

Clinical Realities

APRIL 2005

IMPLANT NEWSLETTER FOR CLINICIANS

From the treatment records of Paul P. Binon DDS, MSD



In complex cases, getting to the optimal esthetic and functional result can be challenging. Conventional and implant supported restorations are not that different in some respects. Both require in

depth examinations and treatment planning from a biomechanical and soft tissue standpoint. Like so many things in life, it's the focused planning and the attention to a myriad of details that results in an ideal outcome. With complex implant cases you need **three dimensional vision** and thinking to reach the optimal outcome. Making a hole in bone does not require great skill, it is very easy. Making a hole in bone at the exact correct location and axial orientation of the implant/clinical crown location is a different matter. It requires precise planning and execution. I just returned from the Academy of Osseointegration meeting in Orlando and was delighted to hear repeated discussion on planning cases with mounted casts, diagnostic wax ups, trial denture set ups and provisionals restorations **BEFORE** the implants are placed. I actually heard surgeons recommend to their colleagues that they should relearn how to place teeth in the proper anatomical and esthetic location before even thinking about placing an implant. These were high profile teams from Switzerland, Germany, and the USA as well as numerous other surgical presenters. It's a reconfirmation that implant dentistry is a **RESTORATIVE** driven treatment modality. Some things don't change, but do take a long time to assimilate

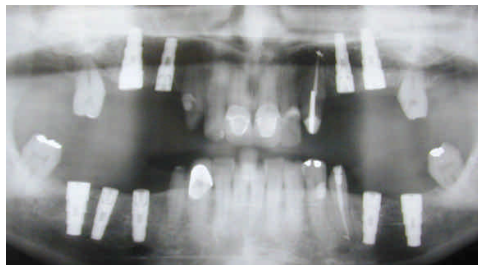
CASE OF THE MONTH

What a difference millimeters can make.

Case in point was a patient that was self-referred after experiencing some frustrations with her previous dentist. Nine implants were already in place and well integrated. She identified her treatment goal as a complete oral restoration that was both functional and esthetic. Her esthetic agenda was quite specific and demanding. From a periodontal standpoint the only teeth that had a questionable to fair prognosis were the remaining 4 molars. The remainder were in good health. Records were obtained and cast mounted on an adjustable articulator. A complete diagnostic wax up was completed. After second stage surgery, the remaining upper and lower teeth were prepared for full coverage and provisionals were placed that replicated the diagnostic wax up.



Wax up



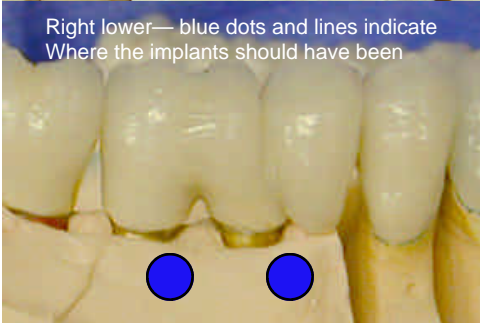
Pretreatment



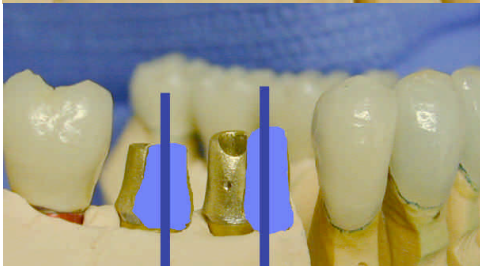
At this point it became obvious that the location of the upper implants and the lower right implants relative to the edentulous space and the tooth alignment was problematic. The lower left implant was perfect and placed exactly in the center of the clinical crowns of the molar locations. The same was true for the molar implant on the right. However, the two more anterior located implants were off axis and encroached on the interproximal space. Had the most anterior implant been placed **3 mm** more anterior, a normal emergence profile could have been obtained.



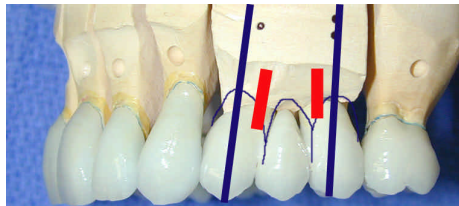
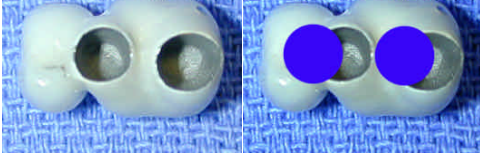
Left lower—perfect placement



Right lower— blue dots and lines indicate where the implants should have been



Implant abutment in the embrasure space
Blue dots indicate correct location



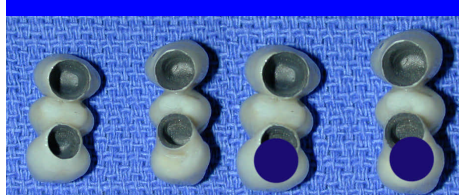
RED LINES INDICATE LOCATION OF THE IMPLANTS—BLUE IS WHERE THEY SHOULD HAVE BEEN. NOTE CERVICAL CONTOUR CHANGE WITH CORRECTION.



