

STONE MODELS WITHOUT FACES — PART II: AN INTERNATIONAL INTERVIEW. CLINICAL PERSPECTIVES

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Precise communication between the patient, clinician, and laboratory technician is absolutely essential to the aesthetic and functional success of any indirect restoration. In a previous presentation, the issue of communication was discussed from the perspectives of several renowned laboratory technicians. This segment of the discussion features clinical thought leaders who recently expounded on the necessity of multilateral cooperation between the ceramist and dentist. Only through continued amalgamation can we begin to eliminate communication barriers that currently exist.

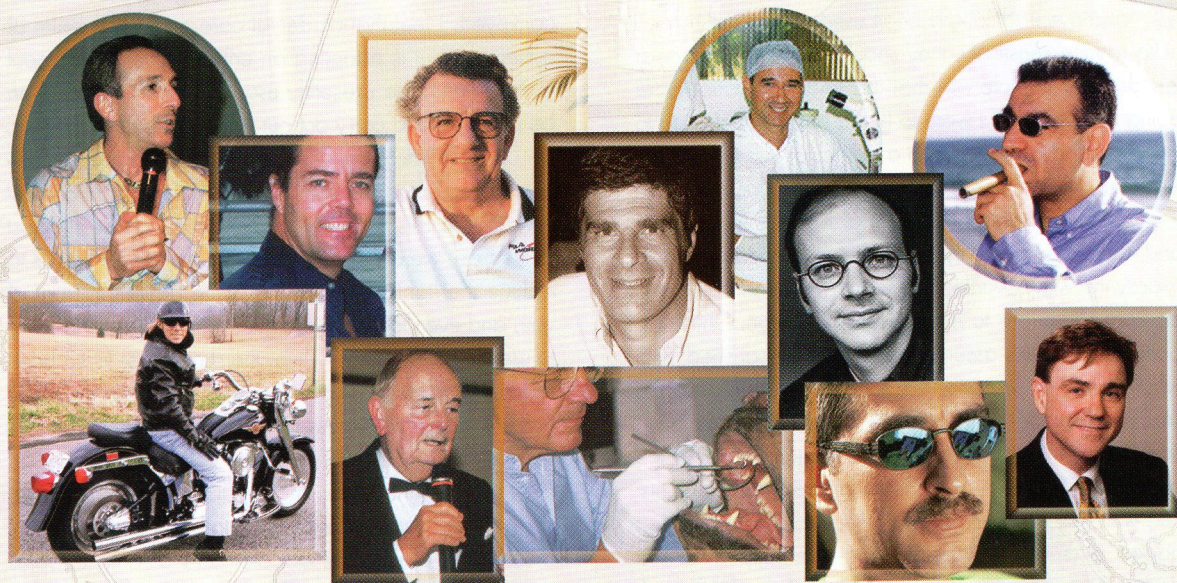
Terry: *Given the level of artistry in manufacturing crowns, "European Style" is known to be darker, with a degree of extra characterization. "American Style" tends to be characterized as very white. Do you feel that the different aesthetic results are dentist/technician driven or motivated by the patient's desires?*

Touati: I think that European patients like when their restorations appear inconspicuous and natural. These restorations blend in with the natural dentition, and

systematic bleaching to very bright color is not required to maintain this discreet appearance. But this has evolved recently, you know. More and more when we deal with younger patients — those who travel and watch TV and know what "Sex in the City" and "Friends" are — they begin to desire the same appearance of bright laminate teeth. I think that with mass communication and media, this discrepancy in perception arises.

Terry: *What do you believe are the most important ways the dentist can communicate with the ceramist?*

Bichacho: I honestly believe nothing can be more accurately transferred to the ceramist that will be better than the actual patient. We cannot expect to have a predictable, excellent result — in any or every case — without having the patient standing or sitting before the technician who has to characterize the restoration. It is imperative for the patient and the ceramist to meet. They have to talk and transfer some energy between themselves so that the expectations of the patient will be completely understood by the laboratory technician.



Top (from left to right): Michael B. Miller, DDS, Edward A. McLaren, DDS, Ken Neuman, DDS, Bernard Touati, DDS, DSO, Dr. Jairo Oliveira, Pascal Magne, dr med dent, and Nitzan Bichacho, DMD.

