Philippines gov’t urged to look into HIV/AIDS threat
National Aids Council says foreign works are to blame for rise in new infections

Daniel Zimmermann
DTI

HONG KONG LEIPZIG, Germany: HIV/AIDS is increasingly threatening health workers in the Philippines. Figures released by the Philippine National Aids Council suggest that infections have almost doubled over the last year. Members of the House of Representatives are now urging law-makers to review existing HIV/AIDS regulations in order to contain the ongoing spread of the virus throughout the country.

The Philippine AIDS Prevention and Control Act, which prescribes precautionary guidelines with regard to preventing HIV transmission during medical procedures and surgery, was promulgated in 1998. Since then, the number of infections has skyrocketed from a few hundred to an estimated 6,000 by end of this year.

Representatives of the National Aids Council have said that the rise of infections is mainly due to Filipino workers infecting themselves through unprotected sexual contact abroad and transmitting the virus when they return home. According to figures from the Trade Union Congress of the Philippines, one out of every four Filipinos diagnosed with HIV positive is working abroad. The Department of Health announced that it will look into the problem to decide whether workers abroad should undergo HIV testing before they leave the country.

“We have to ascertain whether existing policies and measures under the Philippine AIDS Prevention and Control Act are adequate to suppress the epidemic and improve the conditions of Filipinos living with the destructive disease,” Liquefied Petroleum Gas Manufacturers Association party-list representative Arnel Ty said in a press release. “We also have to find out if the mandates of the law are being fulfilled fast enough, and enforced rigorously.”

Experts estimate that under the current regulations the number of new HIV infections could increase to 20,000 within the next five years.

Fluoride get uncovered by new test

A new test method developed by chemists from the Florida State University in Tallahassee in the US is showing potential to detect dangerous levels of fluoride in drinking water. The technology is said to use a aromatic compound called naphthalene diimide that changes into different shades of colour after interacting with fluoride ions.

According to the researchers, the test is able to find about 1,000 of a milligram of the mineral in a litre of water which makes it one of the most sensitive fluoride sensors known to date.

In an effort to contain tooth decay, large quantities of fluoride are currently added to drinking water in a number of countries including Australia, Malaysia or Brunei. However, the intake of higher levels can lead to fluorosis, a condition that significantly weakens teeth and bones. Research has also shown that it contributes to the development of several types of cancer.

Children in Brunei have worst teeth

A new report on oral health in Brunei is showing that the country’s children suffer from severe levels of tooth decay. According to figures released by the Department of Health in December, dental caries between 6-12-year-old children currently ranks lowest among all members of the Association of Southeast Asian Nations.

While nine out of ten 6-year-old Bruneian children have already experienced decay, 12- year-old children have to live with cavities in at least five of their permanent teeth.

The country has been desperately trying to improve the accessibility of oral health services to children through its 2008 Oral Health Agenda that includes dental hygiene education and other preventative measures in schools.

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IDS 2011: another record breaker for dentistry

Daniel Zimmermann

COLOGNE & LEIPZIG/Germany: Visitors of next year’s IDS in Germany should probably schedule more time to get hands on the latest advancements in dentistry. After the record breaking show in 2009, the number of exhibitors has increased again due to more foreign companies showing interest in becoming a part of the world’s largest dental trade fair, the organiser Koelnmesse told Dental Tribune Asia Pacific.

The company expects over 1,800 dental companies from 56 countries to attend the exhibition. Due to the high demand, Hall 2 will be opened for companies and visitors for the first time, they said. The additional requests for trade fair attendance mainly come from companies active within the fields of implant restorations and digitalisation. The number of companies exhibiting CAD/CAM system, for example, has increased by over 40 per cent compared to IDS 2009.

“The great level of participation from all over the world is attributable to the fact that the International Dental Show is the leading trade fair for the entire international dental world,” Oliver P. Kuhrt, Executive Vice-President of Koelnmesse GmbH, summarised the exhibition concept.

