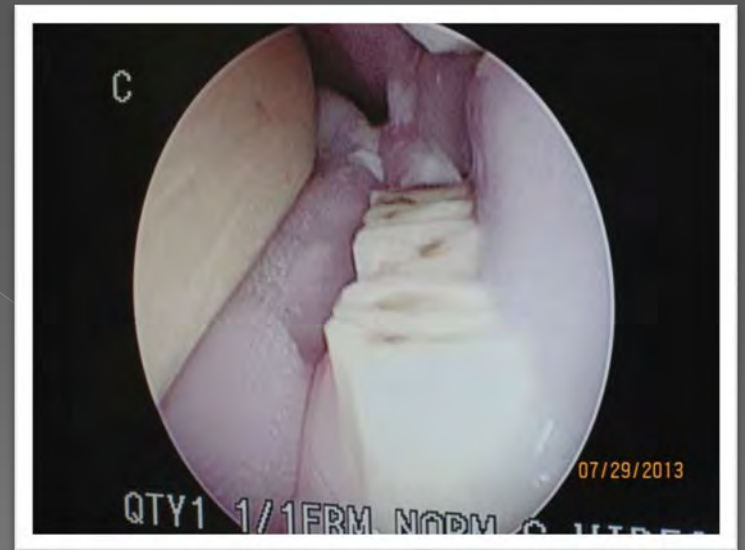


Dental Disease in Rabbits


The benefits of Endoscopy

Presented by:





Introduction to Rabbit Dentistry at Campus Estates Animal Hospital



We've been welcoming rabbits to our clinic for 23 years. We are committed to offering you and your rabbit high quality care for all your rabbit's needs. We specialize in rabbit dentistry and provide full service for your furry friend. Stay tuned to learn more!



Campus Estates Animal Hospital

All About: Rabbit Teeth



Rabbit teeth are adapted for the ingestion of a fibrous diet.

The incisors and all of the cheek teeth continuously grow.

Dental Growth Rate: 2 to 2.4mm per week!



Rate of growth is determined by:
(rate of eruption) – (rate of attrition)

Both of which can be affected by many factors:

- Malocclusion/ inappropriate occlusal wear
- Age
- Inappropriate occlusal wear substrate (dietary fibre content)



- The continual eruption and growth of the teeth predispose rabbits to dental problems.
- Underlying etiology of dental disease may be associated with prognathic defects, trauma, foreign bodies, or neoplasia, however:
 - **most** dental problems of pet rabbits are part of a **progressive** syndrome that effects the **shape**, **position**, and **structure** of the teeth.

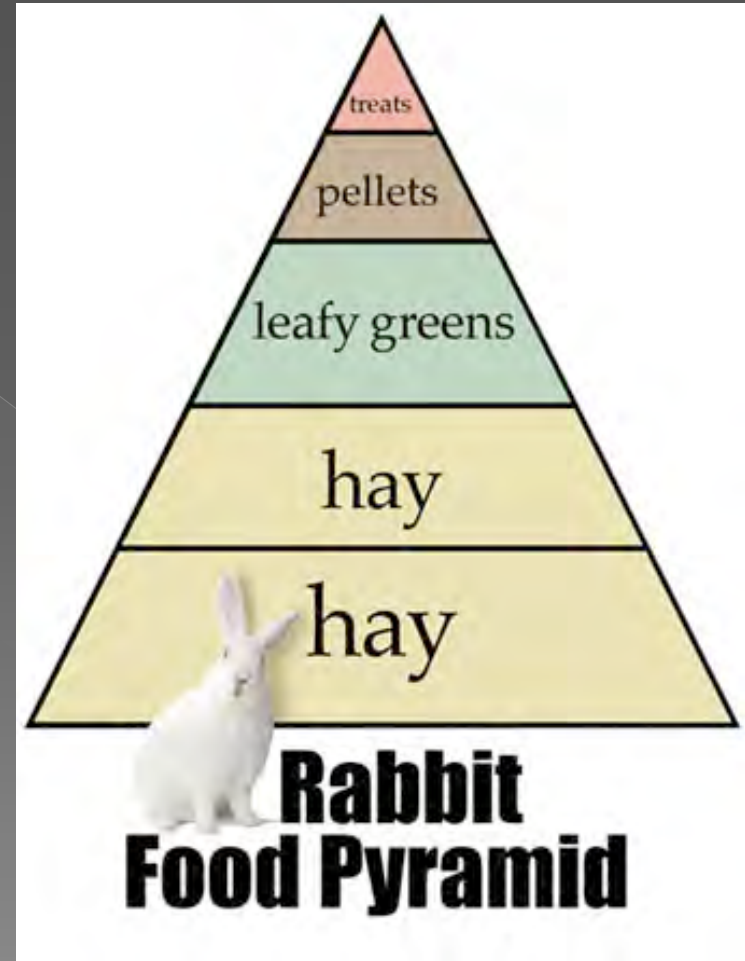


Dental disease can lead to a number of clinical problems such as:

- Epiphora (runny eyes)
- Dacrocystitis (infected tear ducts)
- Abscesses
- Trauma of oral tissues (lacerations, teeth growing into cheeks/soft tissue)
- Secondary GI disturbance (off hay, stasis, bloat)
- Poor coat quality (unkempt, retained shed, etc)

The anatomy of the rabbit mouth

- The anatomy and physiology have evolved to accommodate their unique diet.
- Their incisors function to cut grass and other plants. The food is chewed with the rough occlusal surface of the molars, also called the cheek teeth.



How do they chew?



- A unique feature about rabbits is that their mandible is narrower than their maxilla. That means when they are not chewing, their teeth do not line up.

How they chew...



- The cheek teeth only come into contact when they are chewing.
- It is this movement, along with efficient rough surfaces, that allow for grinding of the fiber. It also provides for the appropriate wearing of the teeth.

The 4 causes of dental disease

- 1) Congenital and developmental abnormalities.
- 2) Traumatic – especially seen after trimming of the incisors and they fracture.
- 3) Abnormal wear – this is the most important and most frequent. All captive rabbits do not receive the same variety of food as free range rabbits do.
- 4) Metabolic bone disease.



