



Bonded Sealant Application for Crown Fractures

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For uncomplicated crown fractures with no radiographic evidence of disease, bonded sealant application can:

- Resolve sensitivity
- Block infection
- Improve aesthetics
- Smooth the tooth to decrease plaque accumulation, delaying periodontal disease.

This is a simple procedure that every veterinary hospital should offer. Clinics with dental radiology and a high-speed drill system can equip themselves with the light curing gun and bonded sealant kit (dentalaireproducts.com) for approximately \$500. This will treat about 50 teeth, after which refills should drop the cost to about \$2 per tooth.

PRACTICE POINTS

- Use fluoride-free pumice for polishing to avoid interference with future acid etching.¹
- Bonding systems that combine the etch with the bonding agents may not be strong enough.
- The patient can eat and drink normally following restoration with bonding agents.

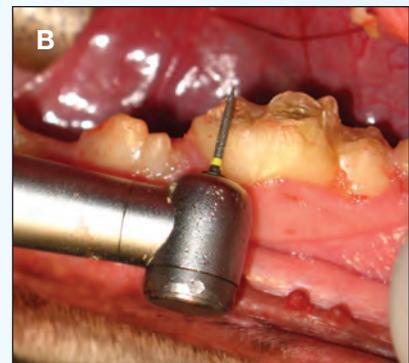
TOOTH PREPARATION



1 Scale and polish the surface of the tooth being treated. Remove any unsupported or damaged enamel with a fine diamond bur or white stone.



2 Smooth the area to be bonded with either progressively fine sanding disks mounted on a mandrel and powered by a slow-speed handpiece (**A**) or a fine-diamond bur on a high-speed handpiece (**B**).



ACID ETCHING

This step is performed with a 37% phosphoric acid. The purpose is to remove all impurities from the tooth surface and slightly demineralize the surface. This will lead to increased surface area for bonding.²



1 Place the supplied acid on the tooth surface and let sit for 10 to 30 seconds.



2 After the prescribed time, rinse the tooth surface thoroughly for 20 seconds. Insufficient rinsing will leave residual acid in the dentinal tubules and result in sensitivity.



3 Dry the area lightly. Do not desiccate, as this may weaken bond strength.

BONDING AGENT

Bonding agents are available in many different formulations that offer the ability to do the procedure in a 1- or 2-step process. The 1-step options combine the primer and bonding agent in 1 bottle (eg, ONE-STEP, bisco.com). The 2-step products utilize separate primer and bonding agents (eg, Scotchbond Multi-Purpose, 3M.com).



1 The bonding agent should be applied in a very thin layer (A). After 10 seconds, it is air thinned/dried for 15 seconds (B). Finally, it is light cured with an intense blue light for 10 seconds (C). To prevent eye/lens damage, view the light through an appropriate filter.



2 If a 1-step bonding agent is used, a layer of unfilled resin (eg, Fortify, bisco.com) should be applied to the bonding agent to add strength and smoothness to the restoration (A). The resin is placed over the 1-step bonding agent and light cured for 10 seconds (B).

CONTINUING EDUCATION

While this article makes the procedure look simple, improper technique can destroy the teeth you are trying to repair. There are nuances that cannot be learned without hands-on training. This training is available in San Diego (vettentaltraining.com), Santa Barbara (sbvdtc.com), and Colorado Springs (vettentalclasses.com).

In addition, keep in mind that these are generalized directions. Please refer to the manufacturer's instructions for the specific product you use.

References

- Holmstrom S, Frost P, Eisner E. Restorative dentistry. *Veterinary Dental Techniques*, 2nd ed. Philadelphia: WB Saunders, 1998, pp 255-318.
- Woodward TM. Bonded sealants for fractured teeth. *Top Companion Anim Med* 2008; 23(2):91-96, 2008.