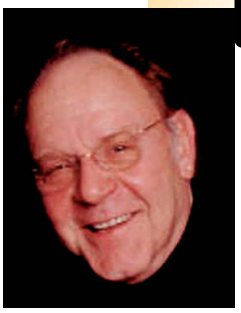
Clinical Realities

Winter 2006

IMPLANT NEWSLETTER FOR CLINICIANS

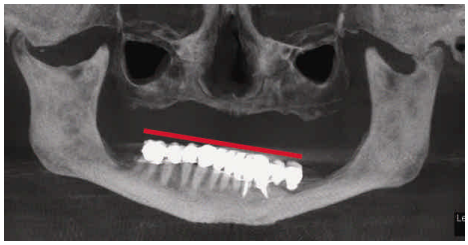
From the treatment records of **Paul P. Binon DDS, MSD**



In August of 2006 the Academy of Osseointegration held the first consensus conference on implant dentistry. Approximately 200 invited experts from around the world were asked to address 8 specific questions related to the state of the science in implant dentistry. The questions were: 1) What is the effect on outcome of time-to-loading on implants? 2) Which hard tissue augmentation techniques are most successful ? 3) For single tooth replacement, what are outcomes of implants vs tooth supported restorations? 4) What are outcomes for endo treated teeth vs implant supported restorations? 5) Does the type of implant prosthesis affect outcome for complete edentulous arch? 6) Does the type of implant prosthesis affect the outcomes in the partially edentulous? 7) How does smoking, diabetes, periodontal disease affect the outcomes of implant treatment? 8) How does timing of implant placement after extraction affect outcomes? The concensus report will be published early in 2007. Thirty years of peer reviewed published articles amounting to more than 12,000 published papers were scrutinized by the respective reviewer. After careful evaluation of data, research protocols and statistical methods, only 1300 manuscripts were accepted for inclusion in the meta-analysis. I believe that all of the participants learned a great deal. In the 12,000 published papers is a phenomenal amount of relevant information that could not be used because of the strict exclusion criteria utilized. The basic message is that all researchers have to report **all** the details of the study and use standardized evaluation criteria. After all, evidence based dentistry demands accurate data. It was a privilege to be a part of such a ground breaking undertaking.

CASE OF THE MONTH

This is a retreat of a patient of record dating back to the late '70s. At that time she presented following a healed mandibular fracture. The fracture had resulted in a significant alteration of her opening pattern and the occlusal plane dropped off precipitously to the left.

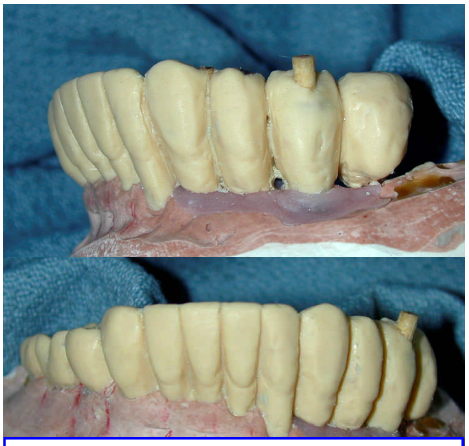


There were multiple missing teeth in the left lower sextant due to the fracture. The maxilla was edentulous. The TM joints also showed marked degenerative changes and limited

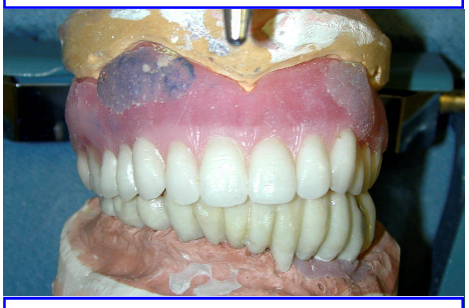
PREOP CONDITION

opening.