Who is at risk of dental disease?

- **Congenital** (breed specifics)
 - **Conformation**
 - brachycephalics
 - **Genetics**
 - malocclusion
 - abnormal enamel
 - premature aging (special fur quality breeds such as Rexes, Lionheads, etc)
- **Acquired**
 - Age related
 - Insufficient dietary substrate

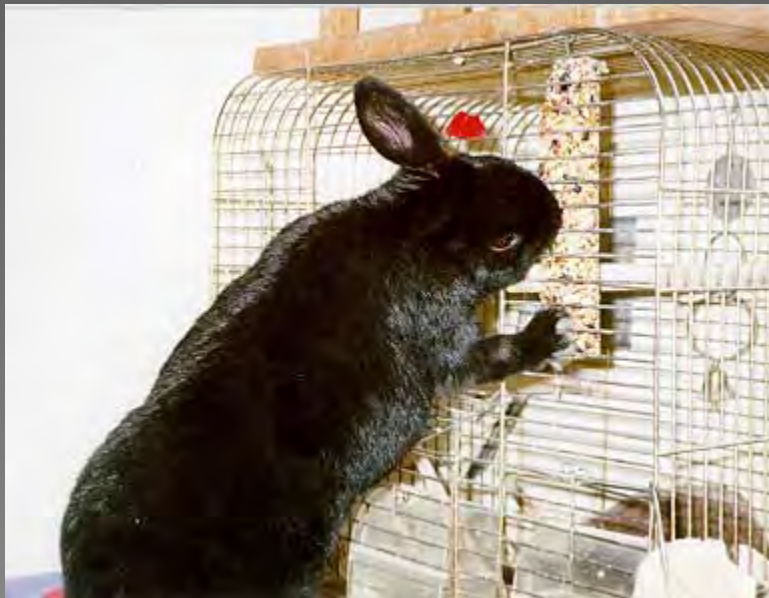


Abnormal wear of teeth



Diet is a major factor to the abnormal wearing of teeth. This is especially true when:

- Rabbits are fed food such as seeds, bread, fruit or treats.
- Diets are deficient in hay and vegetables.
- The molars overgrow the mandibular (lower jaw) cheek teeth bend towards the tongue, and the maxillary (upper jaw) cheek teeth bend towards the cheeks.



When the molars begin to bend, this further reduces the occlusive surface they have – making the dental disease worse. Once this happens, we will see our rabbits refusing hay and looking for something easier to eat.

The Challenges of the rabbit mouth

The Challenges of the rabbit mouth include:

- ❧ Small mouth
- ❧ Narrow mouth
- ❧ Long oral cavity



The Challenges of the rabbit mouth

When looking in a rabbit's mouth, we require special instruments to open the mouth and keep the cheeks out of the way.

However, we need to ensure not to open the mouth too wide or for too long, so not to stretch the masticatory (chew) muscles and ligaments of the temporomandibular joint.



How do we look into these small mouths?

There are a few different ways that we can look into these little mouths. Each option presents both limits and advantages.



Endoscope



Otoscope & Speculum

Otoscope vs Endoscopy

Otoscope and Speculum

- Not magnified
- Can do while awake
- Can miss small spurs and spikes especially without sedation
- Speculum moves tissue out of the way making it easier to see lesions than with the otoscope
- Risk of injury



Otoscope



Speculum

Endoscopy

- Magnified on a screen
- Image capture for owner
- Need anesthesia
- Can identify those very small, but clinically significant, spurs and spikes



How do we look into these small mouths?

Otoscope/speculum -

We can use an otoscope or speculum to look into your bunny's mouth typically while they are awake and in the exam room.

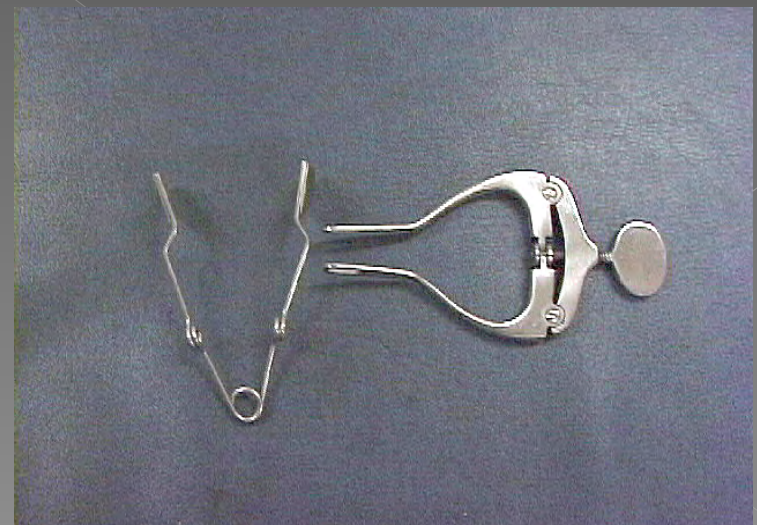
Sometimes sedation or general anesthetic is required to have an adequate look into the mouth.



Set up for a typical oral examination using the speculum



Dental Equipment



Diamond composite dental burr bits – variable sizes





Dental instruments in use

Why not use nail clippers or other crush devices?

