowledge about advancing military dentistry and providing better oral care for soldiers and servicemen.

Among the speakers presenting at the congress were Colonel (Dr) Tan Peng Hui, Commander of the Singapore Armed Forces Military Medicine Institute; Major General Zhoi Yimin, Vice-Dean of the School of Stomatol- ogy, China Fourth Military Medical University; Colonel Robert Hale of the US Army Institute of Surgical Research; and Police Colonel Peter Sahelangi. A wide range of topics were discussed during the two-day Military Programme including facial trauma care, forensic remains identification, field dentistry and dental fitness of soldiers.
Minimally Invasive Cosmetic Dentistry is an emerging trend

Interview with Dr. Sushil Koirala, Kathmandu, Nepal

Dr. Sushil Koirala is the founding president of Vedic Institute of Smile Aesthetics (VISA) and the Nepalese Academy of Cosmetic and Aesthetic Dentistry & South Asian Academy of Aesthetic Dentistry. He maintains a private practice emphasizing on minimally invasive cosmetic dentistry. Dr. Koirala has developed the “Vedic Smile Concept”, the “Smile Design Wheel” and various clinical techniques for direct aesthetic restorations. He has authored “A clinical guide to Direct Cosmetic Restorations with Glimmer” and also conducts hands-on programs and delivers lectures, globally. DT India Editor Isha Goel spoke with Dr. Sushil Koirala about aesthetic dentistry.

Isha Goel: How’s aesthetic dentistry evolving as an application to become a necessary aspect of the general dental practice?

Dr. Koirala: Today, with an increased media coverage and availability of free web-based information on cosmetic dentistry, the public awareness on smile aesthetics has increased a lot. People now know that smile aesthetics play a key role in their sense of wellbeing, social acceptance by others, success at work and in relationships and the level of their self-confidence. The aesthetic expectations, desires, and demand of the dental patients have increased drastically and now a glowing, healthy and vibrant smile is no longer an exclusive domain of millionaires, models and movie stars only. Therefore, most of the general dentists are now forced to incorporate various aesthetic enhancement dental treatment modalities in their daily practices to meet the recent aesthetics demands of their patients.

One of the significant breakthroughs in cosmetic dentistry has been the development of dental veneers. How do you see the acceptance of veneers among dentists and users?

It is not the dental veneers that is the breakthrough, I believe it is the development of dental adhesives in dentistry, which have opened up the doors for various treatment modalities in aesthetic dentistry.

Dental veneers are one of the most technique-sensitive procedures in aesthetic dentistry, hence demand proper case selections, minimal tooth preparation (preservation of tooth enamel) and selection of correct luting cements for its long-term aesthetics and functional success. Aesthetically, veneers are one of the most acceptable treatment modalities by the patients.

In addition to the color, shape and alignment of teeth, what are the other attributes that should be evaluated by a cosmetic dentist when planning a smile makeover?

When we talk about treatment planning for any smile makeover case, there are a couple of things that we need to keep in our minds before we start the procedure. It’s been almost two years now that I have developed a “Smile Design Wheel” concept which explains about simple steps in smile design or makeover. I hope you have heard about PRF-Pyramid of smile design. If not, I will explain you a bit here. In smile design or make-over, we need to start treatment by knowing patients’ psychology, especially the perception, personality and desires. Next job is then to establishing proper health (general, specific and dental), and after establishing normal or acceptable health status of the patient, we should proceed to establish function (occlusion, phonetic and comfort). In the last, we need to address the aesthetics components of smile, and for better understanding of the clinician, I have divided it into three divisions, namely Macro-Aesthetics (Facial), Mini-Aesthetics (Dento-Facial) and Micro-Aesthetics (Dento-Gingival). Then the subjective choice of the patient plays a vital role and as per his/her desires, we should carry out the necessary aesthetic enhancement procedures. So the “Smile Design Wheel” protocol guides you to design a healthy, well-balanced (force components) & aesthetic smile with high patient satisfaction.

What advice would you have for clinicians who often are perplexed about how to balance aesthetics with function?

