Canine and Feline Cancer Pain Management

Ralph Harvey
harvey@utk.edu

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Pain Management in Cancer Care

The Kindest Care

Ralph Harvey, DVM, MS, ACVAA
University of Tennessee
College of Veterinary Medicine

Objectives:
- Appreciate the psycho-social implications of cancer as a diagnosis
- Recognize that different types of pain may combine during one disease
- Understand the sources and significance of pains in cancer and in cancer therapies
- Apply previous knowledge to case examples
- Develop typical therapeutic plans for control of cancer pains

Cancer Pain Fundamentals
- Understand the disease and extent
- Recognize the cause and importance of each pain
- Consider diverse management options
- Staged pain management approach
- Titrate, adjust and balance care to maintain the most appropriate control
Pain in Cancer

- Cancer is often a painful disease
- 30% of all human cancer patients report pain (60-90% with advanced cancer)
- 70-90% can achieve “good” pain control
- Pain is often more feared than death
- Extension of these same concerns by owners to their pet’s cancer

Specific Concerns

- Acute cancer related pain -
  - Surgical oncology, radiation therapy
- “Chronic” pain -
  - Pain of metastasis, treatment related pain
  - Palliative care and terminal cancer pain
- “Pain in dying” -
  - Aspects of suffering and the psychology of cancer

Clinical Assessment

- History - comprehensive
- Examine sites of pain and dysfunction thoroughly
  - (may need analgesics!)
- Use appropriate diagnostic tools
  - (Radiography, Ultrasound, CT, MRI, Nuclear Scintigraphy)
Clinical Assessment
- Evaluate extent of disease - extent of pain
- Treat the pain early and aggressively to fully gain control early
- Watch for the development of tolerance and side effects - Then deal with these… Problems can be managed, without resorting to pain for the patient!

“Acute” cancer pain
- Associated with tumor involvement
  - compression, erosion, nerve compromise
  - paraneoplastic syndromes
- Surgery or other procedures cause pain
- Importance of early operative pain management -
  - Often the first opportunity that we have
  - Preemptive analgesia prevents pain syndromes

Analgesia in Cancer Surgery
- Pre-emptive, balanced and adequate analgesia
- Value of local anesthetics in surgical oncology
- Mandibular alvelolar block - lower lip and gum
Analgesia in Cancer Surgery

- Pre-emptive, balanced and adequate analgesia
- Value of local anesthetics in surgical oncology
  - lidocaine + bupivacaine
  - rapid onset + long duration
- Injection of nerve sheath prior to transection in this forelimb amputation –
  (So easy, so cheap, so very effective!)

Sources of Cancer-associated Pain:

- Therapeutic interventions can cause pain -
  - Acute post-operative pain
  - potential for maladaptive neuropathic pain!
  - Tissue sloughing
  - Pancreatitis
  - Chemotherapeutic neuropathies
  - Gastric ulceration
  - Radiation burns

“Chronic” cancer pain

- More difficult to diagnose and to treat
- Longer duration, less well defined onset
- Increase with tumor progression
- Subsides during periods of tumor regression
- Associated with a "negative quality of life"
  - Often characterized by behavior changes:
    - anxiety, depression, anorexia, sleep disturbances, suffering...
    - "She's just not been herself."
- "Mal-Adaptive" "Neuropathic" Chronic Pain
Types of pain in cancer:

- Somatic Pain
- Visceral Pain
- Neuropathic Pain
- Inflammatory Pain

Somatic Pain in Cancer

- More acute and specific in nature
- Nociceptor activation: sharp, aching, throbbing or pressure-like
- Metastatic bone pain, postsurgical pain, musculoskeletal pain

Visceral Pain in Cancer

- Less well localized pain
- Nociceptors of thoracic, abdominal or pelvic viscera yield referred pain
- Diffuse gnawing or cramping, aching or throbbing
Neuropathic Cancer Pain

- Central or peripheral nerve involvement
- Infiltration or compression of nerves
  - nerve root, brachial plexus or lumbosacral nerve sheath tumors
  - nerve damage by surgery, radiation therapy, phantom limb syndrome
- Corticosteroids, decompression, neurolysis

Inflammatory Mediators

"Allogenic" mediators:
- Histamine, serotonin, bradykinins, leukotrienes, prostaglandins
- These are the forces of darkness!
- These mediators of death, disease and debilitation!

