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E N D O D O N T I C S : T o t a l P u l p e c t o m y

INTRODUCTION:

Endodontics involves the treatment of the pulp of the teeth. Generally this involves removing diseased pulp tissue to remove pain and infection and allow the patient to retain the use of the affected tooth.

To better understand what follows, a brief anatomy lesson is in order. The portion of the tooth that is normally visible above the gum-line is called the *crown* and the portion below the gum-line is called the *root*. As we move closer to the tip of the crown, we say we are moving *coronally* and as we move closer to the tip of the root we are moving *apically*. The crown is covered with a thin coating of non-living, non-porous *enamel* which is the hardest substance in the body. Underneath the enamel of the crown is a living tissue called *dentin*. Dentin makes up the bulk of the tooth and is also the material the root is made of. In the center of the dentin is a hollow chamber known as the *endodontic canal* or *pulp chamber*; this is where the tooth's nerves and blood vessels are located.

In total pulpectomy, the goal is to remove all of the pulp as well as any diseased dentin lining the chamber. The chamber is then filled with dental cements and packing materials to seal the tooth against further contamination, and a filling is put in the crown to seal the access hole.

INDICATIONS:

The main indications for pulpectomy are dead or chronically inflamed pulp. Pulp can be killed a number of ways. The most common is when the tip of the tooth is broken off, by some trauma, exposing the pulp to the outside world. Once exposed to the bacteria in the mouth, the pulp quickly becomes infected and inflamed. This initial inflammation is painful as many readers will know from personal experience.

As time goes on, the pulp starts to die, relieving pain in the short term, but allowing infection to advance apically, eventually causing a chronically painful peri-apical abscess. Pets often do not display this pain in obvious ways. Signs include refusal to

eat hard foods or chew on previously enjoyed toys, chewing on one side of the mouth, excessive drooling or licking of lips and a grouchy attitude.

These abscesses, as well as causing discomfort, act as a constant source of bacterial infection to the rest of the body, potentially leading to premature kidney failure or heart valve failure.

Another way for the pulp to be injured is in chewing hard substances. If an animal bites down hard on a rock or stick, etcetera, (remember that a dog's jaw can generate compressive forces several times greater than those produced by a human jaw) it can cause trauma to the pulp, which then becomes inflamed. As the pulp resides in a rigid chamber, there is no room for it to swell. Therefore, its blood supply is cut off and it dies. This dead pulp will eventually abscess. When a tooth is injured in this manner, it becomes discoloured and appears pink, purple or gray.

ADVANTAGES:

Compared to extraction of the affected tooth, which is the only alternative, endodontics offers many advantages. It is less traumatic to remove pulp than the whole tooth and so causes much less pain for the patient.

Endodontics avoids the potential complications of extraction such as

oro-nasal fistulae, dry socket, tongue protrusion, jaw fracture and hemorrhage. As well, with endodontics, the patient retains the use of the tooth.

LIMITATIONS:

Once the pulp of the tooth has been removed, the tooth is, of course dead. In many cases it will have been dead before surgery anyway. A dead tooth is not as strong as a living tooth, so if the patient continues with the behavior that led to the initial injury (chewing rocks etcetera) there is a chance more of the tooth will be broken off and/or the filling dislodged. This can often be prevented by protecting the tooth with a metal crown.

It is not possible to look at the tip of the root to ensure that the apex of the root

has been completely sealed. If the seal is not complete, the procedure may fail and need to be repeated. For this reason, it is always recommended to radiograph the treated tooth one year post-operatively to ensure that all is well. As well, owners should monitor the patient for the signs mentioned earlier and check, on a weekly basis, that the filling is in place.

**Compared to extraction,
Endodontics offers many
advantages.**