

DIGIT (Toe) AMPUTATION

“From broken to malignant to infection to cancer, there is a cure or treatment in there.”

Synopsis-- Anatomy & the Disease

There are several reasons for elective digit amputation. Comminuted or intra-articular fractures of the digit can be challenging or impossible to surgically reconstruct; they often go on to non- or malunions or severe DJD with persistent patient lameness. Similarly, a deep osteomyelitis associated with nail bed infection may require a long course of antibiotics & still result in chronic lameness after infection is resolved. In both of these scenarios, amputation of the offending digit(s) may be the most efficient solution relative to time, cost & morbidity.

The most common reason digits are removed is neoplasia. Some tumors manifest similar to a non-responsive/recurrent nail bed infection. Other tumors are distinct masses associated with the skin, subcutaneous or pads. Digit tumors are common in dogs & are more likely to be malignant than benign. Digit tumors in cats are rare but like dogs, the majority are malignant (squamous cell carcinoma, fibrosarcoma, osteosarcoma, hemangiosarcoma). Surgery can, in many cases, be curative with primary tumors even when malignant.

Radiographs of the foot are helpful in determining the extent of disease & the surgical margins for resection. Bone lysis is demonstrative of an aggressive process, but malignant tumors can be present in the absence of bone lysis (i.e. lysis is uncommon in cases of soft tissue Sarcoma or MCT - mast cell tumor).



OVERVIEW

Disease location & severity both factor into surgical decision-making. Consideration is given to how many bones/digits & how much skin/pad must be removed to achieve treatment goals. Typically, the digit is amputated at the level of the MC/MT-phalangeal joint or just above removing the innervated condyles/joint capsule of distal MC/MT. Preservation of the metacarpal/metatarsal pad is one of the biggest factors resulting a relatively uncomplicated, functional outcome. Depending on disease process & location ventral skin/pads or dorsal skin may be preserved to achieve wound closure.

It is possible to remove multiple/all digits & have a functional, pain free foot if the MC/MT pad is well preserved. The goal with tumor therapy, in particular, is to achieve disease-free margins; it is more effective toward a cure to remove more digits than risk contaminated surgical margins with fewer digits removed.

CLINICAL SIGNS

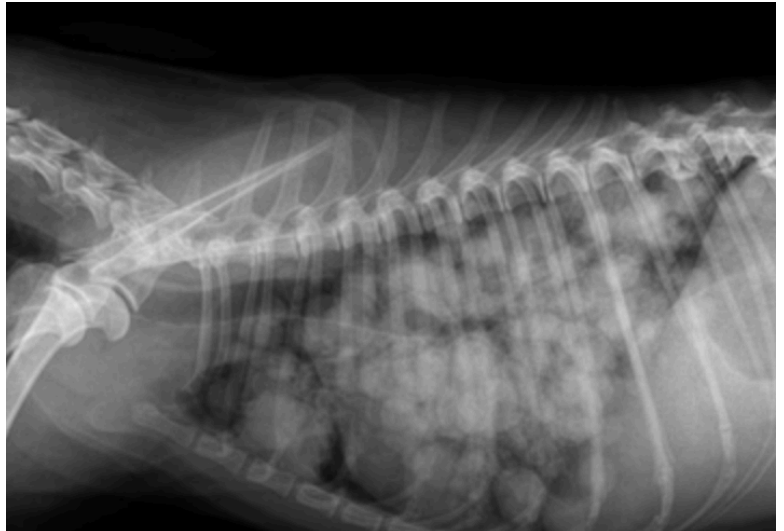
Toe cancers are over-represented breeds include Labrador Retrievers & Standard Poodles. Digital tumors will cause the toe to swell & may cause lameness. Initially, a tumor of the digit may mimic the appearance of an infected toe; however, treatment with antibiotics does NOT resolve the problem. If the tumor appears to be darkly pigmented, a melanoma is more probable; however, some melanomas lack pigment. Enlargement of lymph nodes in the area of the tumor may be a sign of spread of the tumor to these nodes. If the tumor has spread to the lungs, potential clinical signs may include breathing difficulty, coughing, weight loss, poor appetite & malaise.