Personally I see, nowadays in cosmetic dental practice, the function and health is being over shadowed by the aesthetics component, and it is a great concern to many of us, who advocate healthy and functional aesthetics in cosmetic dentistry. It is to be noted that aesthetics without health and function is a case failure in dentistry. So when you take up any cases for aesthetic enhancement, you must follow the sequences of – Psychology-Health-Function first and then only you should concentrate on the aesthetic part, which has again three areas normally guided by the patient’s desires. Although, composites have by and large replaced non-tooth colored materials, their long-term strength has been an area of concern. In your opinion, can this issue be addressed adequately to allow the dentist to use them with confidence and assurance?

With my 17 years of clinical practice and involvement in various international CDE programs, I have found that, most of the practitioners are not willing to learn new developments in dental material science. By and large, we follow what we study in our graduations, but it is a fact that development in dental materials sciences is very rapid and we must have proper information about it to provide better patients care.

There are composites resin restorative materials with better physical and aesthetics properties available now in the market. The case selection is very important while using composite resins. In the posterior heavy load bearing areas, I still prefer to go for indirect tooth-colored onlay or inlay, however, in most of the anterior aesthetic cases direct composite resins are a good alternative to ceramic restorations.

As aesthetic dental procedures are highly technique sensitive, do you think that the selection of dental material play a significant role in success of these treatment? If so, can you please suggest some guidance which can help practitioners in product selection?

You are very correct that, aesthetic dental procedures are highly technique sensitive, and selection of dental materials as per the case type plays a significant role. If you go through the literature about physical properties of dental hard tissues and corresponding biomaterials, it suggests dentin structure of the natural tooth has similar physical (elastic modulus, thermal expansion coefficient and ultimate tensile strength) and optical properties as that of

“The case selection is very important while using composite resins”
hybrid composites and natural enamel with fieldspathic ceramics. Whenever possible, I suggest clinicians to follow the above findings, but in practice it may not always be possible, so the natural optical properties and load-bearing status of the tooth lesion need to be analyzed properly to select the appropriate aesthetic bio-restorative materials.

How’s the use of lasers in cosmetic dental practice being perceived by dentists as a more comfortable and convenient tool they could possibly offer to their patients?

Personally I feel that, there are many treatment modalities available in cosmetic dental practice and you can use various techniques and protocols as well as various equipments as per your comfort and affordability. The major concern area is the evidence that you need to search for before you use any new equipment, protocols or techniques. Certainly, laser has some definite advantages over conventional techniques, but I suggest the clinicians to perform a need analysis before buying any costly new equipment for the practice.

From your experience, what are the recent trends in the field of cosmetic dentistry? What expectations do you have for the future?

Thank you very much for asking one of the most relevant questions in cosmetic dentistry. If I have to reply to this question in a simple and short manner, I will just say Minimally Invasive Cosmetic Dentistry (MiCD) is an emerging trend. This is the reason that the South Asian Academy of Aesthetic Dentistry (SAAAD) has accepted the MiCD as an emerging trend and is keeping it as its conference theme for first biennial scientific meeting to be held in Nepal on November, 28-29. I think we have to move towards the minimally invasive technology in dentistry and respect the long-term health, function and aesthetics of the oral tissue. In future, I expect more digital technology available for the early assessment of the oral diseases, defects (functional and aesthetics) to match patient’s desires along with more options in aesthetic biomaterials.

Do you have any suggestions for our readers, who have interest in incorporating cosmetic dentistry into their practice?

Cosmetic dentistry is a science-based creative work, which is dominated much by the art component. We must understand that there is no shortcut in the art; i.e. cosmetic dentistry requires a lot of dedication. I think that any work related to the cosmetic dentistry is a piece of art, and hence suggest you to document each of your artwork, so that one day your practice will have beautiful Smile Art Gal- lery which will give you full satisfaction in future. As far as incorporating the cosmetic dentistry in your practice is concerned, first you need to upgrade your knowledge about smile aesthetics, then learn basic aesthetic dentistry skills and always start with a simple case and move towards more complex one. I wish you success and joy.

Thank you very much for the interview.
Case report: Middle mesial canal

Siju Jacob shows why it pays to be aware of the possibility of a third mesial canal when treating mandibular molars

Abstract
Failure to recognise and treat aberrant canal anatomy can affect the prognosis of endodontic therapy. This case report shows a variation in conventional anatomy in mandibular first molars. A third mesial canal may be present between the Mesiolingual and Mesiobuccal canal in Mandibular molars. A clinician should be aware of the possibility of this extra anatomy when treating mandibular molars.

