

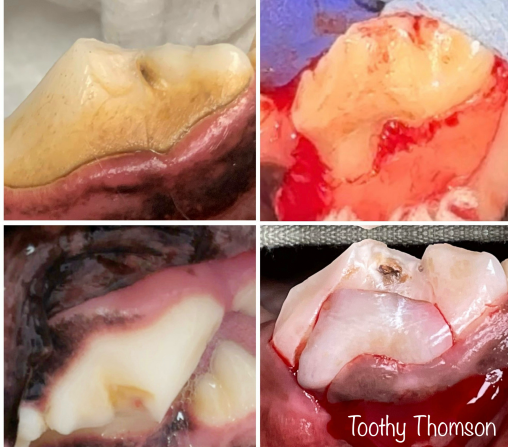


Toothy Thomson Handout

"Slab" Fractures

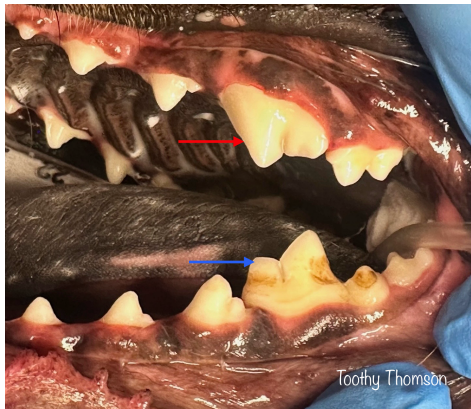
There are two ways to classify tooth fractures. The first is whether or not the pulp is exposed; complicated crown fracture (CCF) and uncomplicated crown fracture (UCF). The second is based on the part of the tooth involved: an uncomplicated crown-root fracture (UCR) or a complicated crown-root fracture (CCR).

Slab fracture is a term often used to refer specifically to fractures of the maxillary fourth premolars in dogs and is a very broad term. These fractures can be "complicated" or "uncomplicated", as well as involving only the crown or both the crown and root.



Top left is an uncomplicated crown fracture, top right is an uncomplicated crown root fracture, bottom left is a complicated crown fracture and bottom right is a complicated crown root fracture

Slab fractures occur when dogs chew on things that are too hard and break the tooth. Dogs have two main chewing teeth: the maxillary fourth premolar and the mandibular first molar. Together they are called the "carnassial teeth".



Maxillary fourth premolar (red) and mandibular first molar (blue)

These are the teeth your dog uses when they need to chew on something to break it up into smaller pieces. These teeth meet together and act like scissors to cut things.

Therefore, when you give your dog something to chew that is harder than enamel it creates significant outward pressure on the maxillary fourth premolar and the tooth breaks.

This is simple physics; picture a pair of scissors trying to cut a metal pole or a rock: the scissors will break before the rock or pole is cut.

Because of the shape of the maxillary fourth premolars, the whole (or part) side (a slab) often breaks off the tooth which is where the term "slab fracture" comes from.

Given that slab fractures can come in several different forms, treatment is not always straightforward when assessed awake: all fractured teeth should be assessed radiographically and with an anesthetized exam.

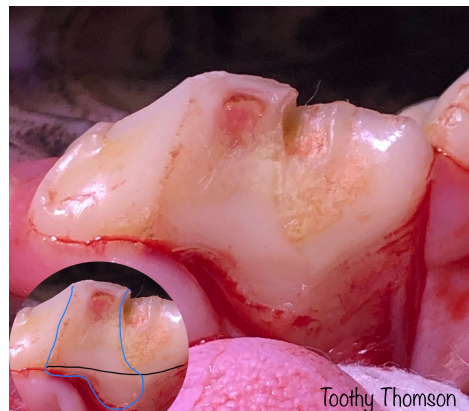
Treatment for teeth with uncomplicated crown fractures is to assess them radiographically for any signs of non-vitality. If it appears vital at the time of the radiograph, it does not require treatment and should be monitored radiographically annually.

Refer to the "Uncomplicated crown fractures, Abrasion and Attrition" handout for more information on how to treat these teeth.

If the tooth has pulp exposure or is non-vital it needs to be treated: either with a root canal treatment or extraction.

Treatment for complicated crown fractures is always required. Refer to the "Root Canal Treatment or Extraction" handout for more information and options for teeth affected by a CCF.

If there is no root involvement, treatment can be based on the absence or presence of pulp exposure (as above). However, if the fracture extends below the gingival margin the amount of root involvement needs to be determined and treated. When the fracture extends below the gum line and onto the root of the tooth, it compromises the periodontium. Loss of root structure means loss of cementum which is the tissue the periodontal ligament attaches to. This loss of cementum needs to be classified as attachment loss (periodontal disease) and treated accordingly.



Fractured maxillary fourth premolar with root involvement. On the inlay picture, the black line shows where the bone height should be and the blue line shows the extent of the "slab" missing. It is clear that several millimetres of root are missing (below the black line)

Additionally, the maxillary fourth premolar teeth naturally have a buccal bulge whose purpose is to deflect food and other materials away from the gumline when your dog chews on things. This must be considered in addition to 1. Pulp exposure and 2. Root involvement.

If the buccal bulge is lost then food and debris can be pushed into the sulcus during eating and contribute to periodontal disease.

This is why a full assessment under anesthesia is necessary for "slab fractures". Depending on the degree of root involvement, extraction may be the only option for treatment. If the buccal bulge is lost, but the periodontium is not compromised, then a full metal crown should be placed to protect the tooth long term. A metal crown is fabricated to replicate the natural bulge in order to help push away the food and materials from the gingival sulcus when your dog chews moving forward.



Front view of the maxillary fourth premolar where you can see the buccal bulge. The purple line highlights the curvature that is often fractured off when "slab" fractures occur.

The only way to prevent slab fractures is to only give appropriate chews and treats to your dog. It is a misconception that dogs need to chew bones. Carnivorous predators go for the organs and meat first and leave the carcass and bones behind for a reason. Pets are excited about bones because that is what is offered; if given a choice between a steak and a bone, they would pick the steak. Chewing often becomes a habit for our dogs and a way to occupy themselves out of boredom.

Training and behaviour are outside the scope of this handout, our focus is on *what* you offer your dog to chew on. We want it to be safe for their teeth.

Our best recommendation is to touch and feel everything before buying it or offering it to your dog. Absolute "no-nos" include: all bones and antlers - they are all too hard. From there we encourage you to take what you want to offer your dog and grab it at both ends and bend; if it breaks or has a very good bend then it should be safe. Also, try to indent the chew or toy with your thumbnail; if you can't - it is too hard.

We realize this excludes many items found in most pet stores and that your dog may have "been fine chewing on those for years", but that is because they are lucky or you are unaware of a problem.

Dogs cannot talk and will continue to chew, eat, play and live with fractured teeth, but fractured and diseased teeth are painful. Oral exams need to be part of every vet visit and concerns should be assessed with an anesthetized COHAT.