Full Mouth Rehabilitation
Made Simple and Affordable

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Introduction
As people get older, their teeth get worn out, making a person look older than they actually are. Most of these individuals end up having more issues with their overall occlusion, which result in their problems not being solved by just giving them some new veneers. When their occlusion is really studied over, one realizes they may need their entire dentition restored. This ends up becoming a lot more than what most people have bargained for and when this is discussed, many people are blown away by the cost. So, we are put in a position of doing what is right or not doing anything at all. How many times do patients tell you, “Doc, just fix my front teeth. I know you can do it. I don’t care about my other teeth. Nobody can see them anyway.” And if you give in to their request, you unfortunately have created a situation that will most likely keep you up at night wondering when this patient is going to call you with a broken veneer that they say you did and asking why it broke.

When I recommend a comprehensive occlusal/esthetic treatment plan to a patient, I use the analogy of going on a “road trip” together. I explain that first I need to understand what their destination is. What are their long term goals with their teeth? Once we have agreed on their goal/destination, I explain it is my job to figure out how to get them there and I will drive. It is their job to share with me on how fast they
want to get there based on time and financial constraints. Once I understand this, it is my job to stage the “road trip” for them. If we are going from LA to New York, are we going to get there as fast as possible or do we need to stop 2, 3, 4, 5 or 6 times with a six-month break between each stop?

In this article you will learn a technique to stage a full mouth rehabilitation in a way to fit into a variety of budgets. This is possible if you establish a stable occlusal design from the beginning. Then you can restore an individual in any number of phases, if needed.

**Case Report**

**Subjective Findings:**
A 43-year-old male reported not liking the chipping that was happening to his front teeth. He also commented he had chewing sensitivity with his lower back molars. He was slightly aware of waking up with tension with his facial muscles. His wish was to have a nice natural looking smile that wasn’t chipping and to be able to chew on his back teeth without pain.

**Objective Findings:**
- **TMJ/Muscle Exam**
  - The masseter muscles were tight on the left and right.
  - The right TMJ was tender to palpation.
- In Centric Relation the first point of contact was tooth #18 and #31. When the patient squeezed his teeth together, he slid forward ½ mm into centric occlusion.
- His range of motion was within normal limits, with 50mm max opening without deviation and left and right lateral movement to 13mm respectively.

**Occlusal Exam:**
He had moderate to severe wear into the dentin with teeth #2, 3, 4, 6, 11, 13, 14, 15, 18, 19, 29, 30 and 31. Mild wear with his remaining none restored dentition (Figs. 1 and 2). In reviewing his medical history, he did not have a history of stomach issues. He reported he maintained a healthy diet and was aware of avoiding acidic beverages. He had a deep over bite with a large curve of spee (Fig. 3) with working interferences on the distal buccal cusps of teeth #18 and #31.

**Esthetic Exam:**
Generally speaking he had an esthetic looking smile. But on closer examination he had chipping with his upper and lower anterior teeth (Figs. 3 and 4). There was a tooth size discrepancy between teeth #8 and #9. With a midline cant between those two teeth. Tooth #9 was also lower in value than the rest of his dentition. The smile was flat were he could benefit from a more convex smile line (Figs. 6 and 7). Looking at his lower anterior crowns, they were positioned such that they were exaggerating his curve of spee. Other than the chipped
incisal edges, the lower anterior were bulky in labial lingual width and looked unnatural in overall contour (Fig. 2).²

**Assessment:**
It was concluded the patient had attrition and subsequent erosion of the functional surfaces of his natural teeth. Since his medical history revealed he did not have any stomach issues, it was felt the primary cause was frompara function. This was supported by the fact his anterior teeth were also deteriorating.⁴,⁵

**Treatment Plan:**
**Initial Plan:**
Having all his posterior stops in dentin ruled out just doing an occlusal equilibration for his posterior teeth. Therefore, to create a stable, esthetic restorative result the patient needed his entire dentition restored. It was recommended to do the following:

Teeth #2, 15,18,19,30 and 31: e.max onlays
Teeth #3, 4, 5,12,13,14,20,21,28 and 29: reverse ¾ crowns
Teeth #6, 9 and 22 to 27: e.max crowns
Teeth #7, 8, 10: e.max veneers⁶

At the end of treatment, fabricate a mandibular occlusal orthotic.

When this treatment plan was presented, the patient understood the reason for the plan but felt he could not afford to do the treatment all at once and requested a way to phase out this treatment plan over time. He agreed he could afford to do ten teeth. To help the patient achieve what he came in for, I needed to get creative on how we could meet his dental needs.