Introduction
A comprehensive knowledge of canal anatomy and its variations is essential to ensure consistency in endodontic therapy. Variations from conventional anatomy are encountered occasionally in all teeth. Inability to recognise, detect and treat this additional anatomy can lead to failure of endodontic therapy.1

In mandibular first molars, the normal anatomical pattern consists of two mesial canals and one or two distal canals.2 However, a third mesial canal may be occasionally present between the mesio-buccal and the mesio-lingual canal. This is referred to as the middle mesial canal. The middle mesial canal maybe confluent or may have a separate portal of exit. The incidence of middle mesial canals varies from 1 to 15 per cent. (See Table. 1).

This article will illustrate the clinical management of the middle mesial canal.

Case report
A 27-year-old male patient reported to the clinic with chief complaint of food impaction in the right mandibular posterior tooth for the past four months. There was no history of pain. His past medical history was non-contributory.

Clinical examination revealed a large carious lesion in the right mandibular first molar tooth (see Fig. 1). The tooth was not tender to percussion and probing depths were within normal limits. Radiographic examination revealed a large radiolucent lesion in relation to the first molar (see Fig. 2). A diagnosis of chronic apical periodontitis was made. Treatment options were discussed with the patient and Endodontic therapy was the treatment of choice.

After local anesthesia and rubber dam application, an access cavity was prepared. Initial access revealed two mesial canals and one distal canal (see Fig. 3). On closer examination with a surgical microscope (Zeiss Germany) a ledge of dentin was found between the mesio-buccal and mesio-lingual canals (see Fig. 4). The ledge was removed using ultrasonics (Proultra, Maillefer, Switzerland) (see Fig. 5). Removal of the dentinal shelf revealed an isthmus (see Fig. 6). Troughing of this isthmus with ultrasonics under magnification revealed a middle mesial canal (see Fig. 7).

All canals were cleaned and shaped (see Fig. 8) using Protaper (Dentsply Maillefer, Switzerland) and hand files. The Middle mesial canal was confluent with the Mesiobuccal canal. Canals were irrigated with 5.2 per cent sodium hypochlorite, 17 per cent EDTA and two per cent Chlorhexidine. Canals were dried using paper points and a calcium hydroxide paste (Apexcal, Ivoclar Vivadent, Switzerland) was placed in the canals (see Figs. 9a and 9b). The access cavity was sealed with a layer of Cavit (3M ESPE, Germany) followed by glass ionomer cement (Fuji VII, GC, Japan).

The patient was recalled two weeks later. The calcium hydroxide was removed (see Fig. 10). The canals were obturated using gutta percha and AH plus sealer (Dentsply De Trey, Germany) in warm vertical condensation. The access cavity was sealed and the core buildup done using a dual...
cured resin (Luxacore, DMG, Germany) (see Figs. 11 to 15).

Discussion

The biologic objectives of endodontic therapy include removal of all potential irritants from the root canal space and the control of infection and peri-apical inflammation. Complex root canal anatomy can prevent achievement of endodontic goals. It is important to debride, disinfect and obturate as much anatomy as possible. A missed canal can lead to failure of endodontic therapy.1 Therefore every effort must be made to locate additional canals if any.

An extra mesial canal known as the middle-mesial canal has been documented by numerous researchers.3-9 The percentage varies from one to 15 per cent. The majority of middle mesial canals will merge with either the mesiobuccal or mesiolingual canals. Rarely, they may have a separate apical portal of exit.

Numerous techniques enable the clinician to look for the middle mesial canal. It is important to have an adequately flared access cavity to visualise the anatomy of the chamber. Constricted access can lead to missed anatomy.10

The use of the surgical operating microscope has vastly enhanced the quality of endodontic therapy.11,12 Magnification coupled with coaxial lighting greatly enhances visualisation and the potential to discover additional anatomy.

The use of ultrasonic tips for precise cutting has gained favour among clinicians in the last decade. Ultrasonics in conjunction with the surgical microscope (Microsonics) greatly enhances the clinician’s ability to locate extra canals.13

Conclusion

Variations in conventional root canal anatomy can occur in any teeth. The middle mesial canal in Mandibular molars is one such variation. Knowledge of anatomical variations and the techniques to discover and manage these variations will significantly enhance the prognosis of endodontic therapy.14

References available on request.

