QUICK TECHNIQUE

The Puck Struck—but the Real Damage Came From the Bottle

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About a year and a half ago, I wrote about my grandson taking a hockey puck directly to the mouth during a pond hockey game in Michigan. No helmet. No mouthguard. Just an 8-year-old kid having fun until a puck fractured both maxillary centrals, teeth Nos. 8 and 9, exposing the pulp chambers (Figure 1).

At the time, my biggest concern was not simply rebuilding the teeth. It was protecting the pulp long enough to allow the roots to continue developing naturally. The x-rays showed immature root formation, and the last thing I wanted was to begin endodontic treatment before the roots had fully formed (Figure 2).

When we see traumatic fractures like this, it's easy to focus on the missing tooth structure. But biologically, the bigger issue is often what happens to the pulp afterward.

The original treatment worked extremely well. After cleaning the area and removing debris from the hockey puck impact (Figure 3), I lightly tapered the enamel on the facial and lingual surfaces below the fracture lines, allowing the direct composite to blend naturally into the tooth while gaining strength by extending onto sound enamel.

After etching and rinsing, I stayed away from aggressively manipulating the exposed pulpal tissue. Under magnification, the vascular tissue within the chamber was clearly visible. In a situation like this, disinfection becomes critical—but so does material selection. Because these teeth had direct pulpal involvement and prolonged exposure to the oral environment, I wanted antimicrobial control without unnecessary pulpal irritation. For that reason, I used Hemaseal & Cide (Advantage Dental Products) prior to bonding. It contains 4% chlorhexidine and, importantly, does not contain glutaraldehyde. That distinction mattered because I was dealing with exposed vital pulp tissue in immature teeth.

Most clinicians understand that glutaraldehyde-containing products can irritate gingival tissue. What may get overlooked is that gingiva is not the only soft tissue we deal with. In traumatic exposures and deep restorative cases, the pulp is soft tissue too.

After disinfecting the area, I completed the bonding procedure and restored both teeth with direct composite buildups. The restorations held beautifully. More importantly, my grandson had no postoperative sensitivity or pulpal symptoms. The teeth remained comfortable and functional for over a year (Figure 4).

Figure 1. Preoperative.

Figure 2. Pre-op x-ray.

Figure 3. Debris from the hockey puck impact.

Figure 4. Postoperative.

Figure 5. Tooth No. 8 not fully matured apically.

The Second Trauma

Then came round 2.

Unfortunately, my grandson had another accident when his older brother pushed him into a hot tub, fracturing one of the restorations. My son lives in Grosse Pointe, Mich, about an hour from my office, so he brought my grandson to a local dentist.

My son asked whether the dentist could use the same product I had originally used—Hemaseal & Cide. The dentist felt it probably would not matter and instead used a glutaraldehyde-containing desensitizer. Initially, the tooth was restored successfully. Within several weeks, however, my grandson developed severe pulpal symptoms, including significant pain and sensitivity, and ultimately required endodontic treatment.

The unfortunate part was that root development was still incomplete. As the radiograph showed, tooth No. 8 had not fully matured apically (Figure 5). Now the case became much more complicated. Instead of a more routine endodontic procedure, treatment shifted toward encouraging continued root development and apical closure before definitive therapy could be completed.

Why This Case Matters

Can any single case prove absolute causation? Of course not. Traumatic injuries are unpredictable, and pulpal breakdown can occur even when treatment is performed appropriately. But this case reinforced something I have believed for years: not all disinfectants and desensitizers are biologically the same. In routine restorative dentistry, many products may appear clinically interchangeable. But with direct pulpal exposure, immature teeth, or materials placed extremely close to vital tissue, chemistry matters.

A material that performs adequately on dentin may not behave the same way near vital pulp tissue. For me, this case became a reminder that preserving biology is just as important as restoring anatomy.

As restorative dentists, we spend a great deal of time discussing bonding systems, composites, preparation designs, and aesthetics. All of those things matter. But so does the biologic response to the materials we place. When we are trying to preserve vitality in young teeth, not all desensitizers are created equal.

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— Peter Auster, DMD, FICD, FACD