DIAGNOSTICS

Supportive/ancillary options with surgical treatment are:

- Incisional biopsy to confirm tumor type with histopathology may allow more specific surgical planning (i.e. a benign tumor will NOT need as wide or as numerous a digit resection)
- Patient staging sufficient to meet owners' needs & expectations.
 - o CBC/Chem/UA to screen underlying related/unrelated disease
 - o Palpation and/or cytology of the draining LN
 - o Planning for LN removal (at time of digit amputation) if LN diseased or needed for additional staging data
- o Chest radiographs
 - 32% of dogs with melanoma had lung mets at toe diagnosis
 - 13% of dogs with squamous cell carcinoma lung mets at toe diagnosis



TREATMENT

The indications & rationale for surgical treatment are:

- Confirmed tumor associated with digit (cytology or histopathology)
- Non-responsive nail bed infection, particularly with bone lysis
- Painful or restrictive phalangeal or MC-MT/phalangeal DJD

The peri-operative experience for pet & owner includes:

- Digit amputation is generally very well tolerated by patients. Dogs are usually bearing some weight immediately after recovery.
- Bandages are commonly used for 1-2 weeks to protect the incisions & provide support/padding during early weight bearing.
- Post-operative antibiotics are usually recommended given relatively contaminated location.
- Expectations for outcome are:
 - Majority with excellent functional outcome even with removal of multiple digits.
 - A non-painful, functional gait deficit may result early; most animals accommodate/adapt with time. ▪ Histopathology results will guide long term prognostication.
 - o Benign or low-grade tumors are likely cured with digit amputation.
 - o Malignant tumors may result in disease elsewhere, but digit amputation will reduce foot-related pain during palliative or adjunctive therapy.

COMPLICATIONS that may arise with this procedure are:

- Minor incisional infection/dehiscence (not uncommon). Most minor dehiscence is monitored thru second intention healing; more extensive dehiscence may need touch-up surgery in the first 1-3wks.
- Incisional infection (common; minor; short course empirical antibiotics)
- Lameness (common; 3-6wks; oral NSAIDs PRN)

Post-Operative outcomes may be poor due to the above complications, &/or:

- Metastatic neoplastic disease

What a surgeon needs prior to surgery:

- Affected leg/body part “marked” by owner for confirmation (wax “costume makeup” works well)
- Owner available by phone, as needed, to discuss surgical plans after pre-surgical examination

General considerations & complications for all surgery/anesthesia procedures are:

- Unrelated Hx, PE, CBC/chem/UA findings may dictate timing or prudence of digit amputation (discuss with veterinary surgeon)
- Difficult and/or painful anesthetic recovery (variable; may require additional medications or hospitalization)
- Adverse anesthetic event (rare, major; may result in serious impairment or death)

Proper owner expectations are important to a successful experience & patient outcome.

Please discuss this information with your clients while assisting them with decision-making.

In cases of suspected neoplastic disease, patient staging preoperatively vs. postoperatively may change treatment planning; explore these options with your clients through the planning process.

Proper owner expectations are important to a successful experience & patient outcomes.

AFTERCARE & OUTCOME

Aftercare includes:

- House rest, with no jogging, jumping, running, rough play or stairs for 2 weeks following surgery. Minimal controlled leash potty breaks are fine.
- Nocita (bupivacaine): 3-days long lasting local block for pain management will be used.
- Pain medications are often prescribed for several days following surgery.
- Primapore: adhesive band aid with antibiotic ointment will be used. The Primapore can be allowed to fall off naturally after 5 days. Only if the Primapore is dirty/soil/wet that it should be removed sooner. Forcing the Primapore off early may result in skin irritation &/ or skin inflammation.
- Bandage (if applicable): the large bandage will help with swelling at the surgery site. This bandage will ok to leave on between 1 - 3 days. The bandage should NOT be left on if you notice the toes are swollen &/or cold. Also, if dirty/soil/wet the bandage must be taken off immediately. When taken outside, it is advised to place a plastic bag to prevent the bandage from getting dirty/soil/wet. Remove bandage if moist pododermatitis is noted.
- An Elizabethan collar may be necessary to prevent licking of the surgical wound. Must be wore at all times. E-collar can be taken off during potty breaks or meals only under adult supervision.

If you have any questions, please feel free to ask your primary veterinarian &/or veterinary surgeon.

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