Bottom (from left to right): David Hornbrook, DDS, John W. McLean, OBE, Lloyd P. Miller, DMD, Irfan Ahmad, BDS, and Douglas A. Terry, DDS.

Accurate transfer of the impression of the provisional restorations is also crucial. This means that there will be a set of double impressions — impressions of the internal part of the restorations, which will be the abutments and the soft tissue, and impressions of the external part, which should accurately convey shape and form. The provisionalization stage becomes a high priority, since the shape of the provisional restoration will be finalized to such an extent that we will have no surprises when the final restoration is placed. This means that the only difference between the provisional and definitive restoration would be the material from which they are made.

Hornbrook: There are many ways that the clinician can communicate with the ceramist, and I think it really begins with the relationship between the ceramist and clinician, as well as the modalities that they find the most useful. For me, the two most useful tools are the clinical photographs and the diagnostic model or provisionals that represent the final restorations. No matter how artistic or knowledgeable the technician may be, clinicians have the advantage of the actual patient in the chair. While I can see the lips, face, their position during speech, profile, and the entire interaction, the ceramist may not have that opportunity. So photographs — whether they are 35mm, digital, or even moving video — can be transferred to the ceramist to provide an opportunity to see the same interaction that clinicians do. Visualizing the interaction between the eyes and the lips, and the lips and the teeth is a tremendously valuable tool.

Another tool, which I think is actually even more important, is the provisional restoration. While the provisionals have traditionally been used as a place holder, or to reduce sensitivity, they should really function as a test drive or sample of what the final restorations are going to look like. If I were to buy a suit, I wouldn't go to the tailor and be talked into a particular suit without trying it on. I would try the suit on, and the tailor would pin it in certain strategic areas to make sure it fit my body and looked great. Only when we've decided that it is exactly the way I wanted would he go ahead and make the final alterations to our mutual satisfaction. I think our patients too often assume that they'll be satisfied with whatever result we provide. Communication after the placement of the provisionals is important to determine how a patient feels about the new length, shape, or the position and support of the lips. If the patient is dissatisfied with any of these, resin modifications can be either added or subtracted until we get exactly what we desire. An impression should then be taken of this result and sent to the lab. Then all the ceramist needs to do is

provide lifelike ceramics in the mold that we determined with the patient.

Terry: *By now the Internet is impacting every profession around the world. How do you see the World Wide Web affecting aesthetics in dentistry?*

Oliveira: Brazil is one of the fastest growing communities of people connecting to the Internet. The main reason I work as a periodontist and ceramist is to make people's lives and smiles better and more beautiful — because when a patient smiles, it reflects his soul. I think that communication provided by the Internet allows the transfer of more information, in a very short period, from the patient to the dental technician to enable the best result possible.

Ahmad: I think the Internet is probably the "Brave New World" that Aldous Huxley was referring to in his book. Although still in its infancy, it is set not only to revolutionize communication, but also to have an impact on social mores. Already this medium is permeating businesses and professions, changing the way we interact with the world. In dentistry, the Internet will facilitate care from the first appointment to delivery and beyond. In the not too distant future, referrals, treatment, and recalls, will be executed electronically. Additionally, the current burgeoning of dental web sites offers a variety of treatment options to potential patients together with a directory of specialized clinicians to carry out these tasks. Scanning and transmitting pictures via e-mail is already being carried out to facilitate communication between dentists, ceramists, and the patient for achieving superlative aesthetic results. For example, tooth shade analysis, shape, form, and alignment can all be conveyed. I feel that as dental care enters the realm of cyberspace, it is adopting an entirely different protocol to that which we presently use, and soon it may even be impossible to carry out our work without the Internet.

Terry: *When you take a shade, how do you establish levels of value on Dentin Porcelain or Enamel Porcelain?*

Touati: This is, in fact, a very difficult question. Most of the time, we do it unconsciously. The easiest way is to reduce the light when you have the patient in front of you, and even to close your eyes a little bit — and to try to use the shade guide where the shade tabs have been organized in value. This is always practical, but not very easy. If you have access to a digital camera or a software program like Photoshop, it is much easier to choose the right value. Photographs of the shade tab comparisons can be transferred into black and white renditions; the elimination of color and chroma enables shade selection based on brightness or grayness, with emphasis placed on the value itself. The only way to

concentrate on the value is to have the image in black and white, and the use of this modern technology can be a very useful tool in such research or work.