Dr Siju Jacob BDS MDS maintains a private practice limited to Endodontics in Bangalore, India. In addition, he conducts hands-on courses in Endodontics and Microscopes for general practitioners and Endodontists at his center at Bangalore. He can be reached at drsiju@gmail.com or through his website, www.rootcanalclinic.com.

About the author

Fig. 12

Fig. 13

Fig. 14

Fig. 15

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**Miniscrews—a focal point in practice**

**Six-part series by Dr Björn Ludwig, Dr Bettina Glasl, Dr Thomas Lietz & Prof. Jörg A. Lisson—Part II**

**Basic information on the insertion of miniscrews**

**Preparing for insertion**

The insertion of a miniscrew is a very simple and rapid therapeutic measure. Although there are several methods that will yield good results, successful insertion requires adherence to a few important principles. The following text details those insertion steps that offer a high degree of safety for both patient and dentist (see checklist for insertion below). It should be noted that this information is generalised and must be adapted to individual circumstances.

**General notes on insertion**

Accurate pre-operative planning is a basic requirement for successful treatment with miniscrews. Such planning includes a comprehensive anamnesis and an accurate assessment of the findings. It is essential that the treatment be thoroughly explained to the patient. Proper hygiene must be ensured throughout the entire operation. Both the dental chair and the treatment process must be prepared with this in mind. During the insertion of a miniscrew, adherence to all hygiene measures required for an invasive procedure, such as a sterile work environment and gloves, must be ensured. All instruments required for insertion must be checked for completeness, functionality, and sterility. The patient may rinse with a disinfectant solution, or a suitable disinfectant can be locally applied. The patient should then be positioned to ensure a clear view of the operational area and ergonomically facilitate insertion for the treating dentist.

**Pre-operative planning**

To function correctly, a miniscrew requires firm anchorage in the bone (primary stability) and the positioning of its head in the denser gingival tissue (gingiva alveolaris). The selection of the insertion site must take clinical and para-clinical findings into account (X-ray image, model), as well as the goal of the treatment and the resulting orthodontic appliance. For interradicular insertion, a bone thickness of at least 0.5 mm around the miniscrew is required. This means that for a miniscrew with an—for many reasons—optimal diameter of 1.6 mm the roots must be at least 2.6 mm from each other. Thus, the bone status and the longitudinal axis of the insertion site must be carefully evaluated.

**Basic information regarding this is obtained by carrying out measurements on the model. It often helps to mark the vertical axis of the teeth and the progression of the mucogingival line on the model, based on the clinical and radiological findings. This will allow for an improved assessment of the spatial circumstances in combination with the X-ray image. To assist the accurate determination of the insertion site, X-ray aids (Fig. 2.1) are available. Although their use facilitates the selection of the insertion site, they cannot replace other diagnostic measures. This is because, depending on the positioning of the X-ray tube, object, film, and/or sensor, all types of X-ray devices and images may yield some optical distortion. Interpretation of images can thus lead to false-negative or false-positive results (Figs. 2.2a–c). Therefore, the placement of a miniscrew should always be based on the clinical findings. If a miniscrew is to be inserted into an area in which there is no risk of damage to roots, nerves, or blood vessels (e.g. into the palate just behind the transverse line linking the two canines), the position of the screw may be freely chosen (Figs. 2.5a–c).**

**Anaesthetic**

During the interradicular insertion of a miniscrew, the sensitivity of the periodontal tissue of the adjoining teeth should be retained. For this reason, the following two procedures are recommended:

- a) a low-dose injection of approximately 0.5 ml anaesthetic (Figs. 2.4a & b); and

**Checklist for Insertion**

Pre-operative planning and preparation:
- planning documentation (X-ray, situational model);
- marking of the mucogingival line and tooth axes on the model, determining the site of insertion; and
- sterilisation of the instruments & preparation of the workstation.

Anaesthetic and assessment of the insertion site:
- anaesthetic;
- use of X-ray aids; and
- control image.

Selection of the screw:
- measuring of the thickness of the mucous membrane (optionally);
- determination of the length; &
- determination of the type of screw.

Transgingival penetration:
- excision of the mucous membrane or perforation with the screw.

Preparation of the bone site:
- optional marking of the bone; and
- perforation of the cortical bone or deep pilot drilling, depending on the type of screw.