According to Kuhrt, online business services will enable IDS visitors and exhibitors to get in touch with each other before the start of the show in March 2010. The product catalogue will be also revamped and presented with a new layout and improved search options. Owing to the growing popularity of mobile services, a free iOS app will be offered for iPhone, BlackBerry and other mobile operating systems.

The 54th International Dental Show will be taking place at the Cologne exhibition center in Cologne, Germany, from 22 to 26 March 2011. In addition to the dental exhibition, there will be a substantial specialists programme supported by manufacturers, the German Dental association and the Association of German Dental Technicians’ Guilds.

Advance sales tickets are still available online on the Koelnmesse website (www.koelnmesse.de).

Dental Tribune welcomes comments, suggestions and complaints at feedback@dental-tribune.com

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LEIPZIG, Germany: More and more German dental equipment is exported to Asia, new figures released by the Association of German Dental Manufacturers have revealed. According to the organisation’s latest member survey, 40 per cent of all manufacturers reported an increase of sales in that region in 2009. Less growth was observed in Western Europe and the US, the two main importers of German dental equipment.

Total German dental exports fell by almost 10 per cent last year due to the ongoing financial economic turmoil in most parts of the world. At the same time, domestic sales increased by 2.5 per cent to over €1.62 billion. Germany currently exports over 50 per cent of its domestically-fabricated dental equipment abroad.

VDDI chairman Dr Martin Ruckert commented that the tense situation in the global economy has significantly affected consumer behaviour and willingness to invest in new equipment. Submarkets have also shown mixed results during the course of the year. He added that despite the slow economic recovery, expectations for exports in 2010 remain positive with the growing interest in aesthetic-driven solutions and increasing standards of living in emerging countries like Brazil, Russia, India or China accelerating demand.

With a total annual turnover of more than €3 billion, Germany is the second largest market for dental and laboratory equipment worldwide, only surpassed by the United States.

India set to launch domestic implant

Daniel Zimmermann

HONG KONG/LEIPZIG, Germany: A government-funded low-cost dental implant from India is said to be close to market release. The new tooth replacement developed by Dehli researchers as part of the country’s New Millennium Indian Technology Leadership Initiative is supposed to take on the country’s high prevalence of edentulism.

According to government statistics, between 12 and 30 per cent of Indians over the age of 60 are suffering from complete tooth loss.

The project, which is said to have cost almost a US$1 million, took five years to complete and is now undergoing human trials. Previous research on rabbits has shown promising results in regard to strength and susceptibility of the implant, lead researcher Prof. Mahesh Verma from the Maulana Azad Institute of Medical Sciences in New Dehli said. While final costs for commercial release still need to be calculated, they are expected to be significantly less than other tooth replacements currently available in the market.

“It will be kept affordable as that is the primary objective for this development.” Dr Verma told Dental Tribune Asia Pacific. “It is to serve the Indian masses.”

Most dental implants placed in India are imported from overseas and, therefore, only affordable to a small part of the population. Imports are estimated to cost between US$550–650 while the national average monthly income has only tipped US$65 in 2009, according to figures of the Central Statistical Organisation.

Dr Verma estimates that 60,000 to 70,000 implants are placed by dentists in India each year which falls short compared to its neighbour China. The country is also competing with other countries in the increasing medical and dental tourism market.

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Dear reader,

The year 2010 has been quite a mixed year for dentistry. There remains no doubt that the profession stands on the brink of a revolution with digital technology replacing more and more fields of work. On the other hand, dentists and the industry have been struggling to sustain their businesses due to the worldwide recession. In the US, for example, almost 10 million people lost their dental health insurance recently which could mean a potential loss of income for dentists of 10 billion US$ in the years to come. As a consequence, dentists in these regions have been very conservative when it comes to new investments, particularly in the premium sector where amortisation seems unlikely for the time being.

