ESTHETICS AND SUPER GLUE: A CASE REPORT

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This article describes how a man attempted to repair damage to his maxillary teeth with super glue. Such action is discouraged, however, because of possible adverse reactions in the hard and soft tissues.

KEY WORDS

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INTRODUCTION

Contemporary dentistry revolves around esthetics. The dental profession today is not without its share of esthetic procedures, though such procedures are meager when compared with the arsenal at the disposal of our medical colleagues.

Under the influence of the media and a variety of other factors, patients today are concerned not only with their general health, but also with their esthetic appearance. The desire to present a favorable appearance to others, and to associate with people who effect a reciprocating pleasing reaction, is constant and life long. The most outward reaction is effected by the face, because the face is unmistakably us.[1]

Everyone wants to look younger, and people will go to all extremes in our society to improve their appearance.[2] Today, vast improvements in instrumentation, restorative materials, and knowledge of color has made it possible for the dental profession to consistently provide patients with lifelike prostheses that are virtually undetectable.

SUPER GLUE

Super glue has been available on the mass market as a general adhesive since the late 1950s. It has experienced extraordinary claims regarding its strength and versatility. It has been said that a 1-square-inch bond can hold more than a ton. Super glue is available under many trade names, in many forms (ie, stick, liquid, gel), and from a number of major and minor manufacturers.

Super glue is claimed to have the ability to bond porous, nonporous, and flexible surfaces, including glass, porcelain, fabric, metal, leather, wood, rubber, and a variety of resins. It can be purchased in super markets, in stationary stores, in convenience stores, and over the Internet. Its dangers are well known and appear on the packaging. Newer applications of super glue include wound closure instead of sutures and the detection of latent fingerprints in criminal investigations.

Super glue was evaluated for wound closure early in its history. However, the degradation of methyl cyanoacrylate into cyanoacrylate and formaldehyde could inflame the involved tissues before healing occurred. In the early 1960s, the formulation was changed to butyl cyanoacrylate for possible medical use, creating a less toxic product. The new composition was evaluated during the Vietnam conflict for control of bleeding until surgery could be performed. In 1998, the Food and Drug Administration approved the use of Dermabond (Closure Medical Corporation, Raleigh, NC) as

FIGURES 1–3. FIGURE 1. Facial view of 52-year-old Caucasian male patient. FIGURE 2. Maxillary left tooth crowns have been bonded with super glue to embedded roots. FIGURE 3. Periapical radiographs of maxillary super-glue bonded teeth.

an alternative to the suturing of small wounds.

The major ingredient of super glue is cyanoacrylate, a methacrylate resin that cures almost instantly. The catalyst is hydroxyl ions in water, which is present in trace amounts on the surface of virtually any object one wishes to bond. The cyanoacrylate molecules begin to link on contact with water, and the chains form a durable plastic mesh. The glue thickens and hardens until movement of the molecular chains ceases.

A case history is presented of a patient who attached fractured natural tooth crowns to their embedded roots in his mouth with super glue.

Case History

A 52-year-old Caucasian man presented for treatment at Temple University School of Dentistry in June 2003 (Figure 1). In September of the previous year, he was an umpire at a baseball game. He was making a call behind home plate when a player rapidly approached, and the incoming throw hit the plate, bounced off, and struck the patient violently in the mouth. Surprisingly, the patient stated that he had very little discomfort after the traumatic incident.