Insertion of the miniscrew:
- manually or by machine.

Start of orthodontic measures:
- attaching & fixing of the linking elements.

Post-operative care:
- notes on care and behaviour; and
- check up dates.

Removal of the miniscrew:
- removal of the linking elements; &
- removal of the miniscrew.
b) the induction of superficial anesthesia of the mucous membrane at the insertion site, for which a topical anesthetic gel is suitable (Figs. 2.5a & b). No general anesthesia is ever required for this procedure.

Choice of screw
Measuring the thickness of the mucous membrane (optional).

A pointed sensor with an attached rubber ring is used to measure the thickness of the gingival tissue in the direction of insertion (Fig. 2.6). This information may be useful when determining the final length of the screw and possibly when inserting the miniscrew. When choosing the length, the bone repository and the thickness of the mucous membrane in the direction of insertion play a role; in the retromolar section of the lower jaw and in the buccal region of the upper jaw, the use of mini screws cannot be used. In the palatinal region (depending on the region):

- in the buccal region of the upper jaw: 8 mm or 10 mm;
- in the palatinal region (depending on the region): 6, 8 or 10 mm; and
- in the lower jaw: usually 6 mm or 8 mm.

Determination of the type of thread
Self-cutting miniscrews require pre-drilling (also known as pilot drilling) appropriate to the length and diameter of the screw, as well as to the quality of the bone. A self-tapping miniscrew will find its own way into the bone and requires no pre-drilling (Figs. 2.7a & b). Bone is more or less elastic depending on site, age, and structure. However, the screw diameter, the thickness of the cortical bone, and the hardness of the bone at the insertion site limit the extent to which this method can be used. Without pre-drilling, the bone will be strongly compressed during insertion and thus suffer a related tension stress. This may result in the cracking of the bone around the insertion site. When the screw is screwed into the bone, it is subjected to high loads. Depending on the bone quality, the resistance against insertion, and the continuity of the rotational movement, high torsional forces can result. In regions with thick cortical bone and a much looser bone structure (e.g. the upper jaw), the use of self-tapping screws is recommended. In regions where the cortical bone is thick and the bone structure is dense (e.g. the anterior lower jaw) both self-cutting and self-tapping screws may be used, in each case following perforation of the compact bone.

Transgingival penetration
The miniscrew must penetrate through gingival tissue, which must thus be perforated during insertion. Two methods are used for the perforation of the gingival tissue:

a) excision of the gingival tissue; or
b) direct insertion of the screw through the gingival tissue.

There are currently no published studies that investigate the effect of these two methods on post-operative problems, histological effects, and/or the loss rate of miniscrews.

Preparation of the bone site
Protection of the bone is an important aspect. Insertion without pre-drilling results in tensional stress within the bone, which may lead to post-operative complications. Particularly in the case of crestally placed screws, bone displacement may result in a severe expansion of the periodontium. The thickness of the cortical bone, especially in the lower jaw, can have a significant effect on the torque of the screw. To ensure that the screw is not overloaded during insertion, the compact bone of the anterior lower jaw should be perforated by pre-drilling as mentioned earlier. Pre-drilling should be done at a maximum of 1,500 rpm–1, using a short pilot drill and water-cooling to reduce the risk of damaging the root (Figs. 2.8 a & b).

Insertion of the miniscrew
The miniscrew must be removed from its sterile packaging (Fig. 2.9) or the work rack (Figs. 2.10 a–d) without contamination. The thread of the screw may not be touched. The screw should be inserted at a constant rotational speed (at approximately 50 rpm–1) and with as uniform a torque as possible.

Manual insertion
Manufacturers supply various screwdrivers and blades in several lengths for the manual insertion of the screws. Because of their dimensions, long blades pose the risk of attaining a very high torque during insertion. Thus, insertion must be carried out carefully to avoid breaking the miniscrew. Torque ratchets are available for use with some systems (e.g. tomas, DENTAU- RUM; and LOMAS, Mondral), which provide a certain amount of control over the insertion torque.

Machine insertion
Machine insertion requires a surgical treatment unit (the torque of which can be controlled) or at least a low-rpm dual green handpiece. Accurate setting of the torque and the number of rotations is required; the rotation rate should not exceed 30 rpm–1, & the torque must be restricted to the maximum load limit of the screw.

