Lateral Sliding Pedicle Flap for Gingival Cleft at the Maxillary Canine Tooth

Brett W. Beckman, DVM

Gingival clefts adjacent to the maxillary canine teeth present a challenge to the veterinary dental surgeon. Periodontal disease results in loss of attached gingiva resulting in periodontal pockets and/or gingival recession. Recession can extend apically toward or beyond the mucogingival margin resulting in clinical exposure of the root surface and subsequent cleft formation.[1] A lateral sliding pedicle flap for repair of a gingival cleft adjacent to the maxillary canine tooth is described step-by-step.

Figure 1

Intraoral photographs showing the cadaver-simulated gingival cleft (A) present at the maxillary left canine tooth (204). The teeth are scaled and polished prior to the procedure. Root planing is performed on the canine root surface (B) and the area lavaged thoroughly with sterile saline.

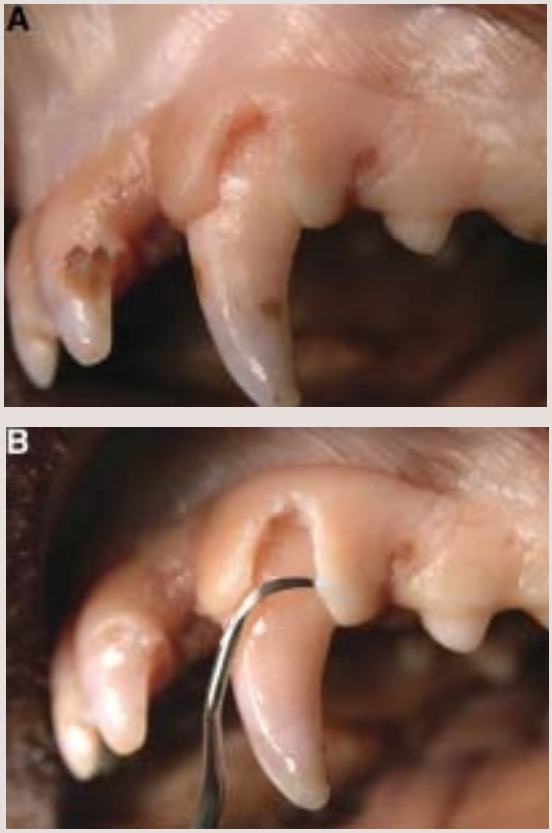

Figure 2

Intraoral photograph demonstrating the left infraorbital nerve block.[2] The author uses lidocaine (2 %) and bupivacaine (0.5 %) not to exceed the dose of 1.0 mg/kg of each agent combined in the same syringe. The combination provides rapid onset of anesthesia from the lidocaine and extended duration of effect from the bupivacaine. A volume of 0.25 ml -1.0 ml per site is used depending upon the size of the patient not to exceed the maximum total dose.

References

1. Takei HH, Azzi RA. Periodontal Plastic and Esthetic Surgery. In: Carranza FA, ed. *Clincial Periodontolgy*, 9th ed, Philadelphia:WB Saunders, 2002; 852.

2. Beckman BW, Legendre L. Regional nerve blocks for oral surgery in companion animals. *Comp Cont Ed Prac Vet*, 2002; 24:439-44.

3. Holmstrom SE, Frost P, Eisner ER. *Veterinary Dental Techniques for the Small Animal Practitioner*, 2nd ed, Philadelphia:WB Saunders, 1998; 194-195.

Author Information

From Florida Veterinary Dentistry & Oral Surgery, 11002 Nathan Court, Punta Gorda, Florida 33955. Brett Beckman, DVM. Email: apetdentist@aol.com

Figure 3

Intraoral photographs showing the beveled incisions to remove the diseased epithelial margins of the gingival cleft defect. The bevel on the distal (donor) side of the defect is directed externally (A) while the bevel on the mesial (recipient) side is directed internally (B).[3] Additional root planing will likely be needed following removal of diseased epithelium.

