

**Case of the Month:**

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**“Bentley”**

Bentley was presented for evaluation of a non-healing right maxillary canine extraction site and oronasal fistula. His right maxillary canine (104) was extracted due to a complicated crown fracture.

The gingival flap had dehiscid from the original surgery & had been repaired twice before this presentation.

**Clinical image of the oronasal fistula:**

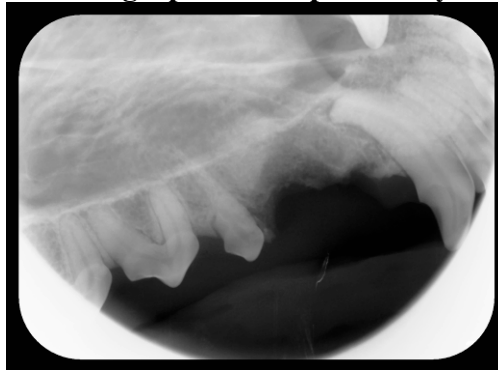


**Dental Radiograph Reveals:**

Intraoral dental radiograph of the extraction site of 104 reveals a radio-opaque area where the apex (root-tip) of 104 would be. Also note the malformed root of the 1<sup>st</sup> premolar (105).

After oral examination, this radio-opaque area of the extraction site was a soft tissue density of foodstuff packed in the alveolus. During this exploration an oronasal fistula (ONF) was also discovered (it is not obvious on the radiograph).

**Dental radiographs of the previously extracted 104:**



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

Surgical closure of the fistula is the treatment of choice. There are five treatment options to consider when repairing an ONF. These include: 1) Direct apposition and suturing of the attached gingiva of the buccal and palatal aspect of the defect (without releasing a mucoperiosteal flap)---most ONFs are not small enough for this technique to be successful; 2) A single buccal mucoperiosteal advancement flap repair; 3) A double flap repair using a palatal mucosal flap as well as a buccal mucoperiosteal flap technique; 4) A rotational flap repair utilizing the palatal mucosa; and 5) Free auricular cartilage autograft repair.

Though there are many surgical techniques that can be used to repair an ONF, a single flap procedure with no tension is frequently successful in treatment and was used in this case.

When utilizing the single layer buccal mucoperiosteal flap, there has to be an adequate amount of attached gingiva present to provide adequate support for the suture and should extend 3-5mm past the defect site to assure a tension free closure.<sup>1</sup> Single flap techniques are used most commonly in ONF repairs.<sup>2</sup> The buccal mucoperiosteal flap relies on the lateral nasal branch of the infraorbital artery for its vascular supply.<sup>3</sup> Divergent incisions are made apically when creating the single mucoperiosteal flap to provide a wide base to allow for proper blood supply to the flap and allow an adequate surface area for closure.<sup>2 (page 202)</sup> For the flap to have sufficient mobility to cover the ONF, the periosteum at the base of the flap must be incised. If performed appropriately, this flap is often very reliable.<sup>4</sup>

### **Intraoral dental radiograph and clinical image of right rostral maxilla postoperatively:**



Postoperative dental radiograph revealing that the soft tissue debris has been removed from the alveolus and 105 was extracted.

1. Greenstein G, Greenstein B, Cavallaro J, et al. Flap advancement: practical techniques to attain tension free primary closure. In: *Journal of periodontology*. 2009; 80:4-15.
2. Manfra Marretta, S, Smith MM. Single mucoperiosteal flap for oronasal fistula repair. In: *Journal of veterinary dentistry*. Sept. 2005; (22):200-205.
3. Dyce, Sack, Wensing. Chapter 7: The cardiovascular system. In: *Textbook of veterinary anatomy*. 2<sup>nd</sup> ed. Philadelphia: W.B. Saunders Company, 1996; 217-258.
4. Ellison GW, Mulligan TW, et al. A double reposition flap technique for repair of recurrent oronasal fistulas in dogs. In: *Journal of the American animal hospital association*. 1996; 22:803-808.