Machine insertion helps to achieve a consistent torque during insertion but means that the operator loses perception of the bone. During manual insertion, it is possible to perceive the interaction between the screw & the bone by tactile senses. Insertion by machine is shown in Figures 2.11a–f.

Attaching the orthodontic linking elements
As no healing phase is required, load may be placed on the
Piezosurgery is a new and modern bone surgery technique for periodontology and implantology. Piezosurgery has therapeutic features with several advantages over conventional surgical methods. The technology enables a micrometric cut that is uniquely precise and secure, limiting tissue damage, especially to surrounding soft tissues. A selective cut is possible because of different ultrasonic frequencies, which only affects hard (mineralised) tissues, sparing fine anatomical structures. The intra-operative field remains almost free of blood. With piezoelectrical surgery techniques, bone harvesting (chips and blocks), crestal bone splitting, and sinus floor elevation can be performed easily and safely. Piezosurgery meets the high demands on the prosthetic finalisation of dental implants. Its precision allows excellent results and tissue conservation accelerates the healing process.

Piezo-electrical surgery is a relatively new surgical technique and offers considerable advantages over conventional methods of bone surgery. Based on adjustable, two-dimensional ultrasonic oscillation, the technology offers tissue-specific cutting characteristics. With an operating frequency of 25–30 kHz, the device cuts hard tissues, while preserving sensitive soft tissues. Adjusting the working frequency settings and different tips, helps to adapt the system to different surgical techniques, such as dental extraction, bone grafting, osteogenic distraction, endodontic surgery, alveolar nerve decompression, and cyst removal. In particular, dental implants often require precise osteoplastic restoration, to guarantee proper positioning. Owing to its high accuracy (micrometric cut) and tissue-conserving properties (selective cut), Piezosurgery is the method of choice for critical implant site preparations.

**Sinus floor elevation**

Bone ridge splitting, harvesting techniques, and sinus elevation are particularly important techniques for implantologists. Sinus floor elevation is usually the most effective therapy for augmenting the atrophic posterior maxilla with bone mass. Perforation of the Schneiderian membrane is a risk with traditional procedures during preparation of the window or during the elevation stage. Piezosurgery can reduce this risk to a minimum. An intact membrane is a precondition for stabilising the graft. Different tips are therefore available for performing various surgical procedures, to achieve an optimal result. The selective cut makes it impossible to injure the membrane while preparing the window. In practice, the osteoplasty OT5 tip is recommended for the preparation of the window in case of a thin bone wall. In cases with thick bone, the osteoplasty OT1 tip is indicated for bone reduction, and the OT5 tip thereafter for bone cutting. After elevation of the membrane...
Bone chips with a size of 500 mm show best results in bone regeneration.

To avoid damage to the teeth, the load on the head of the screw (Fig. 2.12). Accordingly and attached to the linking element must be prepared accordingly (Figs. 1–5).

Bone harvesting (chips and blocks) Bone chips with a size of 500 mm (Fig. 6) are the perfect material for osteoconductive bone regeneration & show the best results. The chips serve as a guiding structure and thus facilitate bone regeneration. Piezosurgery is well suited for harvesting appropriate autogenous bone chips. Gently scratching along the surface of the bone, using osteoplasty OP1 or OP5 tips, can harvest sufficient bone chips.

Bone chips are not in any case the best material for bone regeneration. In horizontal or vertical augmentation procedures, bone chips show their limits. In these cases, bone blocks achieve better results. Classical donor areas for the blocks are the chin, linear oblique, and crista iliaca. The osteotomy has a disadvantage when using conventional procedures: the horizontal osteotomy needs a large area to be uncovered, to provide the clinician with good access to the operational site and to protect surrounding soft tissue. With Piezosurgery, this approach is easier, as the low operational amplitude of the tip requires only a small access area. The optimal cooling effect and the selective cut protect neighbouring soft tissues and ensure that no injury occurs (Figs. 7–9).

Bone splitting For the placement of dental implants, the bone splitting technique can be used in cases in which there is sufficient bone height but insufficient bone width. In this case, Piezosurgery shows good results as well. With an osteotomy tip OT7, the bone can be separated non-traumatically (Figs. 10–12). An extension can be completed by the use of osteotomes. Piezosurgery lowers the risk of bone fractures and the bone becomes more elastic after extension. However, during bone splitting there is a risk of pressure trauma, especially in D1 bone. Therefore, Piezosurgery is also beneficial when used for preparations of dense mineralised bone.

