Midline diastema closure using the front wing technique

By Dr. Walter Devoto, Italy

About the Case
A 35-year-old female patient expressed a desire to optimize existing composite restorations on her maxillary central incisors, which had been placed 15 years previously to close her diastema. Then, a silicone key had been used for guidance. No tooth preparation was carried out, as the composite was bonded to the tooth structure.

Challenge
The surface of the restorations showed slight discolorations which were removable by polishing. The shape of the teeth was acceptable, but not perfect. A decision was made to retreat her in a non-prep, single-shade approach. The main goal was to create a more natural shape. The front wing technique invented by the StyleItaliano team was used. This approach involved freehand modeling of the vestibular part of the tooth, which was easily accessible. Afterward, material was added to the palatal side, and anatomical matrices were employed for shape optimization.

Outcome
The technique worked beautifully to close the diastema. Despite freehand modeling, it was much easier and more precise than using a palatal silicone index. In addition to the natural shapes that were achieved, 3M Filtek Universal Restorative blended well with the surrounding dentition, making the restorative work indistinguishable.

About the author
Dr. Walter Devoto graduated with honors in dentistry and dental prosthesis in 1991 at the University of Genoa, Italy. He is particularly interested in the fields of conservative dentistry and esthetic dentistry and runs his own private practices in Sestri Levante and Portofino. In addition, he is collaborating with diverse prestigious dental offices throughout Europe, which specialize in aesthetic dentistry. He has worked as a teacher and demonstrator at the University of Genoa and as a lecturer at the universities of Siena and Madrid. Now, he is a lecturer at the International University of Catalonia, Barcelona, Spain, and visiting professor at the Aix-Marseille University in Marseille, France.

INITIAL SITUATION: 15 years after the initial non-prep treatment, the restorations were still intact, but there was room for improvement in regard to shape, especially in the vestibular area.

To ensure esthetic results and create favorable conditions for bonding, surfaces were roughened and discloration and debris removed with 3M™ Sof-Lex™ Extra-Thin Finishing and Polishing Discs.

The surface was cleaned and slightly roughened for etching and bonding. The selected treatment approach worked without tooth preparation.

Enamel was etched with 3M™ Scotchbond™ Universal Etchant. After 15 seconds, etchant was removed by rinsing with water, and 3M™ Scotchbond™ Universal Adhesive was applied.

The preferred material for the single-shade technique was 3M™ Filtek Universal Restorative™ shade A1. The composite has a universal opacity and lending a chameleon effect.

Case Overview
After application of the first layer of composite, the diastema was closed from the vestibular surface. Vestibular wing was filled and cured on the palatal side.

Two anatomical matrices were used to close the diastema, create natural shape and ensure tight contact between central incisors.

Matrices in contrasting colors were used. A drop of uncured flowable composite between each matrix and tooth helped hold matrix in place.

Composite material was applied to fill space between each incisor and adjacent matrix. Matrix shape helped establish tight contact points and desired anatomical form.

After light curing, composite was added from the palatal side. First matrix on right central incisor was removed.

Removal of second matrix revealed a natural shape. Composite excess was easily removed from the incisal edge.

Restoration surface was polished with 3M™ Sof-Lex™ Pre-Polishing Spiral (beige) of the 3M™ Sof-Lex™ Diamond Polishing System.

Restorations received final polish with 3M™ Sof-Lex™ Diamond Polishing Spiral (pink) of 3M™ Sof-Lex™ Diamond Polishing System.

New composite restorations blended well with natural surface of central incisors.

FINAL RESULTS: Anterior restorations were naturally shaped and virtually indistinguishable from natural tooth structure. The composite blended in perfectly with the color of the surrounding teeth.

Refer to Instructions for Use (IFU) for complete product information.
What if a composite could make your busy days easier?
Mastering black holes with premium endo-brands

By Coltene

COLTENE is a global leader in the development, manufacture and sale of consumables and small equipment for endodontic treatment applications. The comprehensive portfolio of endodontic systems includes root canal preparation with files and rinsing solutions, obturation and post systems. As the inventor of controlled memory files with the launch of HyFlex CM in 2011, COLTENE has taken a lead in innovative products for modern endodontics treatments.

Additionally, the COLTENE Dental Group offers a wide range of products, encompassing three segments. This results in solutions for almost all dental treatments ranging from infection control to tooth preservation and treatment efficiency. The COLTENE Group strengthened its position in the Endo-Segment with the acquisition of the French expert MicroMega. The now combined product portfolio offers an even more customised range of files and endodontic equipment.

Product range for new endodontic dimensions:
- HyFlex EDM and CMA MicroMega One Curve and MicroMega 2Shape NiTi file systems, allowing the fast and safe instrumentation of the various root canal anatomies according to the preferences of the user.
- HyFlex paper and gutta-percha points, which perfectly match to the HyFlex CM and HyFlex EDM NiTi file systems.
- Well proven CanalPro and MicroMega Dual Move endo motors, completed by CanalPro and Dual Pex Apex Locators for working length measurement.
- Innovative modular CanalPro rinsing solution system and MicroMega EndoLight for ultrasonic activation to ensure an optimised disinfection and long-term successful treatment.