Hope for the dental industry now lies in Asia where a new middle class has formed that is financially able and willing to invest in their once neglected personal health. More and more manufacturers are recognising this potential and have been setting up local businesses. For Asian dentists this will not only mean better service but, up and foremost, a wider range of treatments options that they can offer to their patients. As one of the region’s most acknowledged dental publications we will continue to provide you an comprehensive and independent insight look into these all these exciting new techniques and developments. The Asia Pacific editorial team wishes you a happy and successful year 2011!

Yours sincerely,
Daniel Zimmermann
Group Editor
Dental Tribune International
Message of the FDI Interim Executive Director

Dear FDI Members and friends,

I would like to take this opportunity to update you on the progress of the FDI since our last meeting in Brazil. We have been busy over the last two months and have some important accomplishments to share with you.

Firstly, with regards to the Annual World Dental Congress, I am pleased to announce that we have successfully transitioned to a new revenue sharing model for collaborating with our host National Dental Associations. The 2012 AWDC with the Hong Kong Dental Association marks the beginning of this transition, which has been fully applied with the Korean Dental Association for the 2013 Congress. Additionally, we have established a new venue selection process for the FDI Annual World Dental Congresses. 2014 AWDC bid consideration will prioritize locations of interest to dentists and our industry partners. I believe that these two complementary changes to the Congress model and the selection process will be beneficial for Congress attendees, the host NDA’s and the FDI.

While on the topic of FDI Congresses, I would like to share with you two recent success for the 2011 and 2012 AWDCs in Mexico and Hong Kong, SAR China. For the first time ever, FDI has pre-booked 95% of the 2011 exhibition space before the official opening of sales! This shows the excitement and commitment of our industry partners and provides a strong indication that the Mexican Congress will be a success for everyone involved. The FDI and the HKDHA are also pleased by the high level of support shown by the Chinese Governmental and the Chinese Ministry of Health who are both committed to international scientific exchange and will help encourage and facilitate the attendance of Chinese dentists at our FDI AWDC in Hong Kong, SAR China.

Another exciting development that we are working on here at the Head Office is a plan to webcast the AnnualWorldDental Congress. This will allow colleagues all around the world to benefit from and partake in the CMF for a discounted price and from the comfort of their own homes or offices. Evidence suggests that the market for such webcasts is distinct from that of in-person congress attendance, so we are confident that webcasting the Congress will increase revenue and exposure for both FDI and our partner NDA’s while simultaneously furthering the FDI mission by providing low-cost access to the highest quality continuing education and cutting edge research to those who are not able to attend FDI Congresses in person. We plan to pilot this project by webcasting some sessions of the 2011 AWDC.

Another recent achievement I would like to highlight is our new partnership with Wiley-Blackwell to publish the International Dental Journal. Wiley-Blackwell is the flagship publication. The IDJ will facilitate the reach of our mission of promoting optimal oral health by extending the reach of our cutting edge research to those who are not able to attend FDI Congresses and cutting edge research to those who are not able to attend FDI Congresses in person. We plan to pilot this project by webcasting some sessions of the 2011 AWDC.

In summary, the FDI is moving forward and innovating despite the macroeconomic climate and recent staff turnover. We are working hard to improve the AWDC, communications and the reach of FDI so that we can better serve our Members and do more to promote optimal oral health in future. I wish you all a joyful holiday season and I am looking forward to our continued collaboration in 2012.

Yours sincerely,

Jerome Estignard,
Interim Executive Director
The results of the workshop were very positive; the FDI and ARO are currently preparing a report, as well as drafting a three-year workplan and actionplan. The goal of proposed FDI ARO oral health strategy for Africa region is “to improve health promotion, disease prevention and preventative disease management in a multi-professional environment, with a focus on careers, periodontal disease and cancer, which are all non communicable diseases.” The FDI would like to thank the South African Dental Association for hosting the workshop.

Further details on the FDI ARO Oral Health Strategy for Africa will be posted on the FDI website shortly.

