MANDIBULECTOMY AND MAXILLECTOMY TECHNIQUES

Mark M. Smith, VMD, Diplomate ACVS, Diplomate AVDC
Center for Veterinary Dentistry and Oral Surgery
9041 Gaither Road
Gaithersburg, MD 20877

Rostral Mandibulectomy

INDICATIONS:

Unilateral or bilateral mandibulectomy for neoplasms of the rostral mandible, non-union, or chronic osteomyelitis

DESCRIPTION OF THE PROCEDURE:

The patient is positioned in dorsal recumbency. The patient's neck is extended over an elevated padded area (rolled towel) and the maxilla is secured to the operating table using adhesive tape. Thumb forceps are used to retract skin of the ventral mandible to expose oral mucosa. The oral and labial mucosa should be incised a minimum of 1 cm from the periphery of the neoplasm. Sharp dissection is performed using scalpel or periosteal elevator to incise soft tissues including oral mucosa, and mentalis, obicularis oris, mylohyoideus, and geniohyoideus muscles from the rostral mandible. Dissection extends to the level of mandibulectomy. Mandibulectomy is usually performed rostral to the frenulum of the tongue at the level of the mandibular 3rd premolar. Ostectomy sites are contoured with bone rongeurs to facilitate closure and remove sharp bone edges which may traumatize mucosa.

CLOSURE

The wound is closed in one layer since the oral mucosa is thin. The oral and labial mucosa are apposed in a simple continuous or interrupted pattern using synthetic or natural absorbable suture. Provision for ventral drainage is usually not necessary.
COMMENTS

• A pharyngostomy for endotracheal tube placement facilitates extensive oral surgery.
• Bone wax is a foreign substance which may disrupt wound healing. Its application is not necessary for hemostasis at mandibulectomy sites. Mandibular body stabilization following resection is not necessary.
• Full-thickness lip excision may be required to restore acceptable cosmesis. Resection of a triangle shape with its base along the mucocutaneous junction shortens the lip which must be sutured to oral mucosa.
• Wound dehiscence over the resected mandible may occur and resolves by second intention healing with conservative management.
• Food should be liquid in consistency during the first postoperative week.
• Tongue protrusion may occur following surgery however patients usually adapt to maintain the tongue retracted into the oral cavity. Cheiloplasty may be required to shorten the lip commissure to prevent tongue protrusion. Owners rarely complain about cosmesis following this procedure.

Lateral Premaxillectomy

INDICATIONS: Resective surgery for neoplasia or for reconstruction of oronasal fistula.

DESCRIPTION OF THE PROCEDURE:

The patient is positioned in lateral recumbency. The buccal mucosa is incised at least 1 cm from the lesion. A periosteal elevator is used to elevate mucosa from its attachment on the maxilla and incisive bones. The infraorbital artery, vein, and nerve exit the infraorbital canal of the maxilla and should be avoided unless wide resection requires their division and ligation. The palatal mucosa is incised similarly and the mucoperiosteum is elevated. The major palatine artery is divided and ligated if the resection approaches the major palatine foramen. Resection of the premaxilla and/or maxilla exposes the nasal cavity.
CLOSURE

The buccal mucosa is undermined to allow tension-free apposition to palatal mucosa. A two-layer closure is performed using synthetic absorbable suture in simple interrupted patterns for the submucosa and mucosa.

COMMENTS

• Maxillectomy may be performed with an oscillating bone saw or osteotome and mallet after scoring the osteotomy lines with small perforating holes.
• Nasal turbinectomy should be performed if the neoplasm invades the nasal cavity.
• Premaxillectomy and partial maxillectomy is limited by the surgeon's ability to reconstruct the oronasal defect. Patients with lesions which cross midline are usually not considered candidates for partial maxillectomy. Tension-free closure is imperative to avoid wound dehiscence and subsequent oronasal fistula. Failure of second intention healing for partial wound dehiscence requires utilization of oronasal fistula repair techniques.
• Food should be liquid in consistency during the first postoperative week.
• Cosmesis is generally good following surgery. Surgical results including facial concavity and an elevated lip do not affect function and are usually accepted by the owner.

Rostral Maxillectomy

INDICATIONS: Resective surgery for neoplasia

DESCRIPTION OF THE PROCEDURE:

The patient is positioned in dorsal recumbency. The lateral and rostral buccal mucosa, and hard palate mucoperiosteum are incised at least 1 cm from the lesion. A periosteal
elevator is used to elevate mucosa from its attachment on the hard palate, maxilla, and incisive bones. The cartilaginous nasal fossae and septum are incised and soft tissues are elevated caudally to the osteotomy site. Rostral maxillectomy is performed using an oscillating bone saw or osteotome and mallet after scoring the osteotomy lines with small perforating holes. Maxilloturbinates are transected along the plane of maxillectomy. Hemorrhage is controlled by electrocautery, direct pressure, and vessel ligation.

CLOSURE

The premaxillary defect may be reconstructed using buccal mucosal flaps to provide nasal and oral mucosal surfaces. The two-layer closure is performed using synthetic absorbable suture in simple interrupted patterns. Alternatively, the buccal mucosa may be apposed to hard palate mucoperiosteum in a primary two-layer closure using synthetic absorbable suture in simple interrupted patterns for the submucosa and mucosa.

COMMENTS

- Rostral maxillectomy caudal to the level of the maxillary 1st premolar results in shortening of the nose.
- Wound dehiscence is uncommon and heals by second intention or requires second, minor revision surgery.
- Food should be liquid in consistency during the first postoperative week.
- Whether the nasolacrimal duct is transected or ligated, the patient may have an intermittent serous discharge resulting in crusting of the nares and epiphora. No effort is made to ligate the nasolacrimal duct.
- Cosmesis is generally good following surgery. Surgical results including drooping of the nose ventrally and displacement of the maxillary lip caudal to the mandibular canine teeth do not effect function and are usually accepted by the owner.