Together towards pink-white esthetics

“Communication is the answer to complexity.” This article demonstrates, once again, the importance of good cooperation between the dentist and the dental technician.

By Dr. Jorge André Cardoso, DT Oleg Blashkiv, Dr. Rui Ne-grão and Dr. Teresa Taveira, Portugal

In prosthetic dentistry, effective communication between the clinician and the dental technician is of paramount importance. This article presents a case which, among other things, involved soft-tissue remodelling in the anterior region. Consistent close cooperation between the dentist and the dental technician and their concerted action provided the basis for a successful outcome.

Case presentation

A 52-year-old female patient presented to our practice with an unsightly, defective anterior bridge extending from tooth 12 to tooth 21. The bridge had been placed seven years ago. As she was unsatisfied with her smile, the patient was looking for an esthetic, more natural-looking alternative. The veneer of the metal-ceramic bridge had a very opaque and yellowish appearance. In tooth 21, the metal margin was exposed cervically due to gingival recession. Alveolar ridge atrophy in the area of the missing right central incisor (pontic) had resulted in a considerable vertical reduction. The shape and shade of the teeth needed improvement and harmony between white and pink tissues had to be restored (Fig. 1).

Treatment plan and mock-up

Since smile improvements involve complex procedures, it is advisable to simulate the final result by means of a direct composite mock-up. This important step enhances the trust and confidence of the patient. A mock-up provides the patient with a clear idea of what the effect of the planned restoration will be once it has been seated in the mouth. In our opinion, this step cannot be entirely replaced by digital design previews. The mock-up allows the lab technician to obtain a better understanding of the individual clinical situation. Later on, the mock-up can be used as a template in the fabrication of the lab wax-up and for the provisional restoration.

In the case at hand, the mock-up revealed that in order to achieve a more balanced appearance, tooth 22 needed to be integrated into the restoration (Fig. 2). And even more importantly, it showed that not only the correct position, shape and colour of the teeth were key factors in achieving a harmonious smile in this case, but also the correct gingival architecture and emergence profiles.

Consequently, the patient was informed that, in order to achieve a satisfactory result, the soft tissue had to be increased in the pontic area. The patient fully agreed to the treatment plan suggested.

The treatment plan involved:

1. the removal of the existing restoration
2. the placement of a provisional bridge and soft tissue grafting in the pontic area (soft tissue management that would take several months)
3. the insertion of a new ceramic bridge and a laminate veneer on tooth 22 and, if needed, also on tooth 15

Connective tissue graft and immediate provisional bridge:

Very frequently, tooth extraction can be established as the possible cause of alveolar ridge atrophy. In this particular case, there was a considerable lack of volume in the bone in the pontic area. To re-establish the soft-tissue architecture, two surgical interventions were planned. Immediately after having performed the first connective tissue graft, a provisional, lab-fabricated bridge was placed. The bridge was constructed on the basis of the mock-up information. It was reinforced with metal wire. The soft tissue contouring phase that followed took several months. Initially, the provisional exhibited an inner concave surface to provide sufficient space for the soft tissue. In order to prevent any possible loss of information, the pontic area of the provisional restoration was filled with a silicone-based impression material and then placed over the prepared teeth on the model (Figs. 7 and 8). This would provide the technician with a good approximation of the final shape of the pontic.

In order to determine the correct location of the contact line, the dentist communicated the results to the lab technician to obtain a better understanding of the individual clinical situation. Later on, the mock-up can be used as a template in the fabrication of the lab wax-up and for the provisional restoration.

Fig. 7: Try-in of the zirconia bridge framework.
Fig. 5: Second connective tissue graft.
Fig. 6a to d: After the surgical intervention, a metal-reinforced provisional bridge was placed and the shape of the pontic area was progressively shaped from concave to convex during the following months.
from the mouth to the model

Figs 8a and b: Lab communication: Transfer of the basal shape of the pontic

Figs 11a to c: Cementation of the ceramic restorations

Fig. 13: Frontal view

Figs 12a and b: Lateral view of the inclined final restorations

point, the distance between the bone crest and the gingival crest was measured. It is well-established in the literature that a papilla will be present if the contact point is no more than 6.5 mm away from the most coronal interproximal height of the bone crest between a natural tooth and a pontic. This can be measured by probing the bone with an endodontic spreader, marking the distance during the ceramic try-in and then using it in the fabrication of the restoration. However, using this distance can lead to a very large contact area with a short papilla if the bone is missing. The result is an unnatural, square tooth shape. Therefore, this is important information for the dental technician. When applied wisely during ceramic layering, interproximal pink, brown and yellow stains can create a very natural illusion and thus help to overcome this problem. In the course of the treatment in this case, it became clear that the restoration of tooth 13 was unnecessary to achieve the desired outcome.

