Forelimb Amputation

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Indications

- Bone neoplasia
  - Osteosarcoma
  - Fibrosarcoma
  - Chondrosarcoma
- Severe trauma/paralysis
  - Brachial plexus avulsion
- Infection
- Congenital deformity

Pre-operatively

- Fluid management
- Broad-spectrum antibiotics
- Pain management/ Analgesia
  - i.e. Fentanyl Patch (12-24 hrs prior)
  - Epidural (15-30 min prior)

Technique - Preparing for surgery

- Clipping the surgical area:
  - Just past midline dorsal and ventral to the limb to be amputated
  - Rostral to the base of the jaw and caudal to the last rib
  - Distal to just proximal the tarsal joint
- Standard dirty scrub

- Wrap haired foot with plastic bag or a latex glove and cover with tape
- Place dog in dorsal recumbency on the surgery table
- Hang the leg by placing tape around the foot and attaching it to an IV pole or the light hook
- Standard sterile scrub

* Drape by first using the 4 small paper drapes and towel clamps at the margins of your prepared surgical field
* Roll the 5th small paper drape and use to grab the foot, have it cut down, unroll the drapes around the foot, fold the end over and clamp with a towel clamp and cover with cling or wetwrap
* Fenestrate the large drape and place over the limb. Cut the drape to expose the entire leg. Wrap the outer drape underneath itself and clamp the outer drape to the underneath smaller drapes using hemostats
Technique-
skin incision

- Make a skin incision from the dorsal border of the scapula, over the scapular spine, to the proximal third of the humerus
- Continue the incision circumferentially around the shoulder joint

- Locate and ligate the Cephalic vein laterally as it passes deep to the cleidobrachialis muscle.
- Arteries: use a 3 clamp technique, double ligate using non-absorbable suture-transfix the distal ligation
- Veins: may be singly ligated with absorbable suture

- Make a deep incision along the cranial edge of the spine of the scapula to sever the origin of the omotransversarius muscle and the cervical part of the trapezius muscle

- Continue the incision dorsally around the spine of the scapula and far enough distally to sever the thoracic part of the trapezius muscle

- Transect the rhomboideus muscle from its attachment on the dorsal border of the scapula and retract the scapula laterally to expose its medial surface

- Elevate the serratus ventralis muscle from the medial surface of the scapula to allow partial abduction.
• In the caudal aspect of the axillary space, bluntly dissect the intermuscular fascia,
• Expose the combined insertion of the latissimus dorsi, teres major, and cutaneous trunci muscles on the teres tubercle of the humerus
• Sever the insertion of these muscles proximal to the level where the teres major joins the common insertions

• Separately ligate the thoracodorsal artery and vein. Also cut the nerve.

• In a caudal-to-cranial direction, transect the median, ulnar, radial, axillary, subscapular, and suprascapular nerves
• The musculocutaneous nerve lies deep to these nerves and should be transected before it enters the biceps brachii muscle

• Abduct the scapula and rotate the cranial border medially. Isolate, double ligate and divide the axillary artery between the origin of the external and lateral thoracic arteries
• Ligate the lateral thoracic artery and divide from the axillary artery
• Individually ligate and divide the brachial and axillary veins

• Ligate and divide branches of the superficial cervical artery, including the suprascapular artery
• Further abduct the scapula and expose the ventral musculature
• Separate the deep pectoral muscle from its insertion on the major and minor tubercles of the humerus and the medial brachial fascia
• Separate the superficial pectorals from the crest of the humerus.
• Sever the cleidobrachialis muscle near the humeral insertion
• Remove the forelimb

Technique – Closure
• Suture the fascia of the deep pectoral muscle (6) to the scalenous muscle (5) and the ventral border of the latissimus dorsi muscle (4)

Post-operatively
• Pain Management
  – Morphine, Buorphanol (as needed) first 24 hrs
  – Carprofen, Etodolac after 24 hrs
• Monitor for shock

• Suture the fascia of the cleidobrachialis muscle to the fascia of the superficial pectorals (7,8)

• Suture the fascia of the trapezius (2) and omotransversarius muscles (1) to the dorsal border of the latissimus dorsi muscle (4)

• Close the subcutaneous tissue and skin
• Avoid excessive tension
Complications

- Seroma

References