The crushing/shearing action DAMAGES teeth risking:

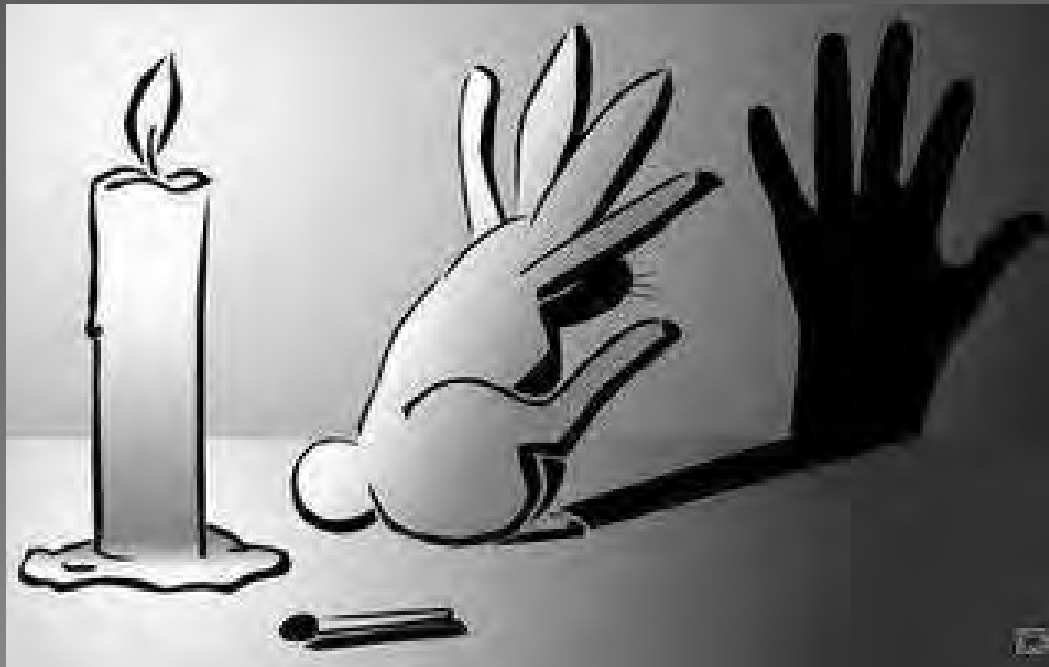
- Fractures
- Creating points that may be even sharper or micro point that become significant with growth
- Damage soft tissue: bleeding can be significant if by one of the arteries
- Damages ligaments risking: loosing of teeth, infection/creating of sulci for accumulating food and debris that can become abscesses, and it is also stressful and painful (awake animals)



Image: E. Harrison

We also use the aid of radiographs (xrays) to have a look at:

- ❖ Bone structure of the jaw and sinuses
- ❖ The crowns (part you can see in the mouth above the gums, Tip of the Iceberg)
- ❖ The 'roots' (part under the gums which are much longer)
- ❖ Screen for bone lysis and areas of abscesses



Dental Radiographs (Xrays)

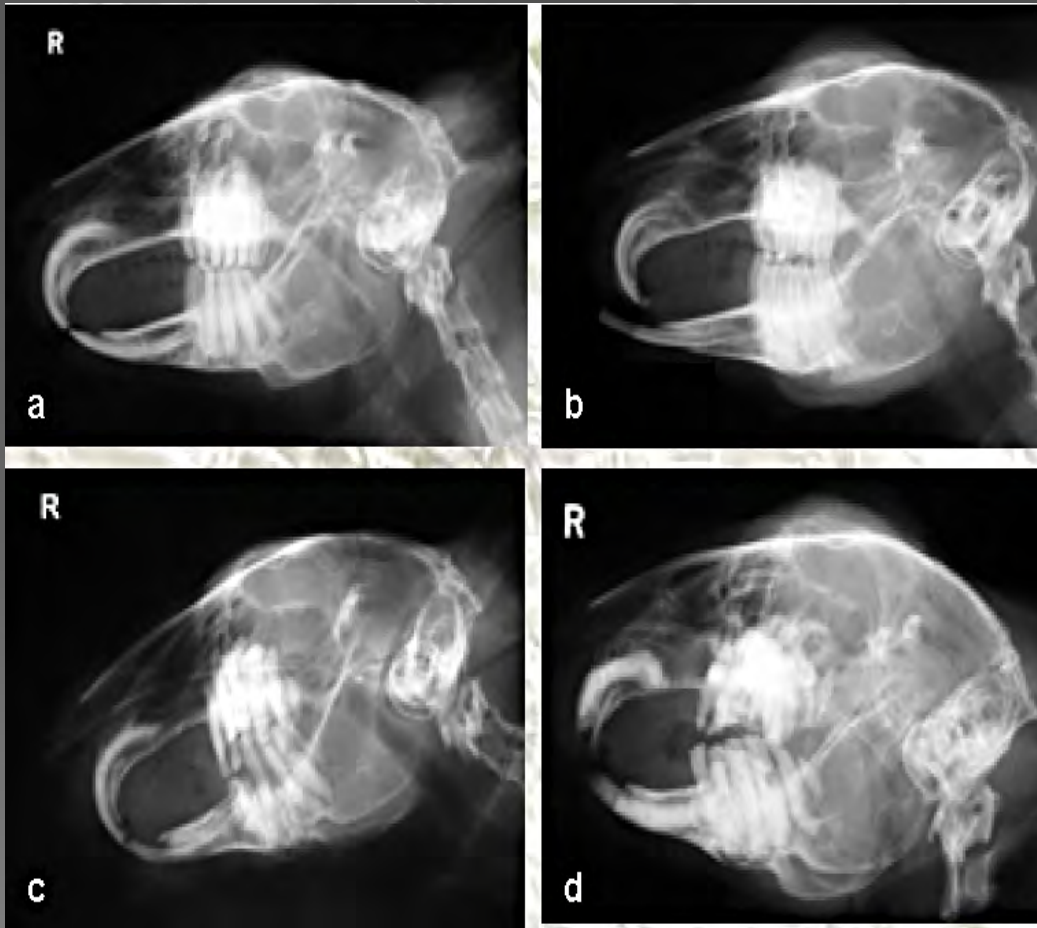


Deep sedation or general anesthesia is required for diagnostic positioning.