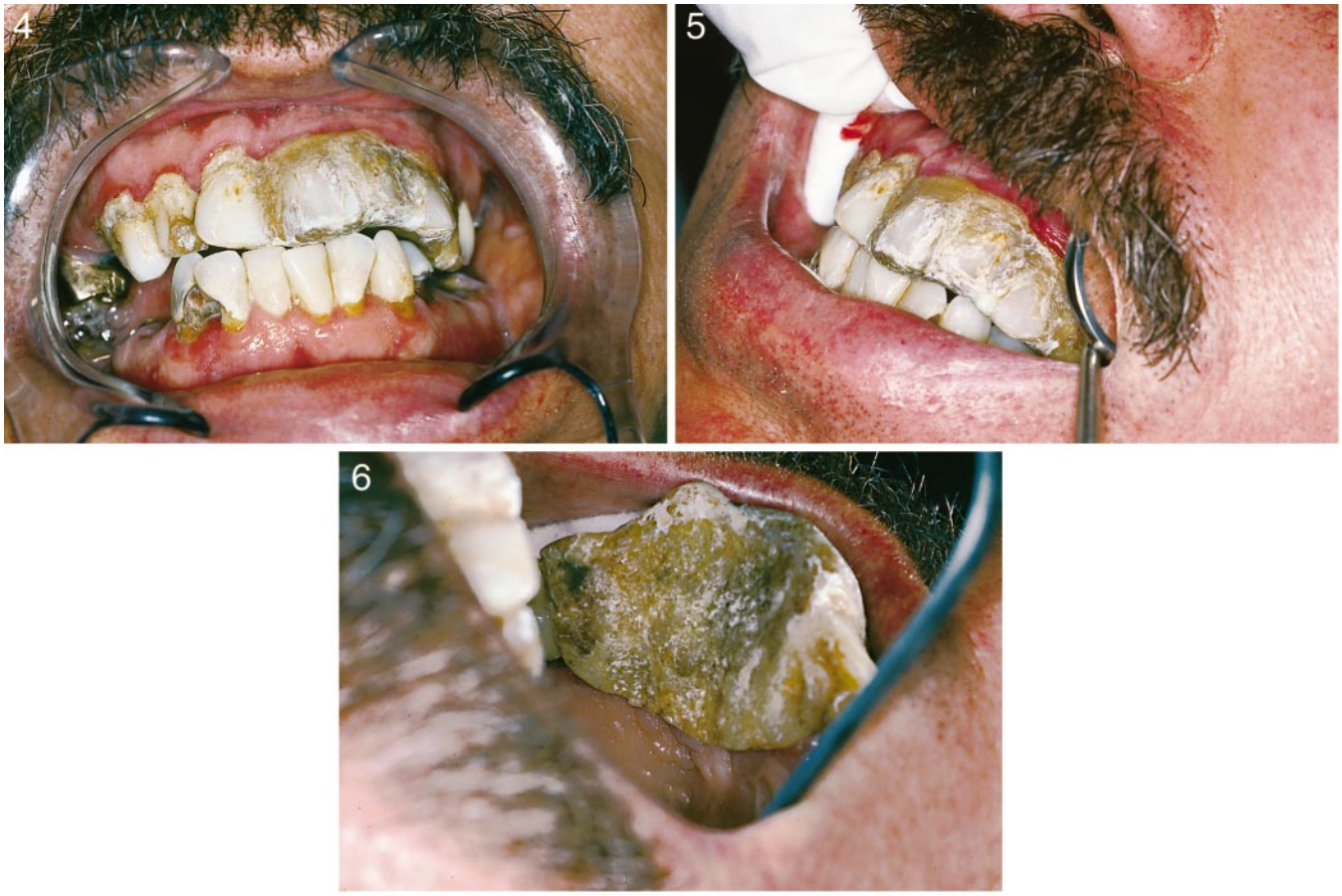
Several of the patient's maxillary teeth (upper left central, lateral, cuspid, and first premolar) were fractured by the blow, and the crowns started to ''fall out'' during the following weeks. The patient used hydrogen peroxide rinses and stored the fractured crowns in a peroxide solution.

The patient did not have any dental insurance at the time of the accident. In order to improve his appearance and try to function somewhat until he was able to obtain adequate coverage, he decided to use super glue to reattach his fractured crowns to the embedded roots the following month.

The crowns and roots were dried with a blow dryer, and a small amount of super glue was placed on each tooth and the corresponding root. The patient then pushed the tooth onto its root and repeated the procedure with the remaining crowns. The crowns were attached one at a time to their roots and the adjacent newly inserted crowns.

After insertion of the 4 lost crowns, a large quantity of super glue remained and adhered to the palate but separated ''after a few hours.'' The patient then removed the assembly and ''shaped it with a file.'' He then replaced the assembly intraorally and super glued it to the upper right central incisor and the left second premolar, which served as abutments for the replaced natural tooth crowns (Figures 2–6).

The patient claimed he removed the assembly every 4 to 6 weeks, cleaned it, reshaped it with a file, and reconnected it to the abutment teeth.



FIGURES 4–6. FIGURE 4. Facial view of upper and lower teeth in occlusion. FIGURE 5. Close-up view of upper left central, lateral, cuspid, and first premolar crowns reattached to their embedded roots with super glue. FIGURE 6. Extensive palatal coverage of super glue as a result of crown reattachment.

Initially the patient used a liquid form of super glue but then changed to a gel, which he said ''worked better.''

The patient said he had little or no discomfort after performing the procedure on himself. Clinically, he presented with severely inflamed gingival tissues surrounding the assembly, which was very large and overextended.

Future appointments were made for the patient, which he did not keep for financial reasons.

DISCUSSION

The problem of adjusting to tooth loss in our modern society is becoming extremely difficult because of the high values placed on youth, beauty, and virility.[2] We are a youth-oriented and age-fearing culture, with a passion to be esthetically pleasing to ourselves and others. The case history presented is an example of a patient going to an extreme to improve his appearance.

The patient's claims of experiencing very little discomfort after the traumatic episode and placement of the assembly can probably be attributed to nonvital pulps in the fractured teeth. As for the use of methyl cyanoacrylate to create the assembly, a significant inflammatory response probably did not occur because there was no open wound and the super glue was applied to hard tooth structures.

One of the authors (S.W.) has witnessed another male patient recover his 5 freshly extracted teeth from a trash can and appear at his next visit with the teeth ingeniously attached to his removable partial denture with dental floss through a series of small holes drilled into the resin base.

Achieving esthetics takes time, experience, an eye for beauty, and patient input. For a patient who is determined to self-improve his or her appearance, the dental profession should expect the impossible, inconceivable, or improbable, often combined with ingenuity.

Patients must be warned not to attempt self-treatment for esthetics with self-fabricated prostheses. Severe adverse and irreversible hard and soft tissue reactions may occur.

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