The French Dental Association (ADF)—40 years of contribution to oral health

The French Dental Association (ADF) celebrated its 40th birthday during its Annual Congress which was held from 25 to 27 November in Paris, France.

ADF took the opportunity to meet with key stakeholders from around the world, spreading the word about the FDI mission of promoting optimal oral health, including the Annual World Dental Congresses.

The ADF invited Dr Roberto Vianna, the President of the FDI, to speak at the opening ceremony where, in excellent French, he emphasised the important role the FDI and francophone dentists have played throughout the FDI’s 100 year history, including founding the first FDI Congress and founding the organisation.

Dr Patrick Hescot and Dr Joël Trouillet who are both the Secretaries General of ADF and also FDI Councilor and Member of the FDI Education Committee respectively, provide a good example of the synergies between FDI and ADF.

About the congress

Astrom, international leading scientific programme coupled with the warm hospitality of the Mexican people are the core ingredients that promise to make the 2011 FDI Annual World Dental Congress a unique event. Cutting edge, though provoking sessions will keep you abreast of latest techniques and trends in your field as well as give you an opportunity to better understand where the dental profession is heading to. Not surprisingly, the dental manufacturers and retailers known as “El Grito”, have grasped the great potential of the event by already booking over 95% of the exhibit space at the end of November; a first in the history of the FDI. In the exhibition halls, you will discover the newest technologies and latest products to help you better perform in your profession.

About Mexico

Mexico City’s world class infrastructure, as well as its cosmopolitan lifestyle, makes it a unique destination capable of a wide variety of possibilities. One moment you’re sampling tequila at a classic cantina and the next you’re grooving to world-class DJs on a rooftop terrace or enjoying fusion cuisine by one of Polanco’s district fine dining restaurants. With the wealth of cultural offerings available it would truly be a shame to leave without experiencing Mexico City’s world class infrastructure and we are fortunate the congress will be in Mexico on this occasion.

FDI announces 2015 AWDC venue

Following stimulating presentations for the 2015 venue selection, the Council debated the proposals during a special session in Salvador da Bahia. The outcome is the selection of Seoul, Korea, who will host the event from August 29, 2015 to September 1, 2015. More information will be available soon on the FDI congress website.
At the FDI’s Annual World Dental Congress, held recently in Brazil, GSK-supported a timely symposium dedicated to the importance of denture and oral hygiene in denture wearers and its potential impact on their oral and systemic health.

Key messages from this symposium included that unclean dentures are a chronic source of potentially harmful bacteria and fungi that may be associated with oral and systemic diseases. In addition, dentures need to be cleaned daily with effective antimicrobial and antifungal agents. Finally, dental professionals play an important role in educating patients and helping them improve their oral and overall health.

An international panel of experts was chaired by Professor Claudio Fernandes, Prof of Prosthodontics, Fluminense Federal University at Nova Friburgo, Brazil. Prof Fernandes highlighted the growing edentulous population globally, the resultant oral health implications, and the role of dental professionals in dealing with associated issues. The speakers and their key points:

- Dr Zvi Loewy, VP of Dental Care R&D at GSK, and on the faculty of New York Medical College and Drexel University, US, looked at Edentulism: Public Health Impact. Prevalence of denture wearing patients ranges from 12% to 63% globally. Studies show an increased risk of certain systemic diseases in denture wearing patients, which has an impact on the public health system.

- Dr Angus Walls, Professor of Restorative Dentistry and Director of Research, School of Dental Sciences, Newcastle University, UK, discussed Implications of Oral Health and Nutrition on Systemic Health. Dietary changes associated with the loss of teeth can result in an unhealthy diet, low in fruits and vegetables and with increased fats and sugars. Denture stability is key to improving confidence in chewing ability, and is one of the parameters necessary to help patients improve diet and quality of life. The use of denture adhesives may help to stabilize the dentures or help improve masticatory efficiency. Evidence shows that as edentulous patients' nutritional intake declines, the function of the immune system and body repair is suppressed; perfect conditions for the development of oral and systemic diseases.