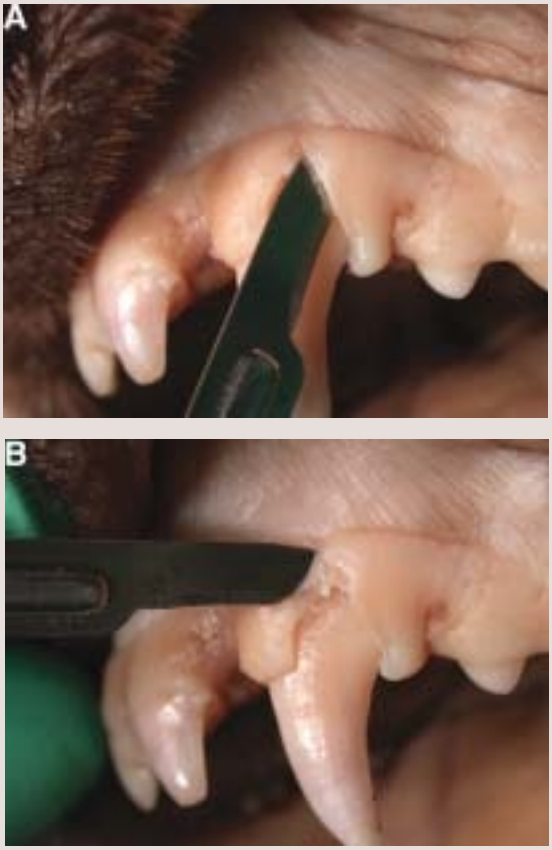

Figure 4

Intraoral photographs showing the initiation (A) and the termination (B) of the horizontal incision for the lateral sliding pedicle flap. This incision has a reversed bevel orientation in order to approximate the orientation of the original gingival margin. The horizontal incision starts at the freshened distal border of the cleft at a level 2-mm apical to the margin of attached gingiva. The incision is extended in a distal direction to a length twice the width of the defect at its maximum width.[3]

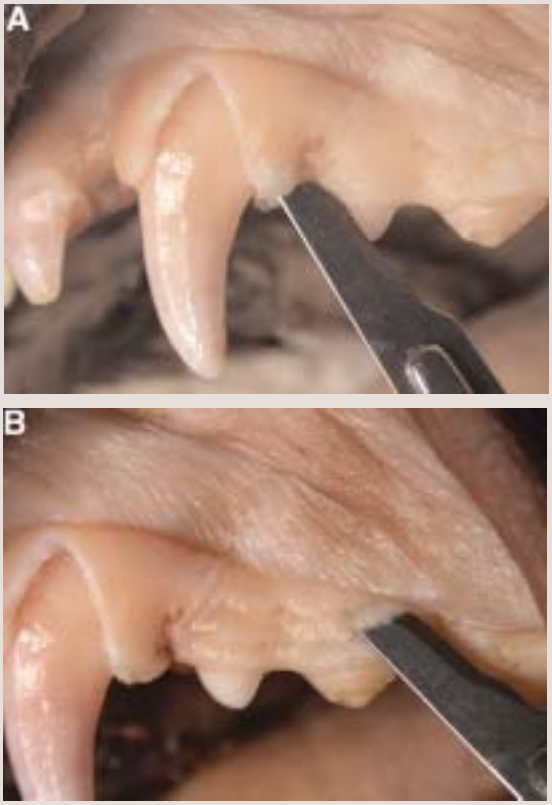

Figure 5

Intraoral photograph showing the mesial (A) and distal (B) vertical incisions of the lateral sliding pedicle flap. The mesial vertical incision starts at the apical extent of the cleft preparation and extends 2-mm into the alveolar mucosa. The vertical incision starts at the level that approximates that of the mesial incision on a horizontal plane and extends ventrally to join the horizontal incision.