To take a full series of radiographs of the mouth:

- Typically 5 different views are required
- Anatomic evaluation lines assist in staging

Dental Radiographs (Xrays)



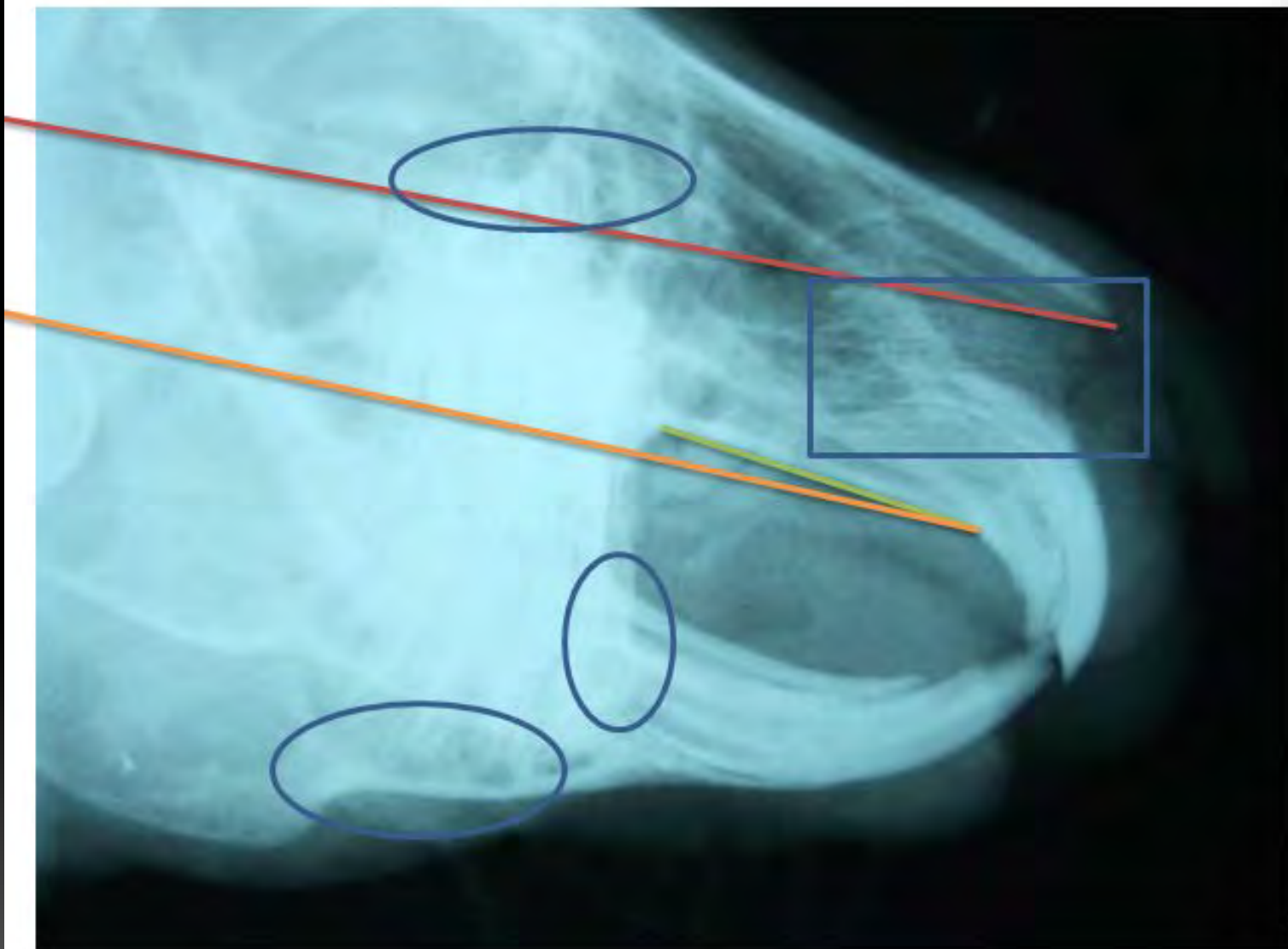
- TIP OF THE ICEBURG
- Radiographs allow for seeing tooth root (subgingival crown) disease



- We can assess your rabbits occlusion of both incisors and the cheek teeth
- We can also see changes in the bone structure



4. R oblique highilghting L mandible



3. L oblique highlighting R mandible

RADIOLOGY AT CAMPUS ESTATES



We are equipped to take high quality digital xrays of your rabbit to better asses the condition of his or her mouth.

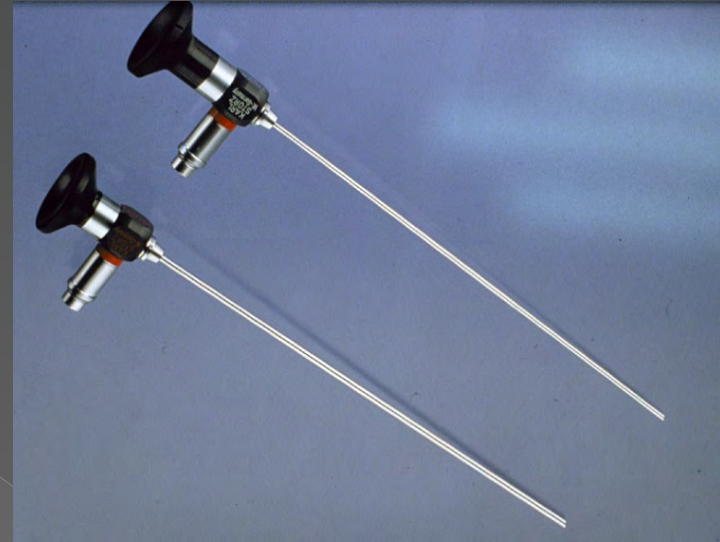
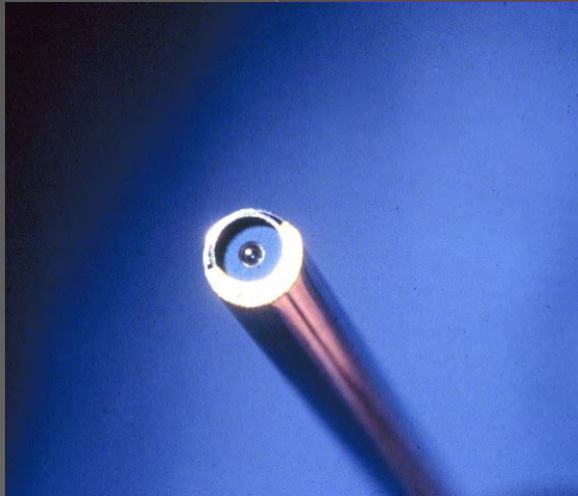
Why do we use endoscopy to evaluate teeth in rabbits?