**New Plan:**
The lower ten anterior teeth is where I wanted to begin but to no surprise the ten teeth the patient was willing to do were teeth #4-13. This left me the other 18 teeth to restore temporarily. Since one needs to begin with restoring the lower I recommended to contour the lower crowns to reduce the exaggerated curve of epee (Fig. 3). Then I could build chairside composite onlays to fill in and level the curve of epee in the posterior quadrants (Fig. 8). Once that would be completed then teeth #4-13 could be prepared. The vertical dimension was opened 1mm in the anterior to reduce the over bite and as a result teeth #7,8,10 had to be converted to ¾ e.max crowns vs. veneers to establish occlusal stops on the lingual.

**Treatment:**
**Laboratory procedure:**
Before the restorative appointment a diagnostic wax-up was made for teeth #4-13 based on the smile design the patient approved (Fig 9). The lower stone model was recontoured
Clinical view of the lower anterior recontoured crowns, finished composite onlays for teeth #18-21 and 28-31. And the completed preparations for teeth #4-13.

Retracted view one week post-op of final restorations.

Retracted and smile view of the provisionals two weeks post-op.

from teeth #22-27. Then wax was added to teeth #18-21 and 28-31. The wax-up was duplicated (Figs. 10 and 11) and a clear polyvinyl matrix was made of the posterior quadrants to use as a chairside matrix for the composite onlays (Fig 12). Then a siltec putty matrix was made of the lower anteriors to use as a reduction guide.7

Clinical procedure:
On the preparation day the entire treatment plan above needed to be performed to create a stable occlusion. After the administration of infraorbital blocks to anesthetize teeth #4-13, the siltec putty matrix was used to guide in the recontouring and polishing of the lower anterior porcelain crowns. Diamond burs, 3-M soft flex discs, Brassler dialite porcelain polishing wheels were used in this respective order. To create the final polish, Brassler diaglaze with a Robinson wheel in a straight slow speed handpiece was used.

Then using an Isolite, teeth #18 to 21 were isolated. The entire occlusal and half way down the buccal and lingual surfaces were pumiced, etched and primed with Optibond solo plus. One needed to be careful to not etch the interproximal surfaces. Once the bonding steps were completed, 3-M A-1 Filtek flowable composite was placed in the occlusal of the clear putty matrix. The matrix was then placed over #18-21, held firmly and light cured for 20 seconds on each tooth. The clear matrix was simply removed and the composite flash was removed with a scaler. The margins were contoured and polished with carbide finishing burs and soft flex discs. Since the etch was carefully not placed in the interproximal the contacts were easily cleaned out and flossed. The procedure was then repeated for teeth #28-31.8

Now that the entire lower arch is developed with an ideal occlusal scheme the upper arch can now be restored and an ideal design can be created without any compromise. Teeth #4-13 were prepared and teeth #2, 3, 14 and 15 were equilibrated to balance with the newly established lower dentition (Fig. 13).

After taking the final impressions the provisionals were fabricated based off the wax-up initially done by the laboratory (Figs. 14 and 15).9

The patient was followed up for the next two weeks to verify his the new smile design and that the new occlusion was balanced, comfortable and stable. The patient reported he was feeling good with his new occlusion and was very happy with his new smile design. After the two week “testing” period, the fabrication of the final restorations began following the model of his provisionals. Four weeks later, the patient returned still feeling comfortable with his new occlusion.

The new restorations for teeth #4-13 were tried in, approved by the patient and subsequently bonded in. A mandibular occlusal orthotic was fabricated and delivered on the following appointment. He returned for follow up appointments at one week, (Fig. 16) one month, one year and at two years (Figs. 16-21). He “loves” his new smile and plans on finishing the rest of his treatment plan.

Conclusion:
At the two year point, some occlusal wear was noted with the posterior composite onlays. But the author felt these composite onlays were far more stable than trying to maintain long term acrylic provisionals. There wasn’t one emergency appointment for a lost composite onlay versus the likelihood of acrylic
Views of the case two years later. Note how well the chairside composite onlays are holding up.

provisionals periodically coming off. Also, the long term tissue health was stable due to normal flossing contacts between all 28 teeth. When the patient is ready each posterior quadrant can be restored in phases or all at once if the patient so elects. The flexibility is built into the case. And as the practitioner, you can sleep well at night knowing you haven’t compromised the final outcome due to the financial obstacles the patient initially presented you with. Following the above concept, you can get to the final destination and look back on the “road trip” and realize it was a fun, predictable (financially and clinically) and everyone was happy when they got there (Fig. 21).

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Oral Health welcomes this original article.

References:
1. Becker, I. Comprehensive Examination (C1 lecture/workshop) Pankey Institute 2/01
2. Radcliff, S. Principles of anterior guidance (C2 lecture workshop) Pankey Institute 1/04
6. Ivoclar Vivident IPS e.max Scientific Documentation