Conclusion With Piezosurgery, an innovative technique for dental surgery is available. It can be used as a concomitant procedure or, to some extent, to displace conventional techniques. It is especially useful for implant procedures, which demand precise actions and benefit from the high accuracy and tissue-preserving properties of this method.

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Papilla reconstruction revisited – A new approach

Dr. Mahesh Langa, Dr. Sangeetra Dhair foilia

Optimal esthetics for implant-supported restorations in the anterior maxilla may be more difficult to obtain than implant osseointegration. The ability to predictably preserve or reproduce inter-implant papilla is extremely important in the replacement of maxillary anterior teeth. The presence of inter-proximal papilla around implant-supported restorations allow symmetrical soft tissues margins and a state of harmony between natural teeth and dental implant components.

This harmony & tissue symmetry lead to natural looking restoration that does not obscure vision. On the contrary, slightest change in the level of the interproximal papilla can lead to major esthetic and phonetic complications. Since losing the interproximal papilla leads to black triangles interproximally, this makes the perimplant-supported tissues a delicate clinical issue to handle.

Biological truth
Engquist et al, 1995,² stated that tooth extraction leads to the interdental papilla remodeling in a sloping fashion from the palatal to the more apical facial in a sloping fashion from the bone and oral soft tissues only provide blood supply to the peri-implant mucosa. In natural teeth the gingival vascularization is derived from the branches originating from the interdental septa, periodontal ligament and oral mucosa. Further, the peri-implant mucosa contains a high amount of collagen and low number of fibroblasts. Therefore, the peri-implant mucosa can also be considered as “scar-like tissue”.

Factors influencing the outcome of papilla reconstruction
Blood supply
It’s the key factor in predicting the treatment outcome, as sufficient blood supply should be maintained in any flap design.

Implant positioning
Well-placed implants lead to an esthetically successful implant restoration.³ Three different directions govern the positioning of the implant: apico-incisal, mesio-distal, and labio-lingual.

Periodontal biotype
Periodontal biotype thick or thin affects the dimension of the periodontal tissue and should be carefully evaluated during pre-surgical planning. Thick bio-type is more prone to pocket formation but reconstruction procedures seem to be more predictable due to sturdiness of the soft tissue and osseous structure. Thin biotype is more prone to gingival recession following mechanical & surgical manipulation.

Bone quality and quantity
The bony support between a tooth and an implant or between two implants has been shown to be an important criterion in creating or preserving the papilla.⁴ Tarnow & colleagues reported a mean papillary height between two adjacent implants as 5.4 mm. One difficulty in maintaining or reforming a papilla between two implants is that the biologic width around an implant usually is located apically to the implant abutment junction. In the esthetic zone the distance from the alveolar crest to the adjacent tooth Cem-Entoemal Junction should be 5-5 mm to achieve ideal implant localization & appropriate space for the peri-implant sulcus to form.⁵

Soft tissue quantity and quality
The documented literature unanimously states that sufficiently broad cuff of keratinized mucosa is necessary to allow for predictable manipulation of the soft tissue surrounding the implant and also leads to long-term success of oral endosseous implants and maintenance of the integrity of interproximal papilla.⁶⁻⁷ Of all the methods used for soft tissue augmentation and the flap designs used, the underlying concept is to preserve the blood supply to the adjacent papilla and to minimize recession.

Implant size selection
Selection of an implant for an esthetic zone depends on the dimensions of the edentulous crest and proximity of adjacent roots. Implants with larger diameter are of limited use as they compromise the interimplant distance of 5 mm leading to increased crestal bone loss.⁸ Hence implants 5.75-4 mm in diameter are preferred in the anterior restoration.⁹ Platform switching to a smaller diameter at the interface level favors the biologic width development in the horizontal direction to compensate for vertical one henceforth, minimizing the postoperative bone resorption and maintaining soft tissue margins.¹⁰

Emergence profile
A proper emergence profile is important for hygiene, gingival health, and appearance. Implant restorations in the esthetic zone should mimic the emergence profile (flat) of the natural tooth. The vertical length of the subgingival portion of the restoration is extremely important as the guided gingival growth is indirectly proportional to the submergence depth of the implant.¹¹ The emergence profile of the final prosthesis should be carefully created. If the profile is too narrow, no contralateral pressure or support for the gingival will exist and the interdental papilla will diminish. If the profile is too wide papilla will be vertically compressed, oral hygiene will be difficult or impossible to perform & the papilla will collapse.