- Dr Wenyuan Shi, Chairman and Professor of Oral Biology, UCLA School of Dentistry, and Professor of Microbiology and Molecular Genetics, UCLA School of Medicine, US, discussed Microbiology of Denture Patients, and reiterated the deep connection between microbiology and dental diseases. Between 65-80% of denture patients have stomatitis caused by Candida albicans and Candida glabrata, and other pathogens present on dentures are implicated in respiratory and GI infections. He advocated the elimination of microbrial pathogens on dentures as very important.

- Dr Steven Offenbacher, OralPharma Distinguished Professor of Periodontal Medicine, Chairman of the Department of Periodontology, School of Dentistry, University of North Carolina at Chapel Hill, U.S. presented on Strategic Approaches for Denture Wearers Based on Periodontal and Prosthodontal Research. He detailed the importance of edentulism in systemic diseases; not as a major cause, but more as a risk factor. He reiterated that dentures carry high levels of many infectious organisms. Denture wearing is associated with increased risk of several systemic diseases including COPD, heart diseases, atherosclerosis, hypertension and diabetes. ‘Basically research suggests that patients need to do a better job at cleaning dentures on a daily basis and we as clinicians need to be very careful that we are reducing the source of infection in the mouth.’

The symposium was very well attended and well received by the delegates.

(Edited by Daniel Zimmermann, DTI)
A 28-year-old female patient fractured her right central incisor in a fall. Despite immediate dental treatment, the natural tooth could not be saved and had to be extracted. A removable temporary denture was fabricated and inserted to replace the missing tooth (#11). The patient was referred to us for the placement of the implant and the subsequent prosthetic work.

Owing to the good condition of the hard and soft tissue, pre-implantological augmentation was unnecessary. As Figure 1 clearly demonstrates, the frenum labii has to be relocated to prevent recession around the implant bed at a later stage. After three months of non-submerged healing, an impression was taken with a tray that was modified to allow the impression post to project. A master cast was subsequently fabricated in the dental laboratory.

The successful outcome of such a difficult case (high smile line, normal-to-pronounced curv of the gingiva, thin soft tissue) depends on two main factors: the proper three-di- mensional positioning of the implant, and the material and design of the abutment. We prefer to use zirconium-oxide (ZrO2) abutments with a titanium base, which ensures excellent fit in the implant owning to the industrially milled tita nium base. Furthermore, the ZrO2 abutment (emergence profile) can be individually cus tomised.

The emergence profile of tooth #11 was subsequently waxed up. The wax-up was used to create a silicone tem plate of the palatal aspect and another one of the vestibular aspect. The abutment base (ST, Astra Tech) was screwed into the laboratory analogue, and the ground emergence pro file and the base were isolated (Ceramill Sep) and light-curing resin composite (Ceramill Gel, both from Girrbach) was applied (Fig. 5). Preliminary cur ing was considered to be neces sary at this stage to achieve complete polymerisation of the light-curing material in the depth of the sulcus. Subse quently, the super-gingival part of the abutment was built up and light-cured.

In order to obtain flat sur faces a defined preparation margin along the abutment, the cervical areas were milled para gingivally. The labial proximal and the palatal surfaces were milled to produce a conical shape with a two-degree gradi ent.

The gradient and the palatal surface were cut by hand. The available space was checked with the previously fabricated wax-up.

In our laboratories, the abut ments are rendered in ZrO2 us ing the copy milling technique. Alternatively, this step can be conducted with CAD/CAM sys tems by using the double scan method or abutment design software.

The green body was smoothed after cop y milling. A chamfer was cut at the gingival level for the subsequent creation of a ceramic shoulder. Then the restoration was shaded and sintered (Fig. 4). After the sintering process, only very fine adjustments had to be made in order to ensure the final fit. In this case, the abutment was coated with IPS e.max Ceram ZirLiner (Ivoclar Vivadent). Next, the reduced shoulder made of IPS e.max Ceram was briefly fired on the restoration (Fig. 5). Furthermore, a thin layer of ceramic was placed over the entire ZrO2 abutment.