“ Even during examination of the anesthetized rabbit, experienced observers can still miss several lesions. Oral endoscopy allows thorough inspection of the oral cavity and greatly facilitates detection of subtle lesions because it provides magnified perspective of dental structures.”

(Capello, V. Lennox, A. *Ferrets, Rabbits and Rodents Clinical Medicine and Surgery* 3rd Edition. 2012, P. 452)

Dental Endoscopy



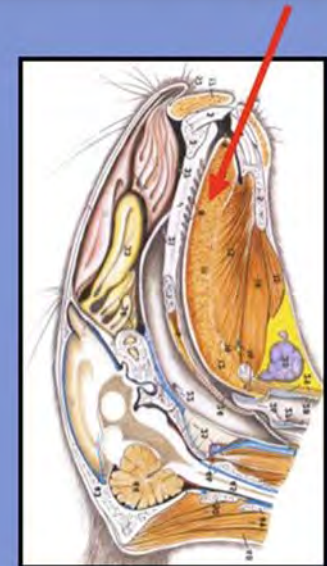
Endoscopic Intubation

Rabbits - Intubation



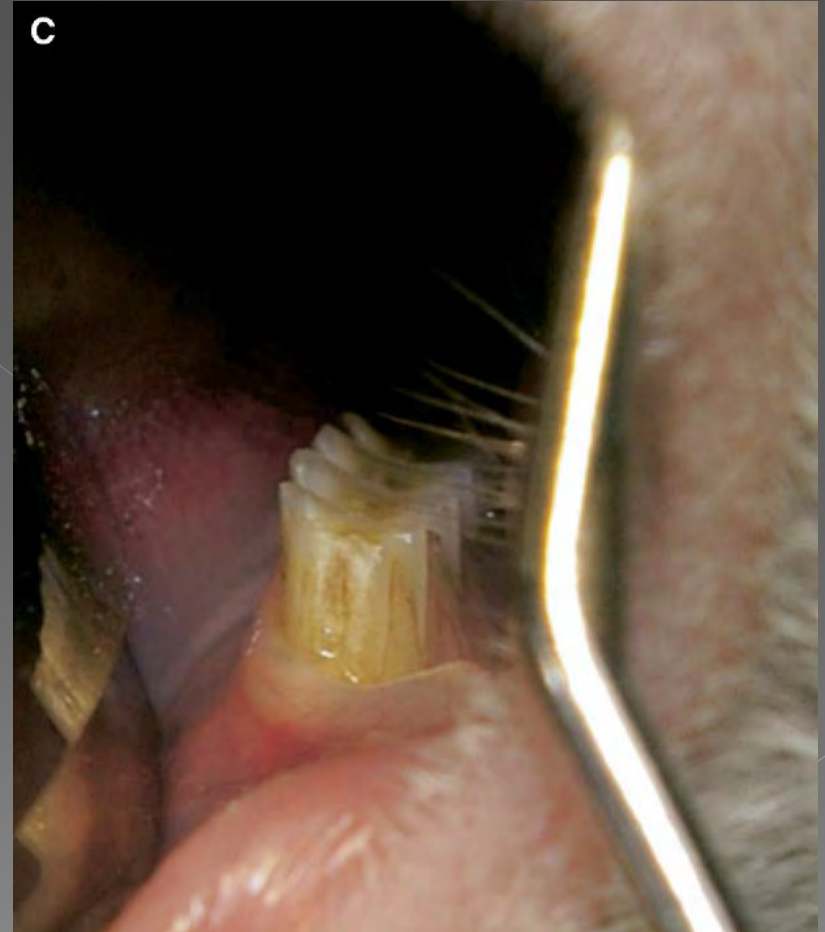
Rabbits

- Difficult to intubate
- Oropharynx long
- Long incisors
- Large fleshy tongue

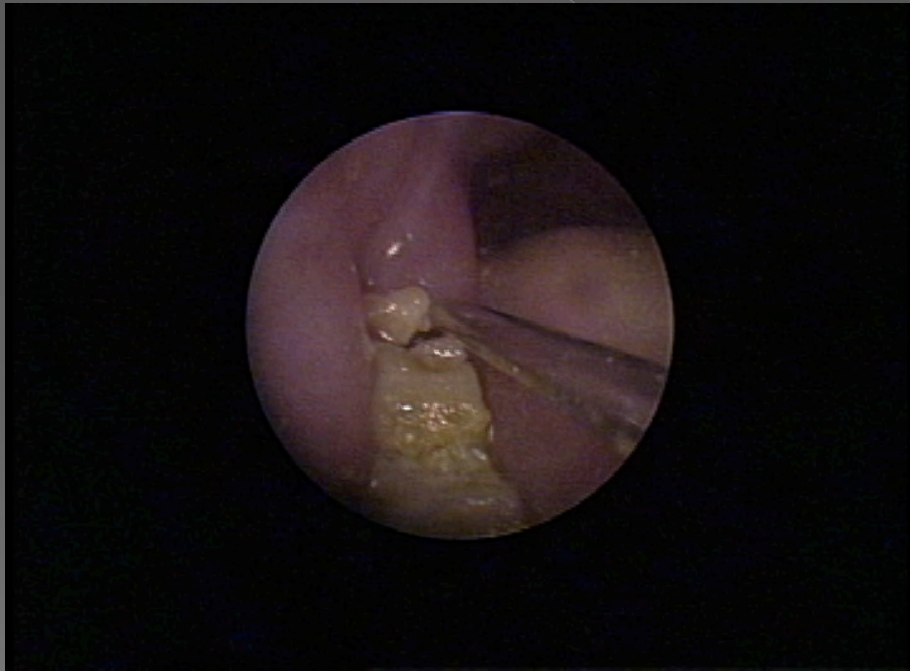


Images courtesy M. Taylor; Anatomic image from P. Popesko, A Colour Atlas Of the Anatomy of Small Laboratory Animals; Volume 1 Rabbit, Guinea Pig. 1992. Pirada