RIGHT MAX BRIDGE



RED LINES INDICATE LOCATION OF THE IMPLANTS—BLUE IS WHERE THEY SHOULD HAVE BEEN. NOTE CERVICAL CONTOUR CHANGE WITH CORRECTION.



Correct spacing of implants would improve hygiene access, emergence and esthetics.

The same was true for the upper implants. Had each implant been placed **2mm** closer to the adjacent teeth, an ideal emergence profile, adequate embrasure space for hygiene and a normal pontic shape could have been easily attained. The photos tell the story. The fact that cemented restorations were selected to restore the implants not only made the result more esthetic and avoided the often unsightly screw access hole but was critical in **masking** the problematic location of the implants. The end result was satisfactory but it could have been so much better.



LEFT MAX BRIDGE

The implants had been placed in grafted bone so that there was no issue as to the choice of exact location. The over riding influencing factor was that my predecessor had not completed a diagnostic wax up to work out the exact location of the missing teeth in the edentulous spaces. The surgeon also indicated that no surgical template was provided and that he had to rely on his projected location of the coronal portion of the missing teeth. Fortunately the surgeon did come close enough to enable me to restore it. This case definitely again validates that it is essential that the restorative dentist determines the location of the implants. Implants are a restorative driven treatment modality.

The surgical aspect is just an extension of the restorative doctors responsibility. Can you imagine if this was an intracoronal restoration and the surgeon missed the center of the tooth so that half the onlay or inlay stuck outside the normal confines of the tooth? **Millimeters matter a great deal when it comes to most dental implant treatment**, just as micron matter in restoration margins.



Completed case. Posterior units were PFM, all anterior units were individual all ceramic restorations.

OUR SCREWS NEVER COME LOOSE

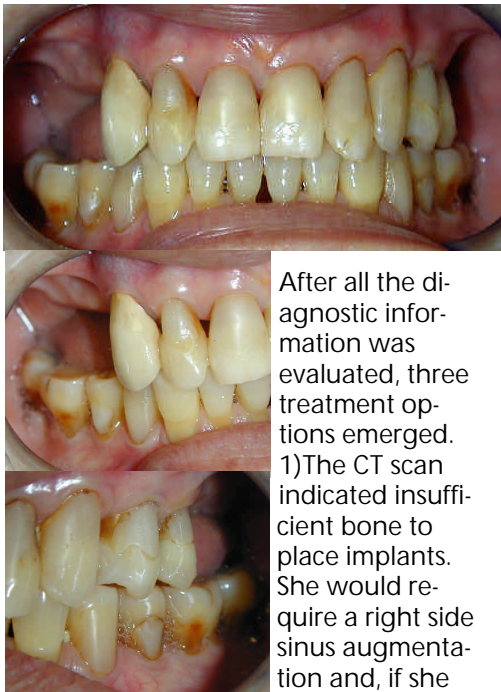
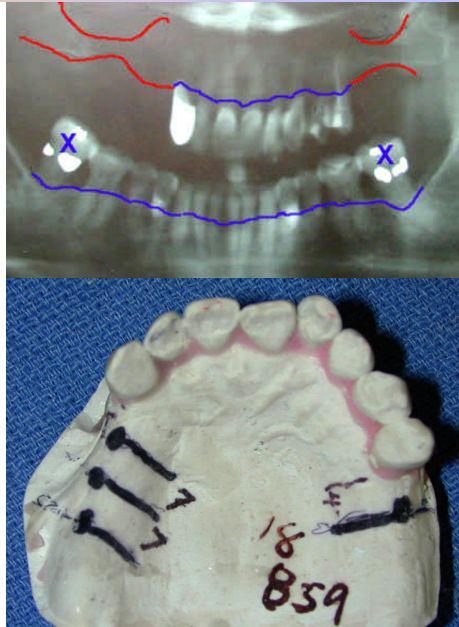
Department

Any screw that is tightened, can eventually come loose. This Paragon internal connection worked loose after a relatively short time in function. The **REAL PROBLEM**, the crown **WAS PERMANENTLY CEMENTED** and could not be retrieved without destroying the **ABUTMENT AND CROWN**. Use temporary cement and service screws regularly.



OPTIONS AND PATIENT GOALS

This mature Asian /American patient presented with multiple missing maxillary posterior teeth, a quiltwork of failing large composites, cervical caries and general dissatisfaction with the appearance and function of her dentition. The partial denture that she occasionally wore was ill fitting and traumatic to the abutment teeth. The posterior dentition also demonstrated considerable occlusal attrition. A bilateral posterior cross bite relationship existed. Her periodontal status was essentially stable and WNL except for the lower 2nd molars, which were hopeless. Given her age, the support structure was 75 to 80% intact. Her primary goals were to have functional posterior teeth, a non-removable prosthesis and a pleasing esthetic result. At the first appointment she verbalized a significant interest in implant. The pan radiograph indicated that there might be an insufficient amount of maxillary bone for implant placement. With her permission, she was appointed for a CT scan.