Case report
A 21-year-old female patient presented for routine examination with a desire of replacement of missing anterior tooth. Patient was healthy with no significant medical history.

Intraoral examination revealed congenitally missing lateral incisor in relation to left maxillary quadrant (Fig. 1), leading to the mesial migration of canine. Patient's oral hygiene status was found to be adequate. A thorough oral examination, including, charting of oral hygiene scores (plaque index, gingival bleeding index) revealed no significant periodontal disease. Radiographic findings of the mouth revealed normal bone levels. Orthodontic treatment was started with the aim of preparing the edentulous site for receiving an implant-supported prosthesis (Fig. 2).

Presurgical assessment
The concerned site revealed buccolingual width measuring 4.8 mm in the middle 1/3rd and 5 mm in the crestal 1/5th regions and papilla height index of 5.5 mm (Tarnow's index). Patient had a thick flat periodontal biotype in the area.

The technique
Stage 1 surgery was performed and a 3.8/10.5 mm (tapered internal, Biohorizon, AL, USA) implant was placed following manufacturer’s protocol (Fig. 5 and Fig. 4).

After 4 months (Fig. 5), Stage 2 surgery of uncovering the implant was performed along with the desired soft tissue augmentation. After securing anesthesia, an esthetic flap design was planned preserving the interdental papilla along the adjacent teeth. A 15c scalpel (HU-FRIEDY, CH, USA) was used to mark the vertical incision extending from the buccal aspect towards the palatal side. The palatal extent was marked about 5-7 mm from away the...
Ford Motor Company President and CEO Alan Mulally revealed the much anticipated new car to be produced in India, the new Ford Figo. “The new Ford Figo is designed and engineered to compete in the India's small car segment” Mulally commented. Figo leverages Ford's small-car platform architecture, sharing underlying technology with the Ford Fiesta, already familiar to Indian drivers. Press conference held in Delhi on September 25 was the first public preview of the exterior design of the new Ford Figo. Ford is reserving further details about the vehicle until closer to its production launch early in 2010. Design-conscious India inspired the new Ford Figo’s name. Figo is colloquial Italian for “cool”.

Sharing key elements of Ford’s kinetic design language with vehicles like the globally renowned Ford Focus, Ford Mondeo & the Ford Fiesta, Ford Figo features a fresh, contemporary shape that will be a distinctive alternative to traditional brands in this segment. The design language conveys a dynamic spirit of energy in motion.

Quality, substance and generous proportions are clearly evident in the design of the new Ford Figo, which features a solid stance, an invitingly large interior and a vibrant, youthful character. Its package is right-sized for the market, which is predominated by congested urban driving conditions.

From its modern headlamps, grille shapes and sculpted bonnet of its distinctive face to the subtle integrated spoiler and chamfered window shape at the rear, Ford Figo is filled with kinetic design touches. These also include sculpted shapes to the body side – chiseled front fenders, a ‘comet tail’ undercut in the doors & additional light-catching sculpting in the lower bodyside – which combine to communicate the solidity, substance and protective safety of its design.

The bold graphic of Ford Figo’s large side window shape is another key kinetic design feature hinting at the comfort & spaciousness awaiting occupants’ front and rear. The side window graphic is executed with a blacked-out B-pillar, an elegant design touch that unifies the side windows into one shape visually.

With its wheels positioned at the four corners of the vehicle with minimal overhang, Ford Figo’s bold wheel arches self-assuredly signal its agility and solidity.

“We’re confident that the new Ford Figo will be extremely attractive to Indian car buyers,” said Michael Boneham, president and managing director, Ford India.

For more information log-on to www.ford.com.

Source: Corporate Communication, Ford India.

Conclusions

Reconstruction of the gingival esthetics is an important issue in modern aesthetic implants dentistry. Ideal treatment planning and sound preoperative assessment of soft and hard tissues form the baseline for obtaining reconstructing papilla. This approach of papilla reconstruction and buccal soft tissue augmentation stands alone till duplicated.

References available on request.

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