Normal Occlusion

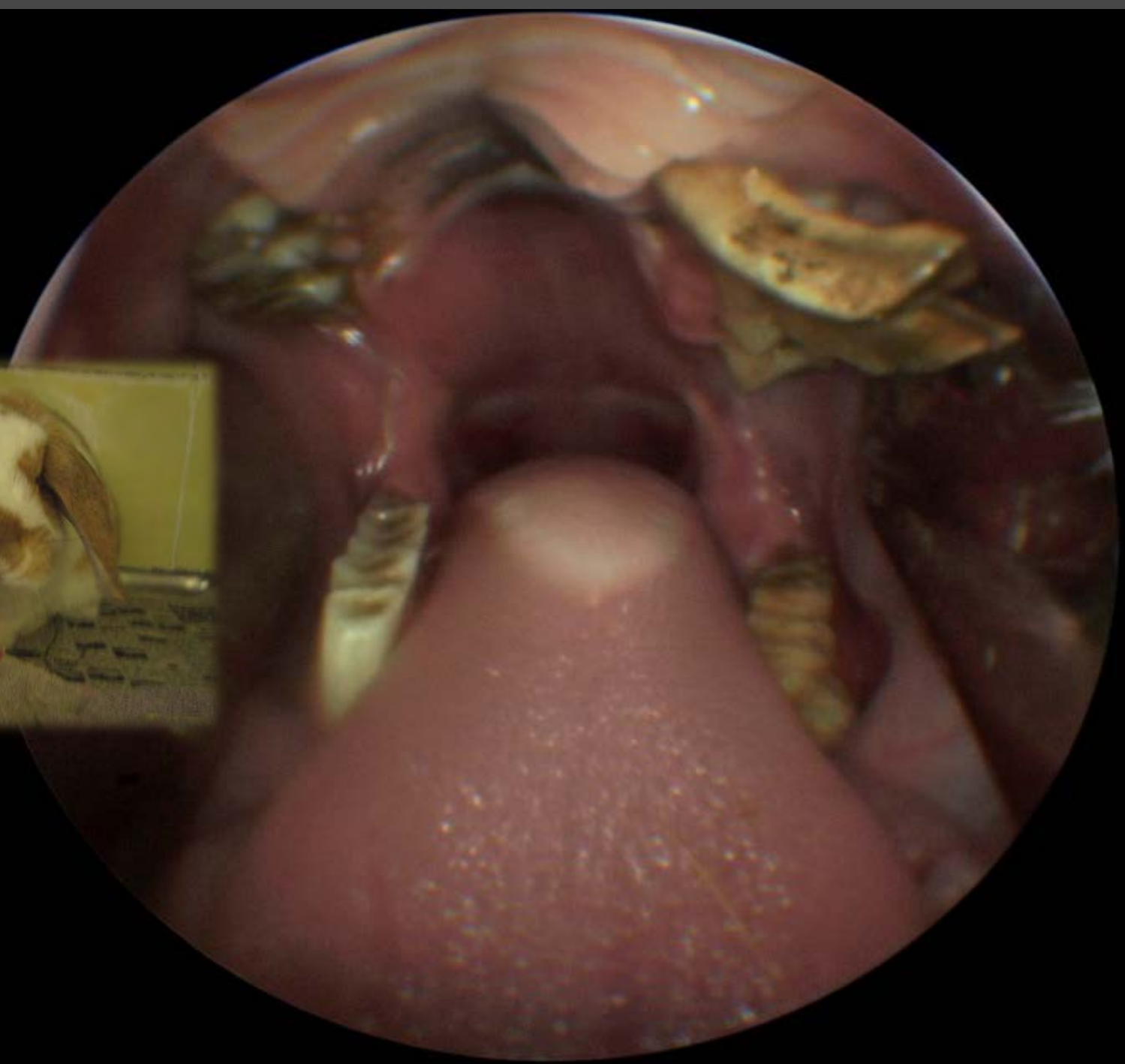


Endoscopic Exam

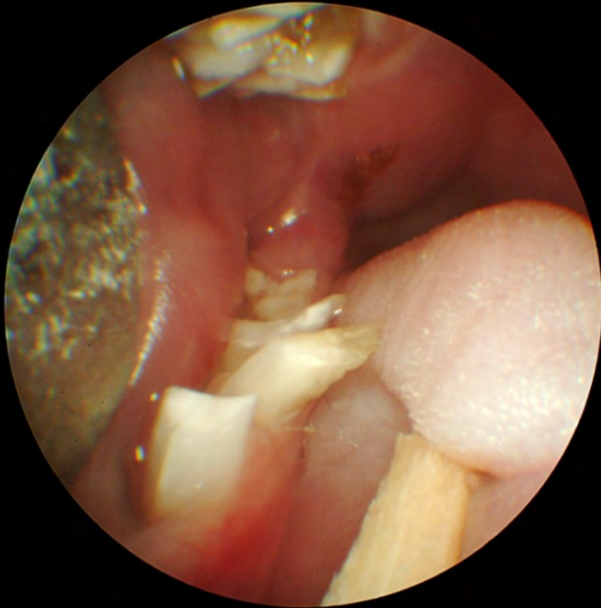


Facilitates assessment of:

- Occlusion
- Enamel and dentin quality
- ALL teeth
- Assess for looseness or instability of individual teeth