The abutment created in this way has three advantages. The glass-ceramic coating allows the abutment to be etched, which is a prerequisite for adhesive bonding of the crown and the abutment. Light transmission in the gingival area increases dramatically owing to the light transmission of 3 mm ZrO2 layers in the par gingival areas of the abutment dropping to almost zero. Finally, once IPS e.max Ceram ZirLiner and the layering ceramic have been ap plied to the restoration, fluores cen ce increases significantly. Usually, the fluoresc ence of ZrO2 is quite low.

An important aspect of this type of abutment is the bond between the titanium base and the ZrO2. We advise against the use of popular laboratory luting agents such as NiSmic Cem or AGC Cem. A study conducted by Prouxial under the direction of R. Meyer, MD, has recently shed some light on this frequently neglected working step.

The latest development in this industry segment is Multi link Implant (Ivoclar Vivadent). This material has advanced the standards for the handling and physico-chemical properties of these products. According to the study mentioned above, the bond strength of this self-curing luting composite, which can also be light-cured, is 45 per cent higher than that of the previous bioceramic PANAMICA (Kuraray) and about 25 per cent higher than that of RelyX Unicem (3M ESPE). That Multilink Implant quickly cures without exposure to light is an advan tage when thick abutments are involved, as in these cases light may rather absorb away with all areas of the restoration and may therefore fail to adequately cure the cement.

In the Provilab study, which examined surface-conditioning and curing methods, the high est bonding properties were achieved under the following conditions. The inner surface of the ZrO2 abutment was cleaned with 10 µm aluminium oxide (Al2O3) at 1 bar pressure, and the titanium base was cleaned with 50 µm Al2O3 at 2 bar pressure. Both bonding surfaces were coated with IPS e.max Ceram ZirLiner (Ivoclar Vivadent), which was allowed to react for one minute before it was dried with blown air. Then Multilink Implant was applied to the inner surface of the ZrO2 abutment and the ti tanium base was attached to it (Fig. 6). Like all composites, Multilink Implant is susceptible to oxygen inhibition, that is, the uppermost layer (approxi mately 100 µm) of the material does not completely cure during the polymerisation process because it is exposed to oxygen.

There are several ways to prevent this problem. After the zirconium part has been at tached to the bonding surface, excess composite can be com pletely removed and a glycerine gel (for example, AIRBLOCK, DENTSPLY) applied to prevent the formation of an inhibited layer. The excess composite, on the other hand, can be also left in place. The cement joint was not cleaned after the two had been joined and the excess cement was removed with a sharp instrument after poly merisation. It is important to

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take care not to damage the cement joint at this stage. Finally, the cement joint was finished and polished in a high gloss with rubber polishers. Our efforts resulted in an impeccable joint (Fig. 7).

In the next step, the coping for the IPS e.max lithium disilicate glass-ceramic crown (Ivoclar Vivadent) was fabricated. The screw access hole was sealed (for example, with silicone putty) and the abutment was treated like a natural abutment tooth. In other words, it was coated with spacer (for example, IBUKI die spacer, Anaxdent).

The coping was waxed up to create a reduced tooth shape (anatomical). This was done to ensure controlled shrinkage during the veneering step. Depending on the tooth that is being restored, that is, depending on its transparency and brightness, either an IPS e.max Press (Ivoclar Vivadent) low translucency or a medium opacity ceramic ingot is used to press the coping.

After the restoration had been pressed, the spires were removed and the coping was carefully tried in and finished. Foundation firing was conducted before the main firing cycle (Fig. 8) because it enhances the bond between the layering material and the pressed coping. Moreover, the coping was characterised with fluorescent stains in order to prevent the luting composite from entering the sulcus, a retraction cord was placed (001 Ultrapac, Ultradent).

