



## Case Report

### Treatment of malocclusion in squirrel

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Subject: Four month old female Fox squirrel in Los Angeles, California

**Introduction:** A four month old fox squirrel was observed outside a residence with its lower incisors protruding out of its mouth. Subject was humanely trapped and brought in for treatment.

**Chief problem:** Squirrel could not eat or drink properly. Her incisors were not properly aligned because of malocclusion caused by a cleft palate. Incisors were overgrown preventing her from chewing, swallowing or closing her mouth properly.

**Medical and dental history:** Squirrel appeared healthy and normal in all respects except for malocclusion and a cleft palate. She was small for her age, undernourished and slightly dehydrated upon admittance for treatment because she was not able to eat or drink sufficiently.

**Diagnosis:** Subject had a cleft palate which caused malocclusion, i.e. improper occlusion; especially : abnormality in the coming together of

teeth. Her teeth continued to grow as they were not properly aligned as she could not grind them down through normal wear. Her top jaw was deformed by the cleft palate causing a more acute angle of dental growth. Her top teeth grew almost parallel with the roof of her mouth down her throat. Her lower teeth grew normally but as they could never contact her top teeth, she could not grind them down enough to keep pace with the constant growth found in rodent incisors. There was also a two mm hole from her oral cavity to her nasal cavity. Food had gotten trapped in this cavity causing an infection. Exhibit 1 below shows subject before being trimmed. Notice that the upper teeth go behind the lower teeth instead of in front of them as in the normal skull photo above. Notice also the dark cavity above her upper teeth. This hole goes to her nasal cavity.



Exhibit 1.

Treatment plan: Incisors would be trimmed and filed biweekly as needed. If squirrel was still unable to grind down her teeth on her own, incisors would be removed.

Treatment progress:

June 2001: Squirrel was taken to nearby Wilshire Animal Hospital, put under anesthesia and a dremmel drill was used to file down her teeth to the proper length. Antibiotics were prescribed to combat the infection.

June-August 2001: Squirrels incisors continued to grow though she was able to grind down her lower incisors a small amount. Biweekly anesthesia and dremmel filing was not advised for long term treatment due to negative long term effects on internal organs. Follow up biweekly dental trimming was done with professional grade straight edge extra sharp human toe nail nippers. Teeth were trimmed at the proper angle and filed with a heavy gauge metal human nail file. Care was also taken to remove food from the oral nasal cavity caused by the cleft palate. Squirrel was able to eat and drink properly, put on much needed weight and continued to develop normally in all other respects.

Squirrel would never be releasable if dependent upon human dental trimming every two weeks. Alternative treatments and euthanasia were considered. Malocclusion is also evident in rats and rabbits. The removal of the affected incisors is the normal treatment. There have been some cases where removal of only the deformed incisors was successful.

August 2001: The top deformed incisors were removed by Dr. Ridgeway under anesthesia. Subject was alert and active immediately after surgery, eating, drinking and playing. There was only slight swelling and no post operative bleeding. Subject was able to grind down her lower incisors but not enough to keep up with the continued growth.

October 2001. The lower incisors were removed by Dr. Ridgeway under anesthesia. Subject was alert and active immediately after surgery, eating, drinking and playing. There was slightly more swelling than the previous surgery. There was no post operative bleeding. Subject instantly ate soft foods such as avocado and apple. Seeds and nuts were not given until two weeks after surgery as per Dr.'s orders. Dr. noted during surgery that oral nasal cavity had almost fused completely as subjects skull has grown.

November 2001: Subject can eat shelled nuts, seeds, fruits and vegetables as her molars are perfectly normal and aligned. Squirrel can shell peanuts and get into whole avocados and oranges with her claws. Dr. Ridgeway instructed caretaker to wait two months to release her to make sure that no root cells were accidentally left behind which could cause new teeth to grow.

February 2002: Subject is released to same backyard where found and currently lives in the tree where she was born in the yard. Subject is seen every few days eating figs, avocados and oranges off the tree. Subject also eats seeds and nuts out of the bird feeder. She is full sized and appears healthy.

February 2003: Subject still visits backyard where she was found. Her teeth have not re-grown. She is still healthy and has sustained no injuries.

Results: Treatment goals were met.

Comment: This treatment is not prescribed for all squirrels with malocclusion. It is merely a possible treatment for malocclusion in squirrels. It would only be suggested for a permanent resident squirrel used for educational purposes. Incisor removal is less stressful on the squirrel than biweekly manual trimming or dremmel filing with anesthesia. Manual and dremmel filing can cause stress fractures, infections and stress in the squirrel. Biweekly anesthesia is also not recommended due to negative long term effects on internal organs.

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