New SmartLite Pro – more than just a curing light

By Dentsply Sirona

Primarily, a curing light is a device to polymerize restorative materials. But it can be so much more, as shown by the new SmartLite Pro from Dentsply Sirona. It is an outstanding tool that allows for cutting edge curing performance. In addition, it features a forward thinking modular concept with quick connect tips for a variety of clinical indications. Last but not least it exhibits an extraordinary design combining high-tech elements and robustness with a lightweight pen-style look and feel.

The Smartlite Pro is a unique modular curing device in a remarkable, all-metal housing.

Designed to perform

Once you have taken the new curing light into your hands you will immediately feel a lightweight and well-balanced pen-style design which is beautiful in each of its details. The SmartLite Pro’s housing is fabricated of medical-grade stainless steel and anodized aluminium providing for robust durability and elegant simplicity.

The user will love the easy and intuitive operation with only one single button. Feedback is facilitated by precise audible and tactile signals. Its clinical performance in everyday practice is unarguable.

Top of the class in curing

SmartLite Pro features newly engineered state-of-the-art optics to provide a homogeneous beam profile for a uniform curing performance. Unlike many conventional lights, the new device has an even and focused light distribution over the whole curing area. Moreover, the SmartLite Pro features an active light output diameter of 10 millimeters. This ensures that the beam completely encompasses even fillings with a large horizontal extension. The leading clinical performance is accompanied by a comfortable handling. The 360 degree rotatable tips and the low-profile head with four high-performance LEDs guarantee easy clinical access even in hard-to-reach areas of the mouth. The dentist experiences excellent intraoral control and will easily maintain a steady hand at the proper angle.

Constant availability thanks to innovative battery management

The future of multifunctional charging base features a built-in radiometer and room for extra tips. The intuitive battery management system comes with two quick connect batteries for constant availability. Cutting-edge lithium iron phosphate cell technology ensures that the dentist may enjoy a full day of clinical operation with only one charge.

Thinking ahead

The modular versatility expands the options beyond the scope of a pure curing light and includes various other indications. For example, the user may easily change from the curing tip to the transillumination tip. Within a few moments he holds a diagnostic aid for the visualization of interproximal caries and cracked teeth in his hand. And in the area of root canal treatment this tip will provide for endo access illumination.

But the best news is: The platform technology of the SmartLite Pro offers a forward-thinking system, which gives way to numerous future upgrades and will open up new worlds of indications and applications. The SmartLite Pro is one of the most versatile dental instruments because it features leading quality of care, and yet so much more than just a curing light.

Dental study of ancient chewing gum informs about oral microbiomes of the past

By Dental Tribune International

COPENHAGEN, Denmark: Though its popularity and constituent ingredients have changed over time, chewing gum has been used by humans for thousands of years. A new study out of Denmark that analysed 45,700-year-old piece of chewing gum made from birch bark pitch has succeeded in extracting a complete human genome from the pitch, demonstrating it as a potential new source of ancient DNA.

The pitch was found during archaeological excavations carried out by the Museum Jyllands- Folket i Sydjylland in southern Denmark, and subsequent analysis was conducted by researchers at the University of Copenhagen. Radiocarbon dating of the pitch helped to place it as a specimen from the early Neolithic period in Denmark, while DNA sequencing revealed that it was chewed by a female who was more closely genetically related to the hunter-gatherers of mainland Europe than to those who populated central Scandinavia at the time. It was found that she probably possessed dark skin, dark hair and blue eyes.

Traces of hazelnut and duck DNA were also identified in the pitch, suggesting that these may have formed part of the individual’s diet. The researchers also successfully identified DNA fragments from several bacterial and viral taxa, including the Epstein-Barr virus, which can cause glandular fever.

“The [pitch] is the biggest Stone Age site in Denmark and the archaeological finds suggest that the people who occupied the site were heavily exploiting wild resources well into the Neolithic, which is the period when farming and domesticated animals were first introduced into southern Scandinavia,” said Dr Theis Jensen, a postdoctoral student at the University of Copenhagen’s gløe Institute and co-author of the study.

“We managed to extract many different bacterial species that are characteristic of an oral microbiome,” added Dr Schneider, associate professor at the Globe Institute.

“Our ancestors lived in a different environment and had a different lifestyle and diet, and it is therefore interesting to find out how this is reflected in their microbiome,” he continued.

Though still a relatively new form of analysis, DNA sequencing from birch bark pitch is growing in popularity, in part owing to its potential to be a good proxy for human bones in archaeological studies. As reported by Dental Tribune International last year, Scandinavian researchers have previously used pitch to sequence DNA from the first humans who settled in the region some 10,000 years ago.