In preparation for insertion, the ceramic surfaces were etched (for example, with IPS Ceramic Etching Gel, Ivoclar Vivadent). The surface of the abutment, which was covered with IPS e.max Ceram (nano-fluorapatite glass-ceramic), showed a large retentive etch pattern after a reaction time of 20 seconds (4.5% HF). The lithium-disilicate inner side of the all-ceramic crown was also etched for 20 seconds. Finally, both parts were conditioned with silane (Monobond Plus). In order to prevent the luting composite from entering the sulcus, a retraction cord was placed (001 Ultrapac, UltraRadent).

The restoration was seated with a luting composite (for example, Varilink II, Varilink Veneer or Multilink Implant; Ivoclar Vivadent). It is important to note that Varilink Veneer should only be used to veneer abutments with a metal abutment or a ZrO2 abutment (Fig. 9).

During glaze firing, I maintained the final temperature for only 20 seconds in order to obtain a silks mat surface. The desired level of gloss was subsequently achieved with a polishing machine, using a wet felt wheel and pumice. The inner surface of the crown was not sandblasted, as this would have compromised its strength. After the restoration had been tried in, the inner surface of the crown and the surface of the abutment were cleaned with alcohol.

For the IPS e.max Ceram (nano-fluorapatite glass-ceramic) shoulder, a luting composite that cures adequately, as this cement reacts on its translucency and brightness, either an IPS e.max Ceram (nano-fluorapatite glass-ceramic), shows a large retentive etch pattern after a reaction time of 20 seconds (4.5% HF). The lithium-disilicate inner side of the all-ceramic crown was also etched for 20 seconds. Finally, both parts were conditioned with silane (Monobond Plus). In order to prevent the luting composite from entering the sulcus, a retraction cord was placed (001 Ultrapac, UltraRadent).

In the context discussed, the gingival biotype is thick (the keratinised gingiva is 1.0 to 1.3 mm thick), the cementum layer contains all the internal characteristics of the tooth. As a result, the shape and surface texture of the restoration could be adjusted to the characteristics of the adjacent tooth by grinding (Fig. 9).

All these aspects have to be taken into consideration in order to achieve lifelike results. If the gingival biotype is thick (the keratinised gingiva is 1.0 to 1.5 mm thick), the selection of the abutment does not have such a great influence on the pink aesthetics of the restoration. In these cases, a metal abutment or a ZrO2 abutment without an additionally fired ceramic shoulder would suffice.

Nevertheless, ZrO\textsubscript{2} is far superior as an abutment material with regard to white aesthetics. Unlike metal substrate materials, it allows light to penetrate from different angles (for example, light from the side). The thick gingival biotype exhibits an even soft tissue and bone architecture:

- minimal difference amongst buccal, marginal and proximal soft tissue and bone heights;
- short interdental papilla;
- fimbria character of soft tissue;
- tendency to scar;
- square anatomic crowns with rounded convex surface;
- severe keratinisation;
- large contact area between clinical crowns;
- minimal tendency to recede;
- and a periodental probe does not show through the gingival tissue.

**Non-submerged healing**

The decision to follow a non-submerged protocol was based on the following reasons:

1. ample time for maturation of the soft tissue before the prosthodontic work begins;
2. avoidance of a second surgical procedure;
3. 5. maintenance of blood supply to the area; and
4. reduction in the treatment time and less inconvenience for the patient (according to Anthony G. Sgelar).

This approach is only possible if there is adequate gingiva. If soft tissue has to be augmented, submerged healing is essential. In the present gingival biotype, the frenal ligament had to be relocated, since it extended into the attached gingiva and may have caused the tissue to recede.

In the case discussed, an inter-sulcular incision was made without a relieving incision. This approach allowed the vestibular bone lamella to be visually checked. Only very little connective tissue had to be removed.

As a result, there was minimal bone loss and scarring did not occur.

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**Contact Info**

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**Discussion**

Tackling a complex abutment design of this kind is only possible if the gingival biotype is thin and normal (according to
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