An upper denture and lower fixed cantilever bridge was constructed in 1984. That treatment functioned well for some **20 years** until the terminal abutment (22) demonstrated a root fracture. Teeth # 23 and 22 were endodontically treated. With no teeth distal to #23, the option was to use the existing fixed units after 22 had been removed and make a clasp retained RPD. A new cantilever FPD was out of the question due to necessity to replace 22 to 19 and the new terminal abutment for such a long span bridge would be a RCT tooth. A clasp retained RPD was declined from an esthetic standpoint and earlier experience with a RPD in the '70s. All of these factors were a definite impetus towards an implant supported combination prosthesis.



DIAGNOSTIC TRIAL WAX UP OF THE LOWER ARCH RESTORATION



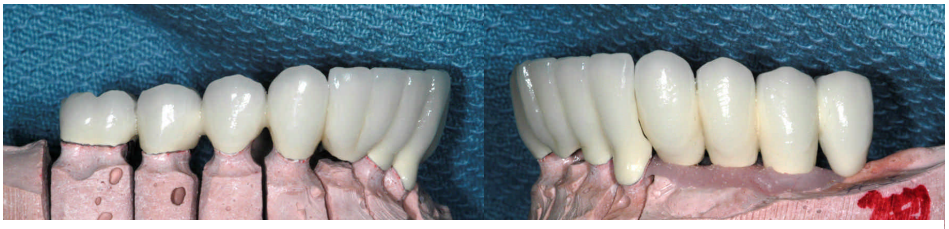
DIAGNOSTIC TRIAL WAX UP OF UPPER AND LOWER TREATMENT PLAN TO CORRECT THE OCCLUSAL DISHARMONY

DIAGNOSIS IS THE KEY

Continued from Page 1

CT scan indicated that there was minimal bone available for implant placement. The fracture union was in close proximity to the foramen and the neuro-vascular canal was virtually on the surface of the atrophic ridge. In order to place implants, the area had to be grafted and 23 and 22 had to be extracted. It was then possible to place 3 implants in sites 21, 22, and 23. Healing was uneventful and after approximately 4 months, custom abutments were made to support a 4 unit FPD. The natural teeth were restored with a new tooth supported bridge from 24 to 30. The segments were interconnected with a screw retained tube lock attachment.

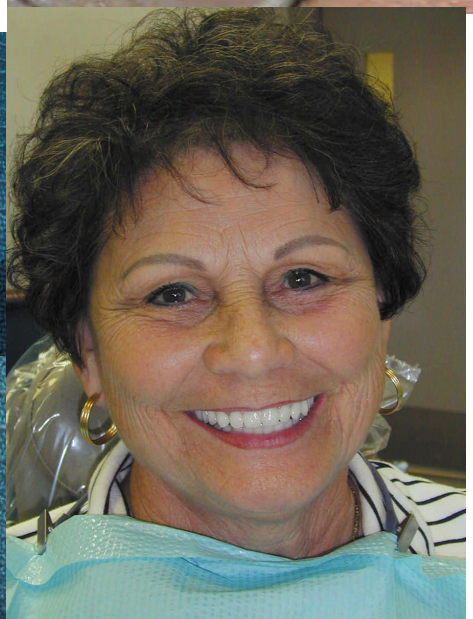
Since an entire new lower arch restoration was indicated, the occlusal plane was modified to achieve an improved esthetic result.



Before and after tooth position, lip support and change in occlusal plane

Lower arch preps 24 –30 and 3 implants located in site 21, 22, 23.

Two segment bridge with tube lock interconnect. A retaining screw and temporary cement keep the implant segment in place.



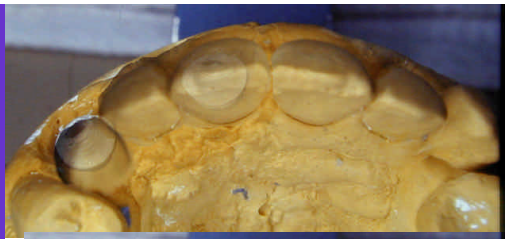
CORE SKILL OF THE PROSTHODONTIST IS DIAGNOSIS

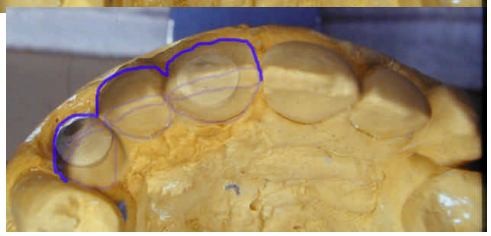
Choosing or refusing oral implants

Why do people accept or refuse implants? A prospective study was completed where 100 patients were offered free mandibular implants to retain their dentures. The most common reason for **choosing or refusing implants was improved stability (73%) and surgical risks (43%) respectively**. A prediction model was developed identifying those who complained of poor function, poor speech, pain, and dissatisfaction with appearance that improved implant acceptance from 64% to 80%. Study participants deemed those factors as most important and are the most important factors in predicting who would and would not choose implants.