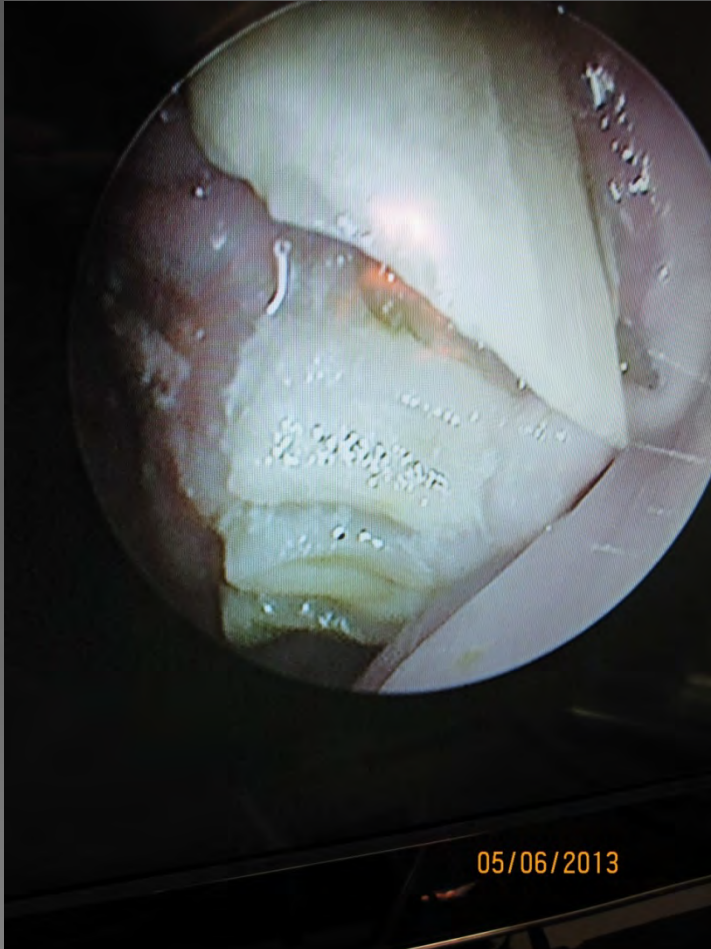


Endoscopy: improved visualization of “hidden lesions”



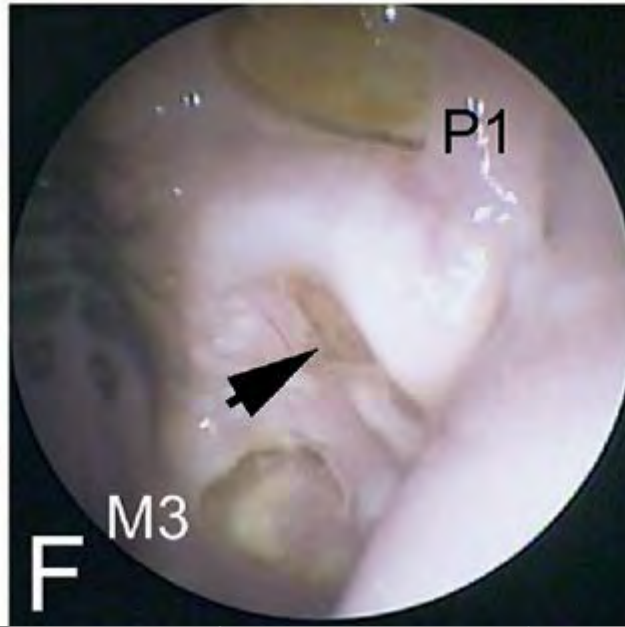
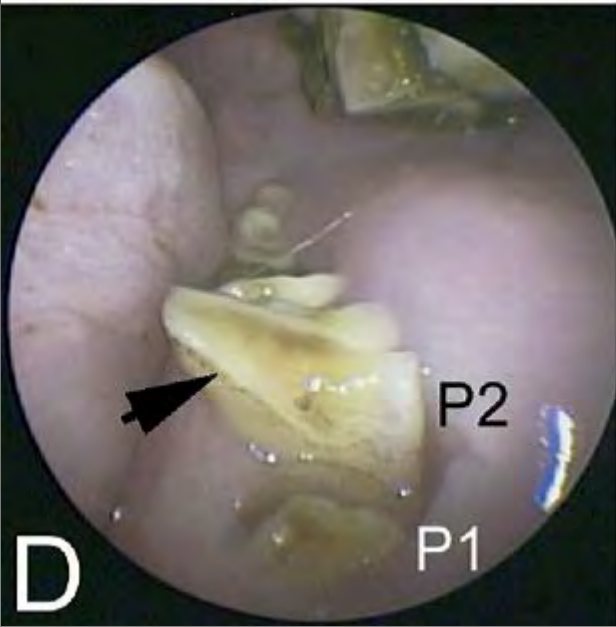
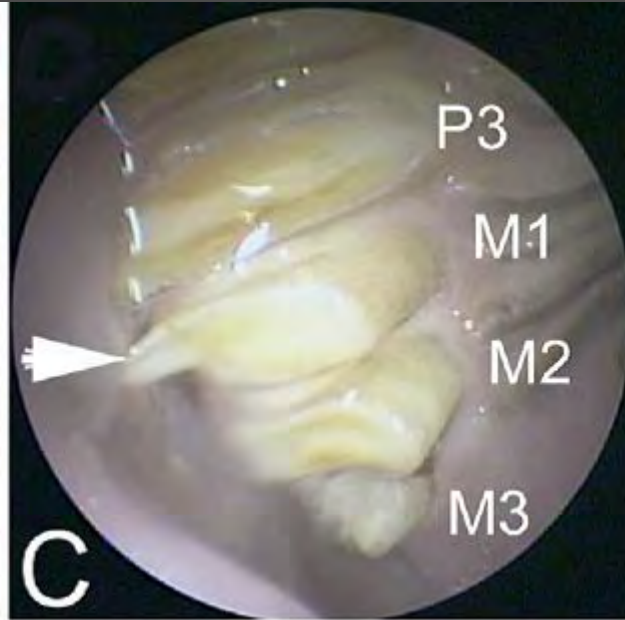
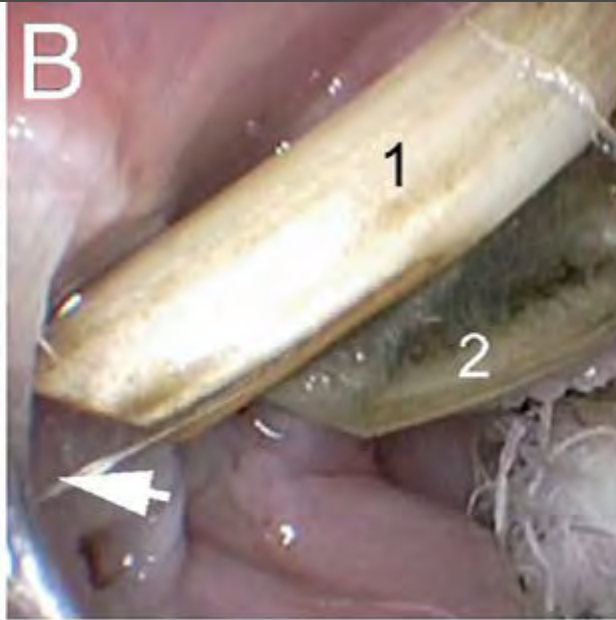


