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CASE REPORT

Take care of the substrate

DR. JON GURREA
AUGUST BRUGUERA

LABLINE ACADEMY

Minimally invasive treatment of a severely eroded dentition: a fully digital workflow

FEDERICO MANDELLI, DDS
STEFANO ROTA, CDT
GIORGIO MANDELLI, MD, DDS

EXCLUSIVE INTERVIEW WITH

Juvenal Souza Neto

Zirkonzahn®



CLIMBING THE MOUNTAIN OF DENTAL TECHNOLOGY

Ranger #21 – EDUCATED BY ZIRKONZAHN.SCHULE

Alexander Lichtmanegger, 21 years old, successfully completed the Zirkonzahn Ranger School in South Tyrol in 2017 and is currently working as dental technician in his family dental laboratory Lichtmanegger Zahnlabor, in Austria.



RANGER SCHOOL

BY ENRICO STEGER

“In the School, I was Ranger number 21. When I first heard about the Ranger School, I immediately thought I had to join. I’ve always seen this as an opportunity to steer my future career in the right direction. At the beginning, I only thought about the dental courses that I would attend during the 6 months, but as time went by, I realised that the training had something more to offer. There, you really have to push your limits and you can clearly get the chance to see what you can do and who you really are! For example, we had to read three books with philosophical content within that period, and everyone who knows me a bit better can say that philosophy and reading are not really my cup of tea. As for the subject matter, I can only say one thing: during the Ranger School I’ve learned a lot and have definitely developed extremely well. I look forward to putting what I have learned into practice in our laboratory at home!”

Enthusiastic, committed and ambitious young technicians willing to be prepared for their future as dental laboratory owners: these are Rangers! With great motivation, in a period of three to six months, they take part in a challenging school program that will pave their way towards future success in their own dental laboratories. In an international atmosphere, Zirkonzahn’s expert dental technicians fully pass down their knowledge to the Ranger School participants, covering a wide variety of disciplines and fields that span from the latest dental technologies and workflows, to aesthetic design, professional writing, marketing, culture and photography. But the Ranger School is not only homework and workshops: alongside the strict schedule, adventurous and cultural activities await the participants, bringing the Rangers face to face with their own limits, giving them the chance to grow up not only professionally but also personally. Hence, “Climb the mountain” is the Ranger School’s motto!



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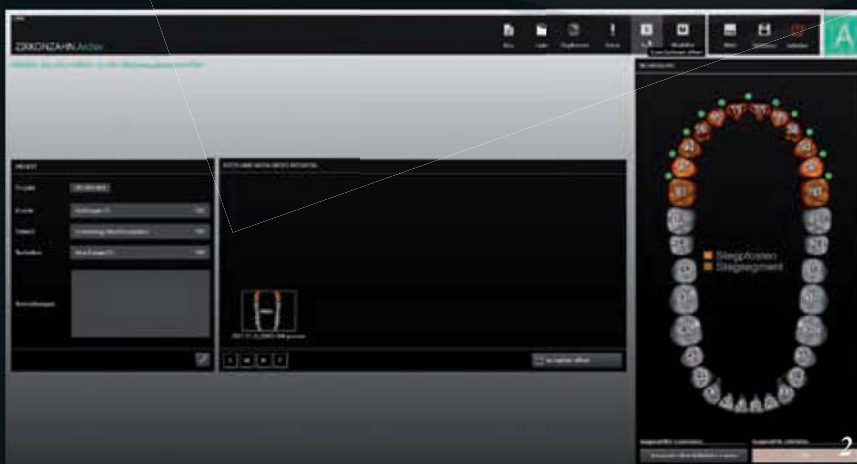
THE ART IN THE DETAIL

IMPLANT-SUPPORTED PRETTAU® ZIRCONIA FULL-ARCH MAXILLARY RESTORATION ON A FRICTION BAR

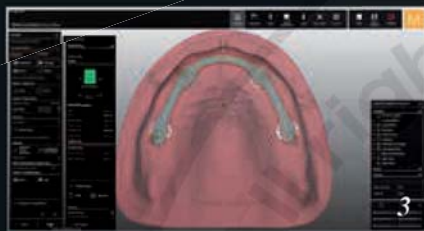
Case first published in german magazin "Dental Dialogue", issue 6/2018, Germany

The following article, dealing with a case study of a bar-supported Prettau® zirconia full arch, reflects very well the teaching contents of the Ranger School, since it was produced and documented by Ranger #21 in person at the end of his training. Starting from a maxillary plaster model with four implants, Ranger #21 Alexander Lichtmannegger was asked to manufacture a Prettau® Bridge with friction elements (a zirconia bar and a resin friction sleeve) that would have been applied to the implants using titanium bases.