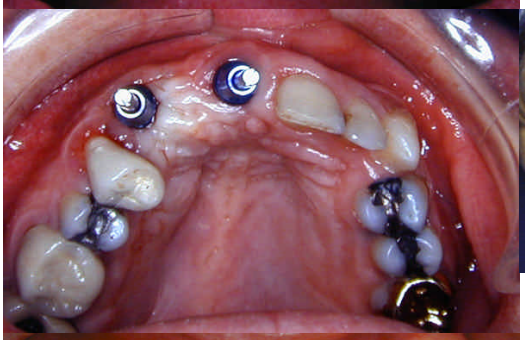
Choosing or refusing oral implants:a prospective study of edentulous volunteers for a clinical trial
Walton JN, MacEntee MI Int J Prosthodont 2005 ; 18:483-8

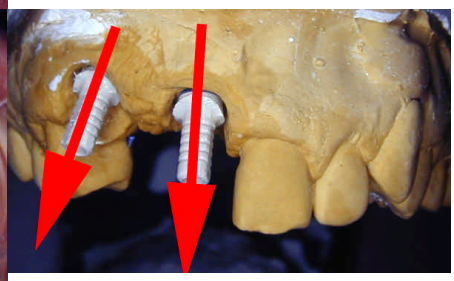
CORRECTING COMPROMISED IMPLANT PLACEMENT IN THE ESTHETIC ZONE.



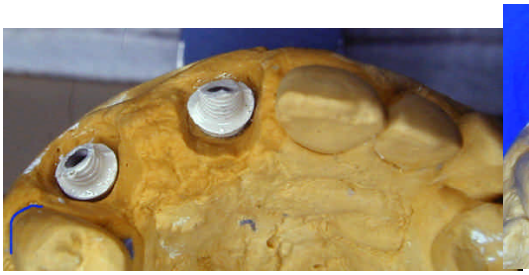


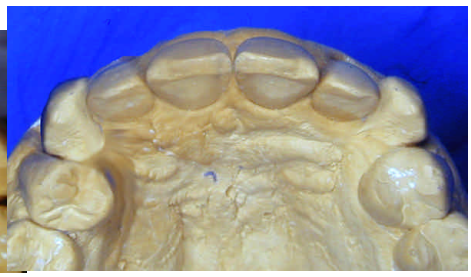
When Implants are placed in severely compromised positions in the esthetic area there is no ideal solution short of removing the implants, grafting the defect and replacing the implants in the correct location. That usually adds many months to the treatment plan and often the patient is not willing to accept the delay in treatment. This patient was referred by her surgeon after the implants had been placed seeking a restorative solution to compromised placements. The circumstances were further complicated by anterior crowding, insufficient room for three replacement teeth and a cuspid in labio-version. After the impression was taken it was noted that implant placement in the cuspid and central area were at **45** and **30** degrees off axis respectively. When I first looked at the angulations and the adjacent tissue location I was uncertain that an acceptable esthetic result could be obtained. The gravity of the situation was not fully appreciated until temporary cylinders were placed.