Terry: *Traditionally, the role of the technician/clinician relationship has been that of direction. The clinician sends in the prescription with little or no feedback from ceramist. Do you think this is acceptable, or should the ceramist play a more significant role in this communication process?*

Hornbrook: I think the ceramist can play a very important role in this process. Historically and traditionally, the clinician has just written a prescription, sent it to the ceramist, and the process becomes directive only. The ceramist can actually help design the case, select materials, evaluate the photos, look at the patient profile, and provide input to the clinician. I think the relationship should initially be directive, with the clinician taking information from the patient in a very detailed manner to understand what the patient desires and what his needs are. That information should be transferred to the technician via a prescription — which really should be a narrative versus a one-line prescription (ie, porcelain veneers 6-11 A1) — and then the technician should become a consultant for the clinician and patient. So the ceramist can now call the clinician, they can spend time going through the diagnosis, treatment plan the case, and really offer the patient the ultimate in aesthetics and function.

McLaren: I believe the new paradigm should be to elevate the ceramist as an equal member of the aesthetic team. The ceramist should be involved at the treatment planning stage, ideally meeting the patients and getting a sense of their aesthetic goals. The ceramists know their materials, and they know the space requirements for their materials. Thus, they should be involved at the beginning of the design stage, preferably even before the preparations are made. For indirect restorations, the ceramist is really the artist. An artist works best with the subjects of his or her art in front of them. The best aesthetic result is obtained when the ceramist has contact and communicates directly with the patient. When the ceramist has the opportunity to try in the restoration and work directly with the patient to custom finish the restoration, this has the best potential for aesthetic success. It also increases the likelihood of patient acceptance, because they feel involved in the treatment process. This is also possible with the transfer of high-quality photography. In the use of tooth-colored wax try-ins or exquisitely made prototype restorations, these can be tried in by the dentist, photographed, and altered if necessary with patient participation, which can then be transferred back to the ceramist and changes thus made. This only works with a high level of trust and communication, and it is paramount that the dentist transfer back to the ceramist finished photography so the ceramist can see

and learn from the finished case. In this new paradigm, I believe that the dentist should charge a separate clinic fee for services, and the ceramist should charge a separate laboratory fee to the patient. This eliminates the lab cost as an overhead to the dentist and transfers it to the patient, where it should belong.

L. Miller: I believe the ceramist should play a more significant role as part of the restorative team of doctor, nurse, and technician that delivers a ceramic restoration to the patient. To do this, the ceramist must often have personal contact with the patient. I have employed private technicians within my own office for 34 years to enable accurate and exclusive restorations for my patients. Politics in these United States, however, has managed to debase the laboratory technician to a backroom presence that does not have visual or physical contact with patients. Massachusetts — my practicing state — only recently allowed patients to be sent to a laboratory for shade matching, providing there is an accompanying doctor prescription. Personal contact with the patient will allow the laboratory technician to fabricate ceramic restorations with better color, form, and personality to fit individual patients, rather than the “typodont” media appearance that is now so prevalent. We need to raise the status of laboratory technicians so that we can attract more talented people to this very difficult career. Affording them patient contact and allowing them to contribute their talents to personalize ceramic restorations can only be a benefit to us all, particularly to the patient. However, we must be prepared to pay increased fees for use of laboratory time, talent, and judgment for such patient contact, as well as superior results.

Terry: *I've heard that resins will eventually replace porcelain as the aesthetic material of choice in dentistry. What's the future for ceramic and composite resins in restorative dentistry?*

McLean: I would have great doubts that resin would replace ceramics, at least in the next two decades. While it's always possible that there will be a major breakthrough in polymer chemistry, current resin materials are really based on work done in 1938 when Pierre Castan developed epoxy resins for DeTrey's Amalgamated Dental in Zurich and London. Since then, we've had bis-GMA and many other resins, but in my opinion, the fundamental problem is that carbon plastics are not stable in water. Until we can overcome this complication, I do not foresee any possibility of replacing ceramics in dentistry. From the point of view of cleanliness, porcelain is stable and unsurpassed. That's why man's history has been traced through indestructible ceramics. The covalent bonding, glaze, and surface integrity

cannot be reproduced by resins unless some form of major polymer breakthrough occurs.

