

The Puck Stopped Here



What Happened

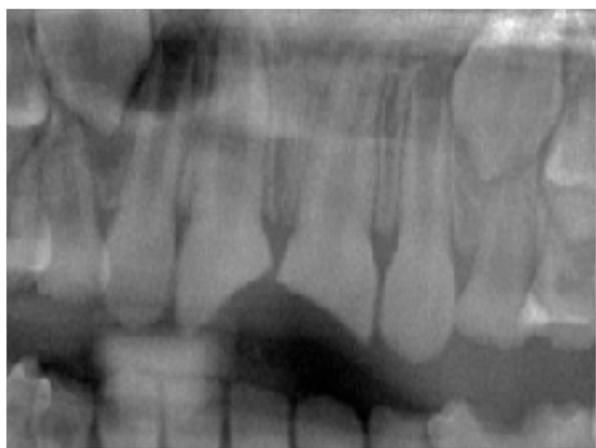
On a Sunday afternoon in late January 2025, I got a call from my son who lives in Grosse Pointe Michigan, about an hour away from where I live in Clarkston. He told me that my eight-year old grandson was playing pond hockey, wearing no helmet or mouthguard, and took a puck right to the two front teeth, breaking the incisal, 1/3 to 1/2 of both teeth.

He said “Dad, there’s a dentist not too far from me.” I said, “There’s 6,000 dentists in the State of Michigan, but he’s coming to see me!”



The following Monday, I saw my grandson at my office in Auburn Hills. We took some x-rays, as shown on the digital panoramic. As I examined intraorally, I could see the top of the pulp chamber had been removed and on both teeth I was looking at pulpal tissue, nerves, and blood vessels. While exposed, the tissue was not hemorrhagic.

I’m afraid that many dentists, given the situation, would’ve opted for endo, but at eight years old, as you can see from the x-rays, these roots are far from being completely formed.



With that in mind, my goal was to restore these teeth with direct composite buildup, disinfecting, and recapping the pulp chambers. I was just trying to buy time; the roots need another few years to form. Doing endo at this time would have involved multiple visits, a course of calcium hydroxide placed to try to get the root to form, and it still wouldn’t be as good as letting the teeth mature naturally.

It may seem to some that this was a heroic attempt, maybe even naïve, to expect an operative procedure of this magnitude to succeed. However, for me, this was not something that I shied away from. In 2007, I

published an article in Dental Products Report on Deep Caries Treatment*. Not quite a total decapitation of the chamber, but a very close exposure will see the red blood vessels, I call this a “window exposure”. You need to be very careful to try to avoid hemorrhagic tissue. Further, if the treatment did not work, we could always go back to the endo option.

My grandson is pretty tough, but he’s also eight years old. I had to anesthetize these centrals before working, however I have a technique where I warm the anesthesia, use liberal topical, stretch the vestibule tightly, just bury the bevel of the needle, then inject slowly and he felt nothing. I asked my son to watch his face as I was delivering anesthesia. No reaction.

It’s important to start this procedure on the right foot; if he had a lot of trouble with the anesthesia, it would’ve been more difficult for me to go on with the procedure, but fortunately that didn’t happen.

As you can see from the pictures with my intraoral camera, the pulp tissue is exposed, and you see the black fragments remaining from the hockey puck.



For this type of reconstruction, I typically like to take a fine diamond and taper the enamel below the fracture on the buccal and lingual so that, when I restore the fractured area, I make a very thin extension on the buccal and lingual pretty much down to the gingiva.

After I did this minimal preparation to both eight and nine, I removed the hockey puck remains from his right central. For this type of bonding procedure, I really like to use air abrasion. Covering the exposed pulp tissue, I used air abrasion on the buccal and lingual, then I used acid at 40% phosphoric acid by Ultradent.

These teeth have been exposed to the oral environment, including all the bacteria for 24 to 48 hours. In a procedure like this, my goal is to disinfect the exposed pulp tissue without irritating it, and then completely seal the top of the pulp chamber before building it up with freehand composite.

Therefore, after doing a minimal reduction of the enamel on the buccal and lingual, I began to seal the chamber. A product that helps me tremendously in a case like this is Hemaseal & Cide. This product has similar chemistry to Gluma, except instead of having glutaraldehyde, the active ingredient to disinfect and actually improve the bond is chlorhexidine 4%, with ability to not irritate the tissue. It has been shown to have twice the antimicrobial action as Gluma - I would not dare to place Gluma over exposed pulp I had to treat.

I gently painted the exposed pulp with Hemaseal & Cide, gently blew away the excess and came over with a layer of PQ1 from Ultradent. This is a resin adhesive that has primer and resin in the same bottle similar to Solo Optibond. After air thinning, the resin cured, be careful to keep everything totally dry. I think that is key. Then I came over that with a thin layer of flowable composite by Tokuyama, air thinning that and curing it.

Now that the chamber was recapped or resealed, I began my freehand buildup of composite - multiple layers, sculpting with instruments and using "digital technology" - my index finger. After sculpting with a long diamond back-and-forth until I got the right contour and light curing, of course, each step along the way.

Time was of the essence; as tough as my grandson is, he's eight, there's only so much time he can take in the chair. I had to tell him "When you kick your feet, your head moves. Could you please not do that? This is hard enough." After 45 minutes he had enough, but I had it pretty well set. I would've liked to do more and I can in the future, but it looked pretty good as you can see from the post-op picture; everybody was amazed at how natural it looked.



My son told me that my grandson had no post-op sensitivity that night. Almost 2 months later, he still has had no sensitivity.

The restorations are intact and still look good. My family - my sons and grandchildren - went on a cruise recently and I discovered this grandson is a habitual nailbiter. This was making me sweat bullets, but the restorations held without fracture.

My grandson plays hockey in a league in Grosse Pointe. He's a good player, but there he wears a helmet and hopefully a mouthguard. Playing pond hockey, he had none of that. Here's a picture of him in full hockey attire. I may be biased, but I think he's exceptionally handsome.

Note: At the time I did this procedure, I was focused on doing the best job I could restoring these teeth as quickly as possible; I had no thought of writing an article. It wasn't until after the procedure that I thought this would be a nice piece to share. As a result, I don't have step-by-step clinical pictures of each procedure, however, with the x-rays and photos that I do present, the technique involved should be pretty clear.

