

ACCREDITATION

review

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Dr. Corky Willhite graduated from L. S. U. School of Dentistry in 1979 and was awarded membership in the C. Edmund Kells Honor Society. In 1991, he was awarded his Fellowship in the Academy of General Dentistry and, in the same year, achieved Accreditation from the AACD. Dr. Willhite now serves on the Education and Credentials Committee as an examiner and Accreditation Consultant. He has lectured at several meetings including the New Orleans Dental Conference, had helped develop the L.S.U. Comprehensive Continuum on Cosmetic Dentistry and is on its faculty. Over the years, his full-time private practice in suburban New Orleans has become limited to cosmetic dentistry, and he credits the AACD for helping him to realize this goal.



COMPLEX BONDING

Of the five required cases for Accreditation, Case #5 is described as a Complex Bonding Case. It is one of the two required resin cases. There has been discussion over the years about the merit of continuing to include direct resin cases in the Accreditation examination. As the popularity of conservative porcelain restorations grew, some felt that direct resin restorations were no longer state of the art. That

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argument has clearly become outdated as this modality, properly executed, has proven to be long-lasting, bio-compatible, versatile, and able to blend amazingly well with natural tooth structure.

Since direct resin restorations are completely under the control of the dentist, these cases demonstrate only the ability of the dentist, rather than both the dentist and the ceramist, as do porcelain cases. This may be an advantage or disadvantage, depending on one's view. This author feels it can be both, determined by the specifics of any particular case. For the case demonstrated here, an analysis of the advantages/disadvantages will be assessed later in this article.

There are many similarities between the resin cases, Case #2 (six direct resin veneers) and Case #5. These similarities relate to the 33 questions used as a guide for evaluation, which each applicant for Accreditation has received. There are only two major differences, which are described:

CASE #2 — Six or more Direct Resin Veneers:

- All six of the anterior teeth need to be treated.
- Resin should cover virtually all of the facial surface of a treated tooth.

CASE #5 — Complex Bonding:

- Only one or two teeth need to be treated.
- Significant enamel may remain on the facial surface of a treated tooth.

The complex bonding case is the only one of the five required cases that allows the presenter to choose between two types of situations: a diastema closure or a Class IV fracture. This may lead to some confusion as to exactly what qualifies. Since case selection is such an important determinant in a successful presentation, just a few words about this have been included that may help clarify this issue.

In selecting which type of case to present, a diastema closure or a Class IV fracture, as in all cases selected, the end result should be one that can be accomplished virtually to

REQUIRED CASES FOR ACCREDITATION:

1. One or more anterior crowns
2. Six or more direct resin veneers
3. Six or more indirect porcelain veneers
4. Anterior bridge
5. Complex bonding (diastema closure or Class IV)

the ideal. The best cases are ones that simply need the required treatment and little or nothing else. In fact, poor case selection, especially choosing too complex a case, is **the most common reason** for a case to be judged unsuccessful in an Accreditation presentation. So choosing a more complex case than necessary, with possibly unrelated issues that detract from an ideal finished look, is not recommended.

Examples of what would be useful for Case #5 that should be available in most patient pools include:

- a moderate size Class IV fracture (previously restored or not),
- a diastema between anterior teeth in the range of 1–2 mm width,
- a peg lateral (which may have characteristics of a Class IV and a diastema).

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CASE INFORMATION

The case demonstrated here is simply two central incisors that were accidentally fractured in a fall (Figures 1 and 2). The 18 year-old male presented with fractures to teeth #'s 8 and 9. Having seen the type of cases treated and being aware that cosmetic dentistry requires skills not taught to most general practitioners, the mother (a dental assistant) called on a Saturday requesting an emergency exam. The accident had occurred in the early hours of that morning and a visit to the hospital emergency room had confirmed that there was no other serious trauma.

Other than the fractured teeth being sensitive to air and tenderness and swelling in the upper lip, the patient had only some abrasive lesions on the chin and forehead. Using magnification (Zeiss 4.3 power loupes), the clinical examination showed that damage to the teeth was limited to the upper central incisors, which exhibited supragingival fractures exposing dentin but not the pulp, and no mobility

(Figure 3). Radiographically, the roots and alveolar bone appeared within normal limits. A few photographs at 1:1 were taken for records.