The try-in of the restoration revealed that the zeniths of the gingival contours were misplaced. The use of slide share software (e.g. Keynote) allowed us to transmit visual information to the dental technician on the following issues:
- the desired gingival zenith
- the desired interproximal stains (to mask the interproximal spaces)
- the position of the buccal ridges, which is of paramount importance for the visual perceptions (Fig. 9)

Final restorations
Even though cementing the veneers first has certain advantages (colour stabilization), in this particular case both types of restorations were cemented simultaneously. The veneer for tooth 22 was pressed from IPS e.max® Press lithium disilicate glass-ceramic (shade LT3, A2) and completed with IPS e.max Ceram. The pressable ceramic is available in various degrees of opacity and enables esthetic restorations to be fabricated that blend seamlessly with the remaining dentition. Variolink® Esthetic LC, a light-curing luting composite (in a neutral shade), was used to cement the laminate veneer (Figs 10 to 15). The porcelain-fused-to-zirconia bridge (IPS e.max ZrCAD veneered with IPS e.max Ceram) was cemented with the self-adhesive, self-curing resin cement SpeedCem® (in shade Transparent) according to the instructions of the manufacturer.

Conclusion
Smile improvements are very challenging, particularly if, in addition to restoring the white esthetics, a harmonization of the gingival architecture is required. Only by choosing a multidisciplinary treatment approach will be mutually beneficial communication between the dentist and dental technician. This is an essential prerequisite to achieve the desired success. ■

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The Dental Technician Profession – My vocation

By Stanislav Shishkov, Bulgaria

With the rapid pace of life nowadays, the dental technician profession is evolving fast with a focus on Aesthetics on all levels. Patients are well informed, have high requirements for aesthetics, occlusion and function. In order to realize the desires of the patient we ‘the dental technician’ must be extremely professional and capable of working in a team. The dental technician profession is a wonderful profession consisting of talent, theoretical knowledge, good teamwork and continuous desire for improvement. To achieve successful teamwork, one’s personal traits are of a big importance for the team to function properly. There must be a good communication between dentists and dental technicians as it involves a two-way exchange of knowledge, innovative techniques for medical treatment and important information about the preferences of the patient and the realistic possibilities of the realization. In good synergized teamwork, success is inevitable and that success is shared amongst all. We must enjoy the successes of the dental team and the creative achievements of other colleagues.

As the dental technical work has several stages, the team have to be responsible and carry out each individual task perfectly at each stage in order to achieve excellent results. Based on my experience, I agree that dentistry should be a balance between the incoming new technologies and human resources. Talent cannot be replaced by any equipment or machine. Beautiful smiles need a lot of love, extraordinary talent and professionalism.

Undoubtedly, the upcoming new technologies in dentistry and dental technician field are very helpful in facilitating an easier labor process and shortening the technological time for finishing of the end-product. The ongoing competitive race between the dental manufacturers for constant improvement of software and good quality graphics and precision in construction results to the quick development and creation of even better and more useful products in our profession.

However, I strongly believe that in the near future, there will be no shortage of the dental technician professional as more and more colleagues are realizing that following a postgraduate training and education is one of the best investments. From the machines used in the dental technician profession to the application ceramic brush used, there is a need for intellect and talent which we have to evolve. We must not forget that we work for the people, for their health and happiness.

The dental technician profession is a medical profession from person to person, not just a business, but a profession which has to be exercised regularly with dedication and love. For me it is a vocation.
CEREC Premium SW 4.4: More options for your practice lab

By Sirona

Sirona’s new CEREC Premium SW 4.4 now allows dentists with a practice lab to treat cases that go beyond what could previously be handled chairside. This is now possible due to the extended range of indications, a larger selection of processing tools and the support of the infos X5 and infos Blue extraoral scanners.

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Sirona is now offering even more options for the practice lab with the expanded CAD/CAM software CEREC Premium 4.4. It links the integrated patient-oriented workflow of the CEREC chairside software with the wide range of indications of inLab software. From crowns to bridges and other sophisticated restorations, all work steps can be carried out using just one software in combination with the versatile CEREC milling units.

Patient-oriented workflows

The expanded indications allow the practice lab to also construct and produce crown copings, bridge frameworks, bridges with anatomical connectors, bars and telescopes. This means indications previously sent outside the practice can now be performed in the practice. Dentists may use the CEREC Omnicam or CEREC Bluecam for introral scanning, but the CEREC Premium SW 4.4 also supports Sirona’s extraoral scanners infos X5 and infos Blue, enabling even most complex cases.

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The new features of CEREC Premium SW 4.4 and the seamless treatment process ensure shorter, simpler and therefore patient-oriented workflows because restorations for a wide range of indications can be prepared in one session or on the same day. Like all CEREC software, CEREC Premium SW 4.4 allows an optimal digital workflow by sending and receiving digital impressions and restoration data via the Sirona Connect Portal. The portal forms the link between CEREC and inLab system components.

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