

Regenerative procedure regrows dogs' damaged jawbones

Eight dogs that were once all bark have regained their bite thanks to veterinary surgeons and biomedical engineers at the University of California, Davis.

UC Davis researchers used state-of-the-art bone regeneration techniques to restore sections of canines' jawbones that had been excised due to cancer or trauma. The biomedical procedure - conducted on eight dogs over a two-year period - has proven so successful that researchers are planning to submit a manuscript about the project to a scientific journal.

During the surgery, the team removes the piece of jawbone that contains cancerous tumors. They then use screws to attach a titanium plate to the healthy bone remaining in the jaw. Finally, they affix a scaffolding system containing bone morphogenetic protein, which is a bone growth promoter.

Once the surgery is over and the healing process begins, the bone morphogenetic protein prompts the jawbone to produce new bone cells. These new cells integrate with the healthy bone as well as replace the missing bone, leaving the dog with a jaw that appears and functions normally (view photos of a post-procedure dog named Whiskey on the UC Davis website - http://news.ucdavis.edu/search/news_detail.lasso?id=10313).

The researchers said they garnered positive results within a matter of weeks after the procedure.

“Within two weeks after the procedure, you could feel bone forming under the skin, and by three months we had new bone that was very similar in density to that of the native bone,” said biomedical engineer Dan Huey in a UC Davis press release.

The impetus for this experimental procedure grew from having no real treatment for cancerous tumors in dogs' jawbones other than to remove the infected portion and leave it at that. Although that course of treatment reduced the chances of cancer spreading, it left canines with jaws that neither looked nor functioned as well as before. Now those same dogs can be whole again with the biomedical advances being used and refined at UC Davis.

After experiencing a high level of success during the project, the researchers plan to adapt the process for treating larger jawbone defects, according to the UC Davis press release.

Read more about the study on the [UC Davis website](http://news.ucdavis.edu/search/news_detail.lasso?id=10313) - http://news.ucdavis.edu/search/news_detail.lasso?id=10313