Palliative treatment was accomplished with anesthesia to protect the dentin from bacterial insult and reduce sensitivity which consisted of cleaning the affected teeth, etching with 37% phosphoric acid, sealing the dentinal tubules with Miles Pharmaceuticals



Figure 1



Figure 2

Gluma 3 and Clearfil Photobond, then placing a thin layer of Caulk TPH to protect but not restore. The patient was also given 3 Dolobid 500 mg tablets to take twice that day and once the next day to reduce any inflammation, and, hopefully, reduce the chance of hyperemia which could lead to pulpal necrosis. If sensitivity to cold persisted even for another day, the patient was instructed to call for a prescription to continue taking the NSAID so that

there would possibly be less chance for future problems.

ANALYSIS OF TREATMENT OPTIONS

Since a routine exam of the remaining teeth, gingiva and occlusion showed nothing out of the ordinary, only the fractured teeth were considered for treatment. Options for restoring these

teeth were discussed and an analysis of whether to use resin or porcelain was part of that dialogue. Porcelain-fused-to-metal crowns were eliminated due to the otherwise virgin condition of the teeth and the greater amount of tooth reduction that would be needed.¹ All-porcelain restorations were considered and the following information was discussed:

- bonded porcelain has maximum strength,
- porcelain has maximum stain resistance,
- therefore, porcelain restorations would probably provide the greatest longevity.

Direct resin restorations were considered and the following information was discussed:

- the least tooth reduction of any technique,
- the least likely to wear opposing teeth,
- no lab involved so fewer appointments needed with less total time required,
- therefore, the fee is about half of the porcelain fee,
- easier to get excellent shade/characterization blend with natural teeth.²

The patient and his mother chose direct resin restorations.

An appointment for treatment was scheduled in two weeks to allow for healing of the soft tissue trauma. Due to the patient having difficulty in arranging travel to the office, the full series of dental photographs was scheduled for that same day. It is strongly recommended that photographs be taken far enough in advance of treatment so that they can be developed and viewed for accuracy prior to actual treatment. Remember, the before photographs can never be retaken once treatment has begun.



Figure 3



Figure 4

PROCEDURE

Shade selection was accomplished first, before the teeth could be even slightly desiccated which would change the shade. With extreme care, the before photographs were taken immediately prior to treatment. Brief notes were made with a simple diagram showing the location of existing characterizations. Magnification was used during the entire procedure. Powerful loupes are a critical aid for a successful result.

The patient had experienced no sensitivity after the emergency protective restorations were placed. Local anesthetic was administered, and the preps were begun by removing the protective temporary restorations placed two weeks earlier. A long bevel was placed over the facial surface to within about 2

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mm of the gingiva. The lingual was prepared with a chamfer margin 1–2 mm cervical to the fracture. The contacts were then checked and lightened with a GC metal abrasive strip to insure a celluloid matrix could be placed.

Tooth #8 was pumiced, matrices placed to prevent etching of adjacent teeth, etched, Gluma 3 and Photobond applied and light cured. Since a portion of the contacts are intact, the matrices are not removed. Using the "sandwich" technique,¹ Cosmedent's Renamel hybrid shade D3 was used to build up the lingual surface including contacts and the incisal edge. Then Renamel microfil body shade B1 was used next (no opaquer was needed in this case) and perpendicular grooves were created near the incisal before curing. Once cured, unfilled resin was used to wet the

grooves and a Renamel incisal light was placed over the entire facial surface and condensed into the grooves and light cured. The procedure was repeated for tooth #9.

Contouring began in conjunction with adjusting for correct occlusal stops and incisal guidance. Cosmedent's largest course grit FlexiDiscs (color coded gray), Brasseler's egg shaped fine (red-striped) diamond bur #379F-023,

and GC metal abrasive strips (color coded red #200 and green #600) are used for gross contouring of the facial and incisal, occlusal, and proximal surfaces respectively. At this point, the restorations should be anatomically complete with the exception of fine details such as undulations on the facial and incisal surfaces representing lobular developmental prominences, incisal embrasure size, wear facets or



Figure 5



Figure 6

chips to be placed to harmonize with untreated teeth. These characteristics are accomplished during fine contouring and polishing.

The largest medium grit FlexiDiscs (color coded blue) are used first to refine the facial surface and if the undulations need further development, an egg-shaped fluted carbide finishing bur (Brasseler #H379-023) can be used. The incisal surface is shaped to have the appropriate degree of wear for the patient's age and harmonize with adjacent teeth, and occlusion determines the angle of the flattened portion of this surface. The proximal contours are visualized from the incisal view (Figure 4), which is possibly the most overlooked perspective to analyze tooth form, and refined if needed with the disc

and strip. The margins are finished further, if needed, using the smaller discs and narrower strips to allow easier access near the gingiva.