Paraneoplastic Syndrome

- Loretta and Susie
  - 11 yr old Plott Hounds
- Guess which of these pups has the renal adenocarcinoma?
- Symptomatic and supportive therapy
Inflammatory Cancer Pain

- Treatment of paraneoplastic syndromes
- NSAID's
- +/- Corticosteroids
- Antioxidants?
- Anti-inflammatory diets?
- Supportive therapies

Primary Therapy

- Tumor removal or reduction
- Surgery, Radiation therapy, Chemotherapy
- Treat paraneoplastic syndromes, infections
- Prognosis, costs, quality of life are focal issues determining willingness to treat

Curative / Palliative

- Tumor removal / Reduction
- Definitive therapy / Supportive care
- Amputation / Limb sparing surgery
- Perioperative analgesic therapy
- Combined strategies:
  - surgical excision, radiation therapy, chemotherapy, immunotherapy
WHO Treatment Strategy for Cancer Pain

- Relies on intensity and severity rather than the mechanism or etiology
- Individualized and titrated management
- Escalation of analgesic strategies
- Three (or four) levels of intervention
  - mild, moderate, severe, (refractory)

WHO Analgesia Ladder

Figure 5.3
Schematic of World Health Organization ladder for cancer pain management

Freedom from cancer pain

Interventional:
- Radiotherapy [Radiotherapy is used to treat cancer.
- Surgery: Surgery involves removing the cancerous tissue.
- Chemotherapy: Chemotherapy uses drugs to kill cancer cells.

Pain persisting or increasing
- Opioid: Opioids are strong pain relievers.
- Active associations

Pain persisting or increasing
- Non-opioid: Non-opioids are generally weaker pain relievers.
- Active associations
Step one - Mild Pain

- NSAIDs
  - carprofen (Rimadyl), deracoxib (Deramaxx), meloxicam (Metacam), firocoxib (Previcox), Robenacoxib (Onsior), etc.
  - many individual options for dogs and cats
- Piroxicam (Feldene) anti-angiogenesis action may be shared with some other NSAIDs
  - +/- adjuvants (some are GI protective)
  - misoprostol, H2 blockers, H+ blockers
- Gabapentin (Neurontin), Amantadine, Tramadol (Ultram)
- acetaminophen (dogs only!) (no anti-inflammatory action)

Step two - Moderate Pain

- NSAID's plus mild opioids, many options
- Add low dose weak or partial agonist opioids
  - acetaminophen plus codeine, aspirin plus codeine
    - 30 or 60 mg codeine plus 300 mg aspirin or acetaminophen (dogs only)
  - Partial agonists (buprenorphine)
  - Agonists/Antagonists (butorphanol) poor analgesia
  - Tramadol (Ultram tablets)
- +/- adjuvants: as above (NSAID's plus mild opioids) and...
  - antiemetics, antihistamines, corticosteroids, stool softeners, mood elevators, tranquilizers
  - These and others as needed - Always individualize therapy

Step three - Severe Pain

- Stronger opioid, perhaps added to NSAID
- Morphine may be the best choice
  - sustained release oral formulations
    - 0.5 to 3.0 mg/kg, BID, variable bioavailability
  - tablets, syrups, suppositories
- fentanyl transdermal
  - transdermal patches (Duragesic) – extralabel use
  - transdermal liquid (Recuvyra) – extralabel use
- +/- adjuvants as needed
  - NMDA antagonist (Amantadine)
  - alpha-2 agonists
  - GABA-pentin (Neurontin)
Fentanyl (Duragesic) patches

- Strictly “off-label”
- Can be very useful for providing a consistent (basal) level of strong opioid analgesia
- Alternative to sustained release oral morphine
- Precautions important

Unwanted drug effects

- Anticipate, monitor and manage
- Monitor for toxicities - CBC, chemistries
- Sedation frequently occurs early in pain therapy
  - Wait for a few days for tolerance, reduce dose
- Constipation
  - Stool softeners, bulk laxatives
- GI toxicity of NSAID’s
  - Monitor for loss of appetite, etc.
  - Change drugs, protect with misoprostol, etc.

Step four - Refractory Pain

- Terminal pain patients
- Alternative routes of delivery
  - Neuroaxial, continuous infusions
- Interventions
  - Blocks, neural stimulations (TENS), neurolysis
- Euthanasia
  - Of course an option to relieve pain and suffering!
Palliative Care

- WHO definition:
  - The active total care of patients whose disease is not responsive to curative treatment
  - Control of pain, of other symptoms, and of psychological, social and spiritual problems, is paramount
  - The goal of palliative care is achievement of the best quality of life for patients and their families

Palliative Care Includes
Planning for Death

- Progression of disease may lead to:
  - Unmanageable pain
  - Unmanageable drug-effects
  - Toxicities from therapy
  - Concurrent diseases
  - Euthanasia is a good and kind part of cancer care.

Terminal care - “hospice care”

- Can be the most appreciated part of our interaction with the owners and animals.
  - When the time comes...euthanasia relieves pain and suffering.
Maintain Quality of Life!