M. Miller: Because of its proven wear resistance, porcelain has basically been our prototype material over the years. Laboratories are certainly more familiar with porcelain and feel more comfortable with it. Various studies have shown that porcelain actually leaks the least compared to resin restorations in vitro. Porcelain can also be used to repair other porcelain restorations, particularly following endodontic treatment. Resin restorations do, however, win out in the "wear on the opposing tooth war," as every dentist knows. Porcelain — unless it is absolutely smooth — will wear occluding teeth, whereas resin is very kind to opposing teeth. Resin is much easier to adjust once it has been cemented, and this is of particular concern with posterior restorations (ie, inlays and onlays), but it can also be important with veneers. While the laboratory fee associated with resin is typically less than porcelain, this is actually becoming less of an issue since resin techniques are becoming more complicated and fees are therefore increasing. Overall, I think that porcelain is still the best material to be used for indirect restorations in terms of aesthetics, durability, and texture. However, resin is coming on strong, and in future years I think we will see a blending of the two materials into a material that provides the benefits of both.

Terry: *A dentist and a dental technician sometimes have a "love/hate relationship." When the technician is able to communicate with the dentist through artistry, the results can be phenomenal. But when that communication breaks down, there can be real conflict. How do you deal with that relationship?*

Neuman: A very good friend of mine taught me a saying a number of years ago that really points out the epitome of the problems we have with communication. If you listen carefully to these words, you'll see why we have such problems with it. It goes something like, "I know you believe you understand what you think I said, but I'm not sure you realize that what you heard is not what I meant." Try and repeat that. It really points out the problems we have with communication.

P. Magne: Since I started lecturing with my brother, Michel, in 1992, we have tried to emphasize the fact that collaboration between the operator and the laboratory was the key to success. We have never stopped giving this message and we still try today, by lecturing together in mixed audiences of dentists and technicians, to encourage this relationship. Of course, we are brothers in blood, and this might sound like an easier task for us to collaborate. But, above all, we are spiritual brothers,

which is much more important and does not require blood relationships. Anybody can share such a relationship with another fellow, provided that it is based on a healthy doctrine. When we consider our relationship, we aim at an even and balanced collaboration, rather than one person that tries to dominate the other. Unfortunately, progress and development of new materials and techniques have overshadowed this crucial communication, and today's risk is to focus on choices that are not directly related to success (eg, all-ceramic versus metal-ceramic, bonding versus cementation). Is it important? No. Our goal, instead, is to focus on the relationship. Michel often quotes this saying by a famous painter: "I don't paint things or objects, but rather relationships between things or objects." I believe that this balanced relationship between humans can be obtained by putting oneself at a lower level compared to the other. For instance, we should always consider the dental ceramist as a better expert than oneself. We must try to serve each other rather than expecting to be served. There is an old verse of the Bible that says, "For those who make themselves great will be humbled, and those who humble themselves will be made great." So let's try to focus on that when conflicts occur.

Conclusion

While the most successful restorations are undoubtedly obtained by physically joining the laboratory technician with the patient and clinician, this type of situation is more often an ideal that cannot be feasibly accomplished. Restrictions caused by distances and time constraints cause dental professionals to seek alternative means of transmitting critical information on patient prescriptions, conditions, and aesthetic desires. Continued technological advancements will further enable clinicians and laboratory technicians to breach the gap caused by less-than-ideal communications. The advent of digital imagery, electronic communications, and the Internet are critical stepping stones in the foundation of improved interaction.

While the European and American conceptions of aesthetics have traditionally differed, the influence of media on society has caused an increased amalgamation of ideals, and opinions regarding what is truly beautiful have shifted through time. Only through persistent cooperation can the triad of patient, clinician, and laboratory technician become completely unified, as we progress toward the development of optimal restorations.

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