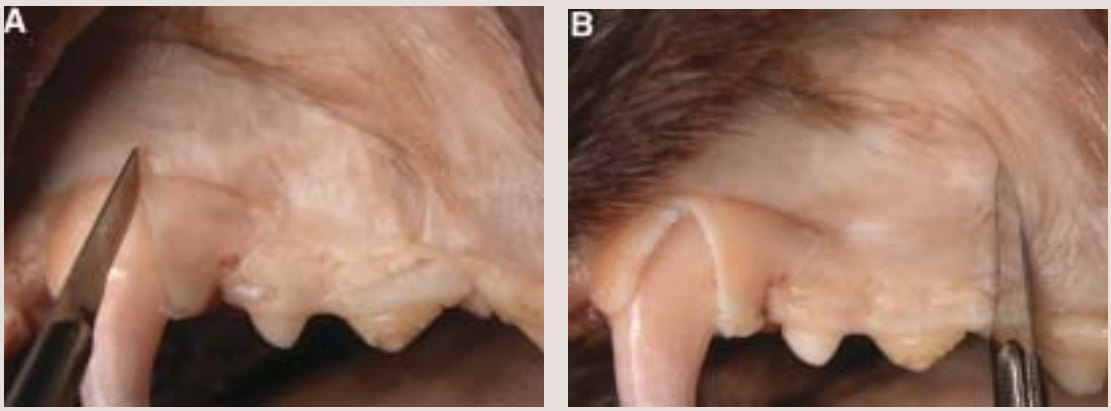

Figure 6

Intraoral photographs demonstrating the full-thickness (mesial) [A] and partial-thickness (distal) [B] portions of the lateral sliding pedicle flap. The mesial portion is a full thickness flap. A periosteal elevator is placed against the bone and carefully directed apically and distally to release the periosteum and attached gingiva for the mesial 2/3 of the flap. The distal portion of the flap is partial-thickness (B). Care must be taken to avoid damaging the flap. A stay suture has been placed to minimize trauma from manipulating the flap. A scalpel and # 15 blade are used to begin elevation of the partial-thickness, distal 1/3 of the flap by carefully dissecting the connective tissue adjacent to the periosteum along the vertical distal border. Either tenotomy scissors or a scalpel can be used to extend the flap apically and mesially to complete the partial-thickness portion of the flap. Care should be taken to maintain the periosteal attachment to bone. The periosteum provides a basis for formation of granulation tissue to promote second intention healing of the exposed donor site.[3]

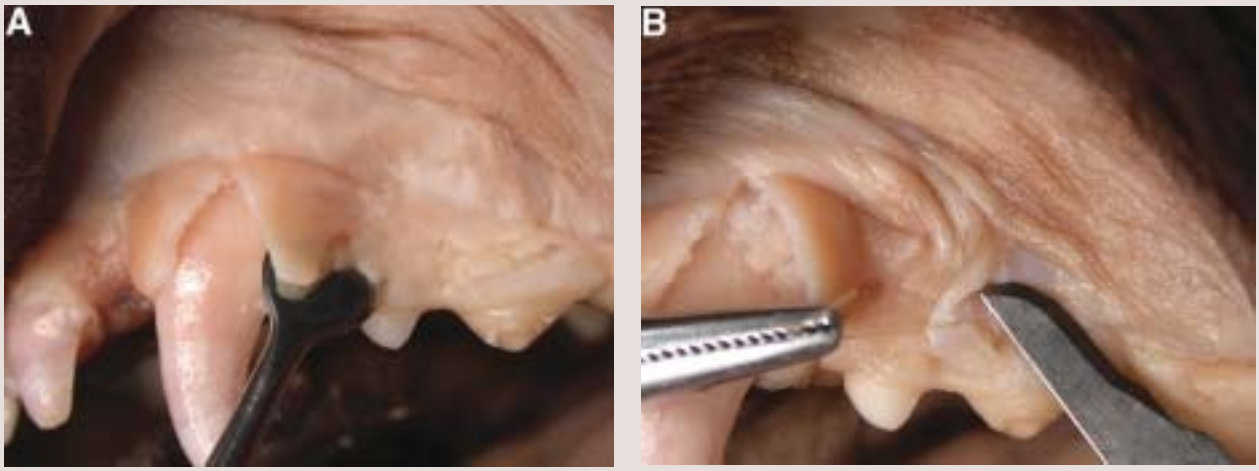

Figure 7

Intraoral photographs showing the use of a hand curette (A) to bevel coarse bone edges along the margin of the defect. Diamond burs may also be used however extreme care must be taken to avoid iatrogenic root damage. Note the absence of rough bone edges and gradual sloping to the alveolar crest at the level of the tooth root (B). The full- and partial-thickness portions of the flap are apparent (arrows).

Figure 8

Intraoral photographs showing advancement of the flap in a mesial direction. The flap is sutured into position using 4-0 or 5-0 absorbable sutures placed approximately 1.5-mm apart. Light pressure can be digitally applied for several minutes to eliminate air bubbles and blood clots enhancing periosteum/bone contact. It is expected that the distal portion of the flap will undergo second intention healing (A). Another option is to suture the mucosa leaving only a small exposed region at the coronal extent of the distal defect. (B).