The special feature of Alexander's restoration (Fig. 1) is the colouring of the exposed roots and cervical areas in order to create beautiful morphologies which, in combination with a retracted gingiva, created a realistic separation in the teeth, especially in the interdental papillae area. Not only did this case show an innovative technique to produce natural looking bridges, but this is also the proof of how talent in combination with high quality technologies can boost one's abilities.



I started the restoration by manufacturing the bar made with ICE Translucent zirconia. The first step consisted of the creation of a case project in the Zirkonzahn.Archiv software (Fig. 2).



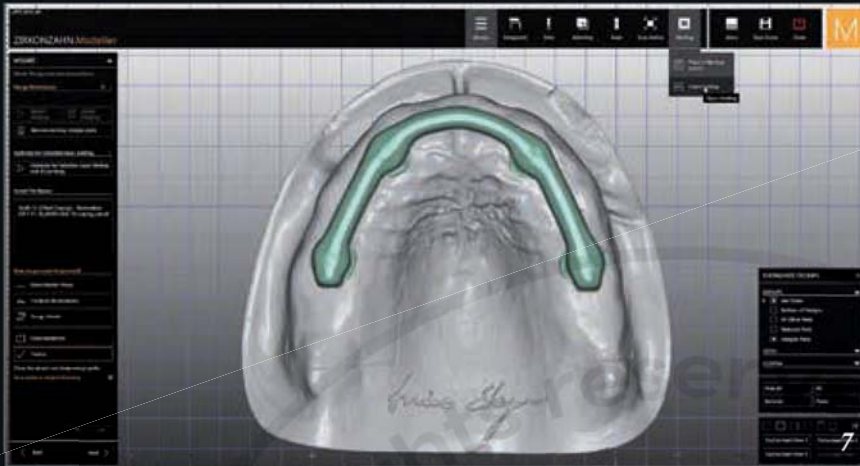
Then, I designed, nested and milled the primary structure (Fig. 3 and 4).

I coloured and sintered the primary structure at 1500 °C and after sintering, the bar appeared in the desired A2 shade. To comply with the high hygienic standards for implant restorations and to prevent bacterial accumulation I high-gloss polished the bar, bonded it to four titanium bases and placed it in the surveyor to achieve maximum parallelism for the friction surfaces. The sharp ridges, which were created occlusally on the top of the bridge, were also rounded and high-gloss polished to ensure a perfect fit of the Tecno Med friction sleeve secondary structure (Fig. 5).

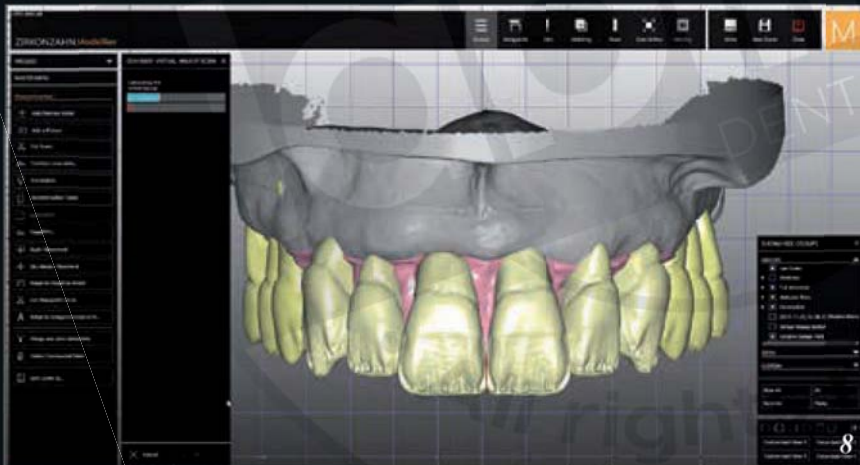


At this point, I screwed the finished bar to the model and scanned it (Fig. 6).