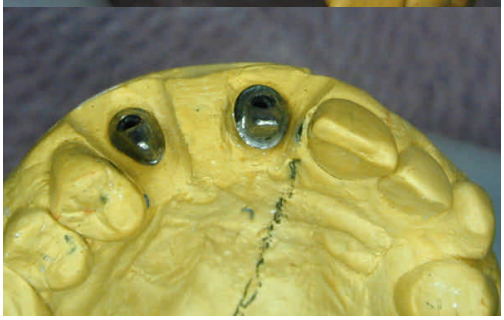
The temporary cylinders were modified and a diagnostic wax up was completed. In addition to that some computer overlays were developed to determine where the facial contours of the crowns would be placed and what alterations of the cuspid would be necessary. Due to the limited space afforded by the edentulous area to accommodate three teeth, the cuspid had to be modified in such a way that the illusion of a full contour was seen by the eye from a conversational frontal view. The distal half of the cuspid was eliminated at the facial height of contour. The cuspid contours were extremely compromised as shown in the overlays.





The wax up and overlays confirmed that the central and lateral would have to replicate the size and shape of the left central and lateral.

Custom cast abutments were made to accommodate the severe angular corrections necessary to create an acceptable esthetic result.



The facial margin approximated the I/A interface on both implants. A small facial band of metal was left to insure a rigid abutment. The abutments were as long and parallel as possible to insure good retention. A PFM framework was constructed over the abutments, fit was verified and then porcelain application was initiated. After the initial bakes, the bridge was tried in for contour and refined in the mouth.

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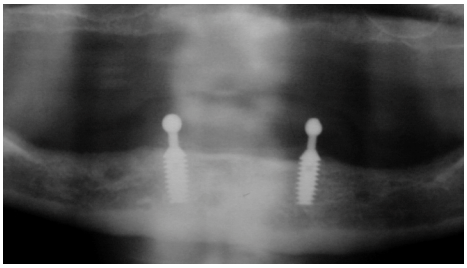
ANTICIPATED RESULT W/ TISSUE MODIFICATION

Initially pink porcelain was to be used to lessen the disharmony between the left and right crown length. The natural tissue color could not be matched appropriately and the pink porcelain actually intensified attention to the disharmony so it was deleted. Fortunately, the patients lip drape did not lift above the cervical of the left central and the clinical crown length discrepancy was not noticeable. Another consideration was to alter the soft tissue contours of 9 and 10 to the level of 7 and 8. Since that would have required additional ceramic restorations on these teeth, that option was declined. Although far from ideal, the end result was an acceptable esthetic compromise considering the significant mal-position of the implants.

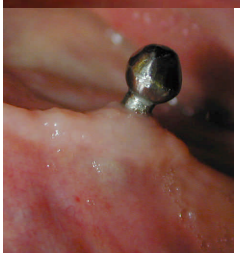

POST OP

IMPLANT DIVERGENCE

Even with simple cases, parallel placement of the implants is essential. Here is a case that appears to have ideal implant placement. The placement however is not parallel but divergent. This was com-



pounded further by the path of insertion. When the retention cups were picked up, the denture would not seat passively. In order to insert the left ball had to be modified.



Even with this modification, there was more **O** ring wear in the left cup. Furthermore, there is radiographic indication of slow but progressive bone loss. This is most likely due to torque application by the denture during function. **Angles are important to long term success of implants.**

Loosening of FPD Retainers

Loose FPD retainers occur in 5 to 12% of bridges with the highest incidence in anterior maxillary bridges. Loose retainers are hard to detect and the incidence may actually be higher. Goodacre et al reported that the three most common complications following TX with FPD are caries (18%), need for endo TX (11%) and loose retainers. They occur more often when the abutment has endo and a buildup and if they are the most posterior abutment. Loose retainers are an early complication whereas caries is a late complication. In the Oct 2006 issue of JPD (p245), Curtis et al evaluates the complications associated with a FPD with a single loose retainer and comes to the following conclusions: FPD were successfully removed with the Dentco pneumatic crown removal system with minor complications (porcelain fracture [2], core fracture[3], minor tooth structure fracture [6] . Recementation of removed FPD was possible in 64% bridges. 50% of the abutment teeth with loose retainers had caries. 82% of patients had no discomfort related to the loose retainer and 41% were not even aware there was a problem with the FPD.

Complications associated with FPD with a loose retainer. Curtis DC, Plesh O, Sharma A, Finzen F: JPD 2006;96: 245-51

Treatment provided by DR.PAUL BINON We provide all phases of implant treatment .

PAUL P. BINON DDS, MSD

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