SIGNS OF DENTAL DISEASE – OVERGROWN CHEEK TEETH

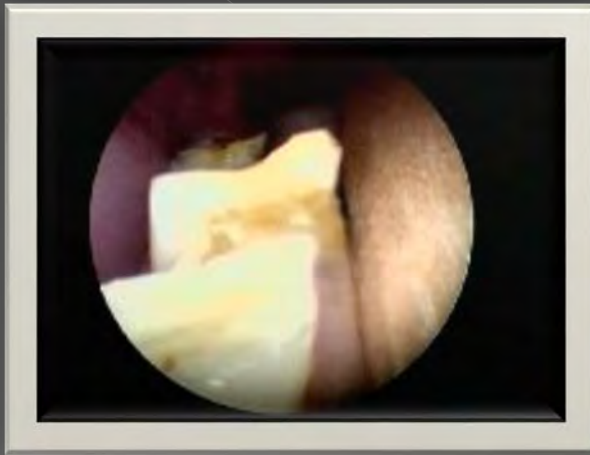


Signs of dental disease:

- ◉ Decrease in hay consumption
- ◉ Decrease in appetite
- ◉ Difficulty taking in food.
- ◉ Wetness around the mouth
- ◉ Weight loss
- ◉ Swelling around the jaw.



Diseased teeth and effects on the mouth



These pictures were taken with the endoscope. They capture an overgrown molar, as well as an ulcer that has occurred as a result of the grinding action of the molar repeatedly along the surface.

Before and after a molar trim

● Before

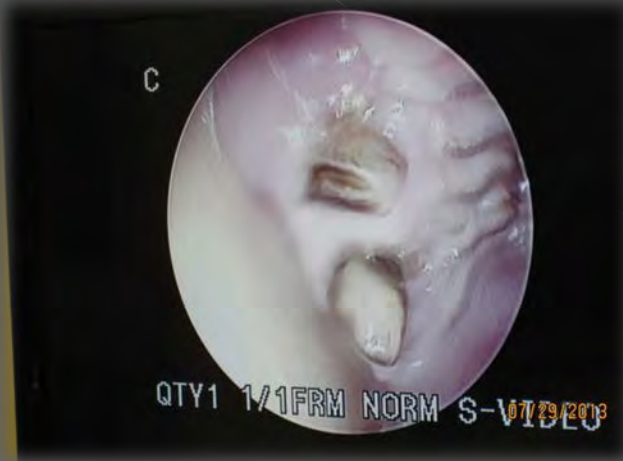
● After



oropharynx



Diseased teeth



Picture one:
Missing Teeth
Abnormal dentition colour
The teeth are mobile and
there is discharge around
the teeth – pus.



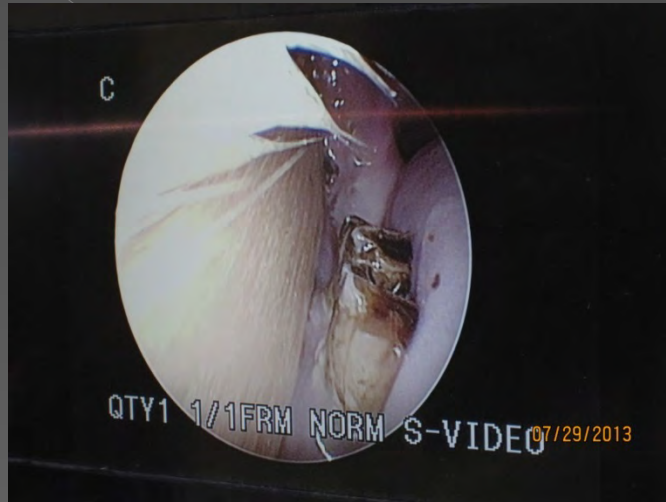
Picture two:
Molar 2 and 3 have moved
towards the cheek creating
a sore on the inside of the
cheek.
The molars are discoloured
There is pus between the
teeth that are loose.



Left mandible side
Uneven surface
"stepping"



Back teeth marked short
to below gumline, There
is pus between Molars 2-
3.
Some of the teeth have
broken and the
fragments are still there.
Dentin abnormal



Here the dentin is abnormal and there is a generalized discolouration of the enamel



In this picture molars had to be resurfaced and there is a defect with pus between the molars. The tissue is trying to heal.

Dental by Endoscopy



Once our rabbit is anesthetized and all of our monitoring equipment attached, we can use the endoscopy to have a wonderful magnified view of the mouth. This is done both before to assess the mouth as well as during the dental to ensure that all spikes, abnormal surfaces and abnormalities have been visualized.

Tools of Rabbit Dentistry

- Endoscopy unit and tower
- Dental tools such as probes, speculae, gags, tissue guards, Surgifoam gel, flush, metal tongue guards, ronguers, hemostats, etc
- Antiseptic mouth rinse and coolant for teeth during resurfacing
- Anesthetic cart
- Emergency drugs pre-calculated and at hand
- Patient monitoring equipment
- Patient warming devices
- Minimum of 2 (up to 4) personnel



Rabbit Dentistry at Campus Estates Animal Hospital



We are fully equipped and eager to receive your rabbit for its next dental. Book your appointment for a dental check up today!



Hope to see you soon!