- Function
- Activity
- Appetite
- Involvement
- Maintain the Human/Animal Bond

Case study: Lacey

7 y.o. Golden Retriever 24 kg
- Oral Mass
  - Mandibular Fibrosarcoma
- very poor prognosis

Staged Balanced Analgesia:

Procedural:
- Pure Agonist Hydromorphone Mandibular Nerve Block
- PostOp:
  - Morphine / Buprenorphine
- Discharge:
  - Meloxicam Liquid
  - Tramadol
  - Acetaminophen + Codeine #3 Q12h

Adjunctive:
- Gabapentin 50 mg q 12h
- Diphenhydramine 25 mg BID
- Famotidine
- Acupuncture
Staged Balanced Analgesia:

- Owners keeping a "Pain Diary" of activity and quality of life
- Call-backs to client by technician or veterinarian -
  - Adjunctive analgesics added as needed:
    - Gabapentin 50 mg q 12h
    - Diphenhydramine 25 mg BID
    - Famotidine
    - Acupuncture
- Palliation – 4 months with quality!
- Appreciative client

Case study: Telstar

- 8 year old male
- Rottweiler
  (and a very nice one too!)
- Lame, with swelling of distal left forelimb
  Owner first noticed in late April...

Case study: Telstar

- Osteoblastic/osteolytic mass in distal ulna
  - Radiograph & Biopsy on April 27
  - Referr on May 8
- Biopsy confirmed osteosarcoma
- Otherwise in good health
  - Hx rear lameness, intolerance of carprofen
Cancer Pain Management

Telstar

- Limb-sparing ulnectomy
  - Resection of mid-body of left ulna & styloid
  - May 9
- Operative analgesia:
  - Morphine (preop and postop)
  - Brachial plexus block
- Sent home on antibiotics and carprofen (now tolerated) 100mg q12h
- Scheduled for chemotherapy (cisplatin) and rechecks...

Telstar

- Left forelimb functionally sound (August 11)
- Radiologists suspect some forces of darkness are at work...
- But not a problem as far as Telstar is concerned
- Pain management rated "good" by owners with the NSAID alone and no adverse effects noted

Telstar

- Radiography at rechecks and chemotherapy sessions ultimately revealed bony lesions involving right forelimb and ribcage
- Bone scan (scintigraphy) confirmed metastatic disease
- Pain management still rated as "good" by owners with no adverse effects
Telstar

Radiographs on August 11 & 15

Bone scan (scintigraphy) confirmed metastatic disease - August 14

Telstar

Bone scan (scintigraphy) confirmed metastatic disease - August 14

Options specific for OSA

- Palliative RT
  - Extremely effective

- Bisphosphonates
  - Inhibit bone resorption
    - Pamidronate, Zoledronate

- Samarium
  - Radiopharmaceutical
    - Samarium153 lexidronam
Local Anesthetics

- Continuous infusion via soaker catheter

Telstar

- Disseminated OSA
- No further chemotherapy
- Continue analgesics
- Last visit to UTCVM
  - August 15
- Periodic consultations with referring DVM for management of Telstar’s cancer pain

Telstar

- Now four months post ulnectomy (September)
- Lameness, lethargy now reported
- Carprofen is no longer providing adequate analgesia
- Morphine sustained release tablets added
  - 30 mg q12h added to the carprofen
  - (Sedation was noted at the initial 60 mg dose)
  - (Evidence for bioavailability in this dog)
- Excellent results, active and happy dog
Telstar

- Morphine SR 30 mg q12h
- Carprofen 100 mg q12h
- Consistent pain relief - reported as "very comfortable" for an additional 3 months after the addition of oral morphine-SR
- Effective pain control returned Telstar to his role in the human-animal bond as a fully functional pet

Telstar

- January 13 - nine months after diagnosis
- Present for acute deterioration (two days) weakness and lethargy, pale mucous membranes, development of increased swelling/edema
- Owner elects euthanasia
- Termination of the human-animal bond by euthanasia calls for the utmost sensitivity and skill

  - That topic deserves another discussion!

Contemporary Alternative Options We Can Employ:
NSAID's + Codeine, Tramadol, Gabapentin, Pamidronate, Palliative RT

Cancer Pain Fundamentals

- Understand the disease and extent
- Recognize the cause and importance of each pain that is recognized
- Consider diverse management options
- Staged pain management approach
- Titrate, adjust and balance care in order to maintain the best quality of life
Obstacles to Appropriate Cancer Pain Management:

- Clients
  - Fear
  - Denial
  - Lack of knowledge
  - Non-compliance
  - Financial limits

- Veterinarians
  - Lack of knowledge
  - Inability to assess pain
  - Lack of communication with owner and staff
  - Limits on referral options – location and resources

How do we address these obstacles?

Keys to Success:

- Empower the owner
- Involve your staff
- Keep your knowledge current

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