After all the diagnostic information was evaluated, three treatment options emerged. 1) The CT scan indicated insufficient bone to place implants. She would require a right side sinus augmentation and, if she wanted an implant on the left side, an internal sinus lift. Three implants could be placed on the left and 1 implant on the right. The remaining maxillary dentition would be restored with ceramo metal restorations and the

lower posterior teeth would be restored with ceramo metal crowns and porcelain onlays. (The lower treatment would remain consistent for all three treatment plans.)

2) The second maxillary option involved selective splinting of 6,7 &8, and 12&13, single crowns on the remaining teeth and a precision attachment Dalbo or milled pin and groove retention partial denture with a minimal soft tissue coverage.

3) The last approach was a fixed ceramo metal bridge extending from 3 to 14 utilizing 8 abutment teeth and 4 pontic units. The pontics would have a reduced M/D as well as B/L occlusal table to reduce functional load. Careful occlusal arrangement, contact and refinement are necessary to prevent overload.

The patient considered the treatment time, the expense and the extent of surgery required for implant treatment and decided on the 3rd treatment option. The thought of having a removable partial denture again, even though the design would have been very non-intrusive, was unacceptable to the patient. She wanted a fixed solution.

The 2nd molars were removed. The perio prep was completed and the teeth were then prepared. A provisional bridge was placed to evaluate functional loading, the occlusal design and the patient re-

sponse to the esthetic design. A definitive PFM bridge was constructed, that enhanced the desired esthetics and the occlusal design. When the upper bridge was permanently cemented, the lower restorations were inserted for try in. A new centric relation record was obtained and the cast remounted against a new opposing. The remount allowed detailing



of the occlusal contacts. Critical to success in this TX plan are the small occlusal tables and careful control of the occlusal contacts. Although implant treatment would have been the most ideal treatment plan, an optional well-designed conventional solution met all the patients needs.



SOCKET GRAFTS

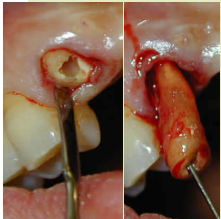
More evidence is accumulating to justify socket grafts, particularly in the esthetic zone. Following an extraction, there is typically a 5 to 7 mm horizontal faciolingual bone loss (50%) in the first 12 months without a socket graft. (Linde et al). Even if there is no immediate plan to place an implant, doing a socket graft for a pontic replacement in order to preserve the papillae and make the FPD look natural is highly desirable.

It is much harder to create a papillae from a flat resorbed ridge later so why not preserve it in the first place. A very simple technique advocated by Dr. Tarnow will do the trick. You need a few extra instruments and supplies that are not that expensive.



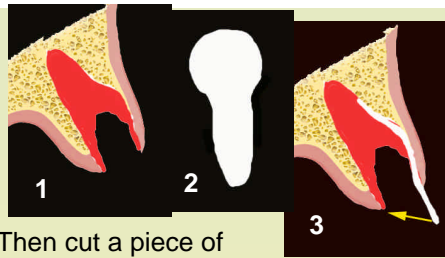
Periotomes (thin long blade elevators used to cut the periodontal ligament and luxate the root), some FDB (BioOss or Puros) and a resorbable membrane (BioGide) and sutures. After obtaining anesthesia, you

insert the periotome into the sulcus and slide along the root exerting pressure as the instrument enters the periodontal space.

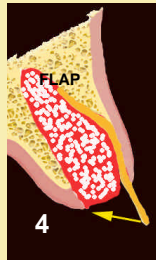


This is done on the proximal and lingual surfaces and with very light pressure on the facial. The extraction is atraumatic and the bony

wall are preserved. The socket is cleaned and bleeding stimulated (1).



Then cut a piece of membrane (2) in the shape of an ice cream cone, with the round area replicating the cervical area of the socket. This is inserted into the socket and adapted to the facial wall (3). Typically this is where there has been major bone loss due to perio or trauma, and the reason for extraction. The socket is then filled with graft particles (4), lightly condensed and the membrane flap is closed over the socket like a manhole cover towards the lingual. The membrane flap is sutured in place (5). In 2 to 3 months an



implant can be placed. If it is going to be a pontic site, under fill the socket and create a concavity that matches your pre-made provisional bridge. Test the seating and adapt the depth of the concavity accordingly.



Cement your provisional bridge and 6 to 8 weeks later finish your preparations and take the final impression. When you complete the insertion, you will have preserved the architecture of the tissues and have a pontic emergence that resembles a natural tooth. The papillae will be preserved as well.



PROVISIONAL BRIDGE



8 AND 9 EXTRACTED



OVATE PONTICS



Tissue appearance at the time of insertion of the provisional bridge (prior to cement removal). There is minimal change in tissue architecture during the healing phase. Other equally simple techniques, using Collaplug (above) and Gelfoam have also been proposed and demonstrate similar results for pontic area development and ridge preservation.

One miracle at a time

Treatment provided by PAUL BINON DDS, MSD. We provide surgical and prosthetic implant treatment .

PAUL P. BINON DDS, MSD

PROSTHODONTICS / IMPLANTS

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