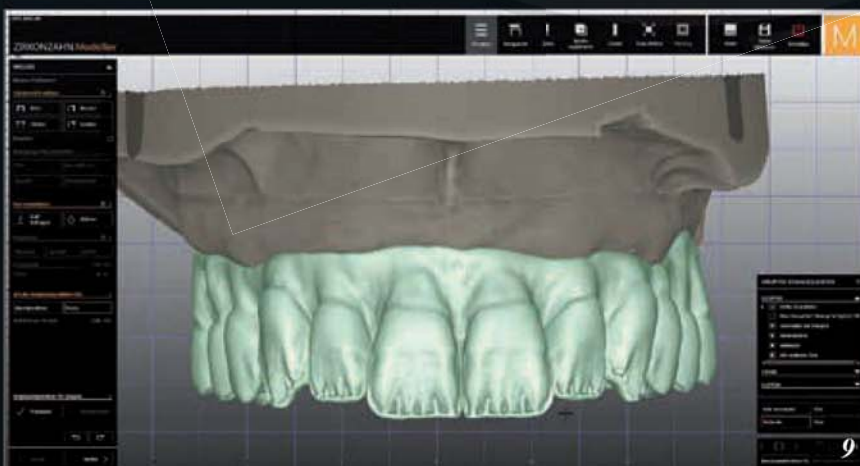




Based on this scan data, I could design the friction sleeve in the Zirkonzahn.Modellier software, taking care that it featured a minimum thickness of 0.65 mm as well as the space needed for the subsequent aesthetic structure (Fig. 7). Once the friction sleeve was milled, I scanned the primary and secondary structures on the model in the Zirkonzahn S900 ARTI and used this data for the production of the tertiary structure.



The creation of the tertiary structure already started during the design of the Tecno Med friction sleeve when, in order to better find the right sleeve thickness, I digitally placed the teeth selected from the Zirkonzahn “Heroes Collection” virtual tooth library on the model situation. I designed a reduced gingiva and reduced the teeth from 13 to 23 with the help of the cut-back function, with the aim of creating the space required for the aesthetic ceramic veneering. Then, I saved the digitally designed construction as a wax-up to subsequently adapt it to the scans of the bar in combination with the sleeve (Fig. 8).



To do so, the Zirkonzahn.Archiv software marked the maxillary teeth of the tooth scheme with “Wax-up”.

The wax-up scan was then inserted into the Zirkonzahn.Modellier design software and added to the acquired model scan (Fig. 9).



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I nested the zirconia structure in a 25 mm-high Prettau® zirconia blank adding a sintering stabiliser and after the milling process (Fig. 10),



11

I elaborated the anterior and posterior teeth surfaces and contours with a wide variety of fine-toothed milling and diamond burs. I clearly emphasized the exposed roots and cervical areas and I removed the surfaces with diamond burs so that the zirconia could better absorb the colouring liquids (Fig. 11).

I treated the vestibular surfaces asymmetrically, I wanted to obtain a more natural and lively result through the subsequent ceramic veneering, by applying slightly different layer thicknesses. Before sintering, I manually coloured the zirconia restoration using Zirkozahn Colour Liquids Prettau® Aquarell, with the aim of obtaining a more individual tooth shade (Fig. 12).

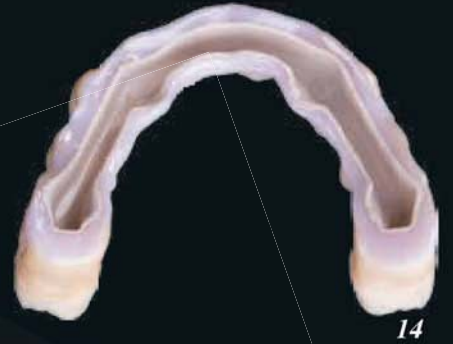


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At this point, I let the structure dry under a heating lamp and then sintered it at 1600 °C (Fig. 13). After the sintering process, the Prettau® Bridge featured a very natural colour shade gradient.



13



14



15a

The job continued with the high-gloss polishing and test-fitting the structure to the friction sleeve (Fig. 14), followed by the ceramic layering and stain application with the specific firings (Figs. 15 a, b, c).

Finally I bonded the Tecno Med sleeve into the Prettau® zirconia tertiary structure. My final job at the Ranger School was finished! (Fig.16).



15b



15c



CASE MADE BY:

*DT Alexander Lichtmanegger,
Lichtmanegger Zahnlabor, Austria
during the Zirkozahn Ranger School, South Tyrol*



RANGER SCHOOL

“The ranger is a guardian and protector. Resoluteness, alertness, willing to defend values, absolute humbleness before nature and unflagging contribution to his goal. These are the principles of the Ranger School. With an iron will, we are consistently passing on all our knowledge to our disciples within six months. Thus the disciple will become a virtuoso master himself and subsequently teach the disciples who follow. We teach the essential of both art and dental technology; we devote, for instance, 100 minutes per day to modelling, we work on very challenging cases, photography and aesthetics. Our disciples will have to do homework and face challenges which will bring them to their limits. Living and learning together in perfect unity will help them overcome these obstacles. To understand the bigger picture, it is indispensable to convey the values of culture. To reach this objective, the written word is studied and tested, the elocution celebrated and body, mind and character developed. The Ranger School offers knowledge from which the disciples can profit throughout their whole life and their sense of connection between each other will never fade.”

Luís Stejnar



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WE DELIVER KNOWLEDGE
DIE ZIRKONZAHN SCHULE

The Zirkonzahn School