Before advancing beyond the medium grit (blue), the restoration should be checked using magnification for scratches, visible margins, or any other defects. *Finer polishing cannot be expected to eliminate defects still visible at this stage.*⁴ Continue to polish with the medium grit until no visible defects exist. Then the process is continued with the same sized discs and strips in the fine and superfine grits (color coded yellow and pink). These will create an enamel-like finish which can be enhanced by using an aluminum oxide polishing paste.

The surface texture should also har-

monize with the adjacent teeth, and because this patient was young, there were well-defined perikymata present. It is very difficult to recreate these striations on the restoration so the adjacent teeth were treated with an enamel micro-abrasion technique. This created a smoother surface on the natural teeth as seen on slightly older patients who have a few additional years of normal tooth brushing. Since few patients would object to such minimal treatment, and because the smoother surfaces should be more resistant to stain and plaque buildup,⁵ the greater ease of accomplishing similar surface textures with this technique, make it a viable alternative to attempting to duplicate a complex surface texture.

EVALUATION

The patient was scheduled for an evaluation and photos in a week to allow time for rehydration of adjacent teeth and gingival healing. This delay also allows time for the patient to notice any interferences with speech or occlusion as well as being able to evaluate the esthetic result. At that appointment, it was determined that the patient was completely satisfied in all respects, but a clinical evaluation showed there was a small, defective area just below the facial surface visible with magnification. This careful critique also revealed that an improved esthetic result would be gained if a slight amount of "white line" decalcification spots were present near the incisal edge.

To correct both of these problems, a diamond bur was used first to expose the subsurface defect. Where the decalcification lines were desired, the facial layer of resin was removed and then slightly deeper grooves were prepped to accept an opaque white tint. Next, a Danville Engineering micro-etcher was used over the entire facial surface. After etching with 37% phosphoric acid and applying silane, Kerr Kolor-Plus white

tint was painted thinly over the entire facial surface to act as the wetting agent and was allowed to pool in the prepared grooves to create the visible white lines. Having a groove for the low viscosity tint to flow into allows for greater definition of detail and pattern.⁸ If the tint is to be painted over a smoother surface, its tendency to flow will create less accuracy in the final result. Once this added tint is placed in the grooves and cured, the surface should be fairly smooth to allow easy placement of additional composite. More Renamel microfil B1 was carefully added and cured, followed by the final layer of Renamel incisal light. Finishing and polishing were completed and 1:1 photographs were taken to be used for an additional critique.

These slides were developed and viewed by projection to be certain that the previous defects noted were corrected and that no others were evident. A 1:1 slide projected on a screen provides a level of self-critique that is unsurpassed (Figures 5 and 6). It was determined that the restorations were acceptable so the patient was contacted to schedule taking a full series of after photographs and reinforce how natural the restorations looked. The patient

and his mother were delighted with the results (Figures 7 and 8).

CONCLUSION

It is very rewarding to provide a service such as this article describes. It should be emphasized, however, that the standard of excellence that Accreditation represents is not haphazard. To achieve this standard means creating restorations that appear and function as natural teeth. The time and effort involved in planning and then completing such

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restorations can be considerable. This requires a commitment in private practice to dedicate some time that normally would be scheduled for predictably profitable treatment, instead will be spent learning and refining technique.

The continuing education to gain the knowledge and skills necessary is vital. The AACD can provide much of this and guide a dedicated learner in the direction of additional sources. The AACD is also promoting cosmetic dentistry to the public to help raise their awareness and appreciation for the value of a great smile. Staff members should be able to use this information to help provide quality services and educate patients as well.

All of this can be considered an investment. Although initially it may be difficult to justify financially, when a patient appreciates the value of this service, the fee they will be willing to pay will allow an excellent profit. The educated patient will know that the value of their new smile should be compared to fine art, rather than the fees of the



Figure 7




Figure 8

dentist down the block.⁷ Creating state-of-the-art restorations that are technically excellent and artistically beautiful, provides an internal reward of satisfac-

tion and pride that is even more important than the monetary profit.

With a foundation in excellence, and a firm belief in the value of a beautiful

smile, there is no better way to demonstrate this commitment than to work for and achieve Accreditation. 

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