

Editorial

It Depends on When You Take the Picture

Proper documentation of clinical implant cases usually follows a prescribed format. This includes radiographs and photographs (with lips fully retracted) documenting the pre- and postoperative, surgical, and prosthetic phases as well as some laboratory procedures and the final clinical outcomes. More than likely, the final photographs are taken a few weeks after insertion of the final prosthesis.

When I began my involvement with implant dentistry I followed the standard documentation protocol, but in addition decided to take clinical photographs every 12 to 18 months. I undertook this added chore because my long-term clinical results did not look as good as what I was seeing presented by the final clinicians at lectures or in various peer-reviewed journals.

As I reviewed my cases long-term, I must admit that the implants did not look quite as good as when first inserted. At times I found inflamed tissue and increased pocket depth; other times I noted a disparity between the incisal edges of the implant and the adjacent natural teeth. Occasionally I observed gingival recession and noted apical migration of the interproximal papillae, resulting in the dreaded and often fatal "black triangle." As a rule, however, the radiographic pictures depicting bone levels appeared to be quite satisfactory.

Recently I attended a full-day lecture on implant esthetics. The presenting clinician's documentation was exquisite and his results were so outstanding that it was difficult to tell the implant restoration from the adjacent natural teeth. The artificial crown emerged from a perfectly healthy gingival complex, the gingiva was pink, its height and zenith were correct, and the papillae filled the spaces between the teeth and implants. Even the most discerning and demanding clinician would be in awe of what was shown.

Observing this made me wonder if we are getting the full clinical story all of the time. The clinical photograph of the completed restoration was on the left side of the screen—magnificent! On the right side was the immediate postoperative radiograph. The speaker then proceeded to show follow-up radiographs on the right side of the screen: 1 year, 3 years, 6 years, 8 years, and 10 years later, all with excellent results. However, the same clinical photograph remained on the left side. Was this photograph taken soon after insertion or much later? We know that there was a 10-year postoperative radiograph, but I do not think that we were seeing a corresponding clinical photograph.

This reminded me of my own long-term clinical results and I began to rethink normal tooth morphology and its surrounding periodontal complex. Let's assume that we are planning to extract a maxillary central incisor from a perfectly healthy periodontium in a 25-year-old individual. The reason for extraction

is vertical root fracture. The cements/enamel junction (CEJ) is scalloped, rising apically on the facial plane, coursing incisally interproximally, and rising again palatally. The bony crest also follows the curvature of the CEJ. Bundle bone lines the socket and we are told that upon extraction it is lost and never replaced. In the area between the CEJ and crest of the bone lies the connective tissue attachment. Among its many functions, the connective tissue attachment provides support and resiliency for the interproximal papillae. Furthermore, a cross-section at the CEJ is triangular in shape, measuring approximately 6×7 mm. The interproximal surfaces of the anatomic crown are concave and provide the housing in which the papillae reside.

Extracting the tooth and immediately replacing it with an implant presents us with some interesting anatomic and geometric conflicts. As mentioned, the CEJ is scalloped, but implants are usually flat-topped; the typical diameter of an implant is about 4 mm, much smaller than the CEJ. In addition, the shape of the implant head is round but the shape of the tooth is triangular at the CEJ. The conflicts encountered between the CEJ and the implant are plentiful.

To transcend these difficulties we need to place the implant far enough into the bone and bone tissue to have adequate "running room." Also, since implants are not concave, we must place them deep enough so that we can place the artificial crown subgingivally to create room for the papillae to reside. Making matters even worse, by removing the tooth we, in essence, sever most of the connective tissue fibers. What is going to support and provide the resiliency for the papillae now?

As I thought about these conflicts I felt I had some of the answers to why the gingiva surrounding my implant restorations did not always look that good on a long-term basis. But the fact still remained that most practitioners' cases looked better than mine. Why?

We all know that case selection and clinical skill is very important in the ultimate success of our endeavors. Other important factors to take into account include good quality and adequate volume of bone, expert surgical and prosthetic techniques, and laboratory finesse. Perhaps we should also add one more: when the postoperative photograph is taken. More than likely, the earlier the better.

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