

## Case of the Month:

By: Heather L. Duncan, DVM; Practice Limited to Veterinary Dentistry & Oral Surgery

Wilson is a 6 month old, intact male Labrador retriever mix that was found along the side of the road and it was suspected that he was hit by a car previously. He had a healing fracture of his right femur and a torn left cruciate. His left cruciate will be repaired once he is orthopedically developed enough to do so.

Upon oral examination a fractured left maxillary 4<sup>th</sup> premolar (208) was noticed. After placing Wilson on pain medications and exercise restriction (due to his cruciate rupture), he returned a few days later for a neuter and further work up of his fractured tooth.

### Clinical image of the left maxillary 4<sup>th</sup> premolar tooth (208):

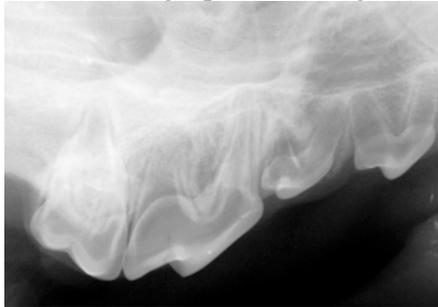


### What is your next step for Diagnostics of the fractured tooth?

Dental radiographs were recommended to evaluate the extent of fractured 208.

Wilson was placed under general anesthesia and full mouth intraoral dental radiographs were performed. The radiographs of the right (108) and left (208) maxillary 4<sup>th</sup> premolars are below:

### Dental radiographs of the right (108) and left (208) maxillary 4<sup>th</sup> premolar teeth:



**108 (normal)**



**208 (complicated crown-root fracture)**

### What is the best treatment option for this pet?

Evaluation of the dental radiographs reveal a complete adult dentition of a young patient. This is evidenced by open apices (root tips) of the teeth, which will continue to mature and these open apices will close around 1 year of age in vital teeth. The dental radiograph of 208 reveals a crown fracture that extends to the root (therefore Wilson has a complicated crown-root fracture of 208) and this means 208 is no longer vital.

When considering treatment options for a fractured tooth, the formation of the apex has to be taken into account. This patient is too young to receive a standard root canal therapy,

because his teeth have open apices. The sealant and gutta percha used in a standard root canal therapy would not have a “stop” like in a tooth with a formed apex and these materials would end up in the surrounding alveolar bone and this would not be an appropriate treatment for this young patient.

If an immature tooth were to be saved and not extracted, then some extra steps would be needed to allow the tooth to mature and form an apex. This process is called apexification. With apexification, the infected/necrotic pulp tissue is removed and calcium hydroxide is then placed in the canal. This allows apexification which is the closure of the apex, induced by treatment. The calcium hydroxide needs to be changed every 6 months until the apex is formed and healed, and then a standard root canal therapy can be performed.

The only other appropriate treatment option for a fractured tooth, and the best treatment option in this patient due to his complicated crown-root fracture, would be surgical extraction of 208. This can be a complicated extraction because of the very thin walls of the roots and these thin walls fracture very easily during extraction. Postoperative radiographs are indicated to reveal the complete removal of the extracted tooth. Wilson’s postoperative radiograph and clinical image after the extraction are listed below.

**Intraoral dental radiograph and clinical image of 208 postoperatively:**