Though a considerable amount of information can be uncovered through the DNA sequencing of pitch, several questions still remain—including the question of what the purpose of chewing it was. Some researchers have suggested that it may have been a method for making the pitch more pliable for further purposes, while medicinal and hunger-suppressing uses have also been put forward for consideration.

The study, titled “A 5700-year-old human genome and oral microbiome from chewed birch pitch”, was published on 17 December 2019 in Nature Communications.

Fig. 1: Ergonomic, pure and elegant: the new curing light SmartLite Pro by Dentsply Sirona.

An artistic reconstruction of what “Lola”, the woman who chewed the birch bark pitch, may have looked like. (Image: Tom Björklund)

By Dental Tribune International

RESTORATIVE

SIRONAGEN

New fully automatic endo motor CanalPro for endodontic treatment will be launched in the next few months.
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Perform at your best in diagnostic and restorative

Reduce glare and create beautiful restorations

By Hu-Friedy

Having a clear and precise diagnosis is needed in order to correctly plan the necessary treatment and sight is the first sense that every clinician uses, therefore having the best possible vision is crucial.

With this in mind, Hu-Friedy, the global leader in dental instrument manufacturing and infection prevention solutions, leveraged the success of HD Mirrors, Blackline and XTS product lines, to create HD Black Line Mirrors. This innovation was engineered to optimize clinical outcomes by delivering superior visibility throughout any dental procedure.

Designed for enhanced performance, Hu-Friedy’s HD Black Line Mirrors have a Diamond Like Carbon (DLC) coating, which reduces glare up to 80% compared to a standard metal mirror heads and handles. This helps to reduce strain and fatigue, creating a more ergonomic mirror, as the user does not need to adapt their viewing position due to unwanted shine produced by traditional metal mirror handles or frames.

Additionally, the black matte finish provides enhanced contrast and visual acuity within the oral cavity. This creates a distinct contrast between the instrument, the tooth and/or the surrounding tissue allowing for easy identification intraorally.

So, the DLC coating in combination with the superior brilliance and color of Hu-Friedy’s proprietary HD Mirror glass facilitates quicker and more accurate visibility of the mouth. Tami Wanders, RDH, MEd, from USA, states about the product: “I wear loupes with a LED light and noticed a significant difference in the shine produced by traditional metal mirror heads and handles. This helps to reduce strain and fatigue, creating a more ergonomic mirror, as the user does not need to adapt their viewing position due to unwanted shine produced by traditional metal mirror handles or frames.”

In addition to its slender profile and innovative NiTi handles or frames. This helps to reduce strain and fatigue, creating a more ergonomic mirror, as the user does not need to adapt their viewing position due to unwanted shine produced by traditional metal mirror handles or frames.

Fig. 1

**Fig. 3**

By Dental Tribune International

Radical oral intervention not necessary before stem cell transplants, study says

By Dental Tribune International

BASEL, Switzerland/HELSINKI, Finland: Hematopoietic stem cell transplantation is used to treat cancer and severe blood and autoimmune diseases owing to slow immune system recovery after the transplantation, patients have a heightened risk of infection. However, a recent study has reported that the presence of acute or chronic oral foci of infection before the transplantation does not affect the patient’s survival rate within six months of the procedure.

The study was conducted by the University of Helsinki, the Helsinki University Hospital, the University of Basel, and the University Hospital Basel. It involved patients who had been treated at the University Hospital Basel, of whom 341 had received an allogeneic stem cell transplantation and 153, an autologous stem cell transplantation.

The procedures were carried out between 2008 and 2016. Before the transplantation, all patients underwent a clinical and radiographic dental examination to identify any potential foci of infection and the number of missing and filled teeth.

A total of 51 stem cell transplant patients died within six months of the procedure. However, the data showed that the foci of infection, the number of missing or filled teeth, and the cases of periodontitis identified in the examinations were not associated with the patients’ lower survival rates.

“Contrary to our assumptions, untreated oral infections had no connection with post-stem cell transplantation survival during the six-month follow-up period. Another surprise was that they had no link with any serious infectious complications occurring during the follow-up period,” said lead author Prof. Lucasus Waltimo, assistant lecturer in the Department of Biomedical Engineering at the University of Basel.

However, the patient’s health permitting, and if the wound has enough time to heal before chemotherapy, the radical treatment of such infections is justified. Other than that, conservative, non-radical treatment that eliminates the infection carried out by a dentist familiar with the case appears to be the lowest-risk option in terms of infectious and bleeding complications,” Waltimo noted.

According to Waltimo, the study findings can be applied to any other patient groups, especially not to patients suffering from cancer in the region of the head and neck, or those with a heart valve or a prosthetic joint.

The study, “Associations of oral foci of infections with infectious complications and survival after hematopoietic stem cell transplantation,” was published on 18 December 2019 in PLOS ONE.

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Fig. 4

The results of a recent study have suggested that radical treatment of acute and chronic oral infections could be postponed until after hematopoietic stem cell transplantation. (Image: Vadym Wedmov/Shutterstock)