



University of Tennessee, Knoxville

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Jul 12th, 9:05 AM - 9:45 AM

### Canine and Feline Cancer Pain Management

Ralph Harvey  
harvey@utk.edu

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## Pain Management in Cancer Care

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### The Kindest Care

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





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### Objectives:

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- 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

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### Cancer Pain Fundamentals

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- 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

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### **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

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### **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

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### **Clinical Assessment**

- History - comprehensive
- Examine sites of pain and dysfunction thoroughly
  - (may need analgesics!)
- Use appropriate diagnostic tools
  - ( Radiography, Ultrasound, CT, MRI, Nuclear Scintigraphy)

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### 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!

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### "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

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### Analgesia in Cancer Surgery

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




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### **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!)




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### **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

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### **“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

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### **Types of pain in cancer:**

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




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### **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

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### **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

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## 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

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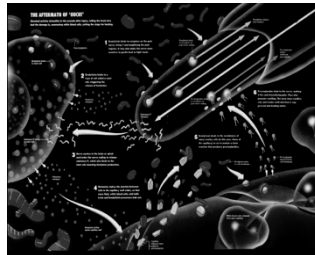
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## Inflammatory Mediators

"Allogenic" mediators:

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




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## Paraneoplastic Syndrome

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




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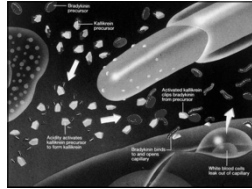
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## Inflammatory Cancer Pain

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




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## 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

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## Curative / Palliative

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

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### 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)

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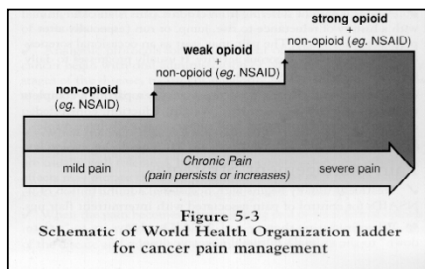
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### WHO Analgesia Ladder




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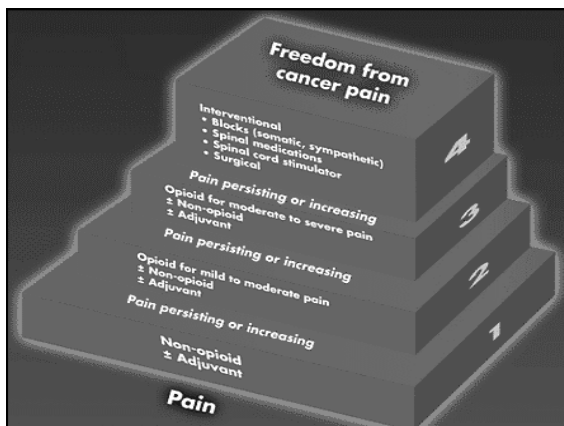
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### Step one - Mild Pain

- 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, H<sub>2</sub> blockers, H<sup>+</sup> blockers
    - ▮ Gabapentin (Neurontin), Amantadine, Tramadol (Ultram)
  - ▮ acetaminophen (dogs only!) (no anti-inflammatory action)

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### 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

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### 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)

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### **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




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### **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.

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### **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!

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## 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

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## 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.




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## 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.




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## Maintain Quality of Life!

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




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## Case study: Lacey

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



<http://upsideaddedogs.com/wp-content/uploads/2009/05/tom-the-golden-retriever>

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## Staged Balanced Analgesia:

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|--|---|
| <ul style="list-style-type: none"> <li>■ Procedural: <ul style="list-style-type: none"> <li>■ Pure Agonist Hydromorphone</li> <li>Mandibular Nerve Block</li> </ul> </li> <li>■ PostOp: <ul style="list-style-type: none"> <li>■ Morphine / Buprenorphine</li> </ul> </li> <li>■ Discharge: <ul style="list-style-type: none"> <li>■ Meloxicam Liquid</li> <li>Tramadol</li> <li>Acetaminophen + Codeine #3</li> <li>■ Q12h</li> </ul> </li> </ul> | <ul style="list-style-type: none"> <li>■ Adjunctive: <ul style="list-style-type: none"> <li>■ Gabapentin 50 mg q 12h</li> <li>Diphenhydramine 25 mg BID</li> <li>Famotidine</li> <li>■ Acupuncture</li> </ul> </li> </ul> |
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<http://upsideaddedogs.com/wp-content/uploads/2009/05/tom-the-golden-retriever>

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### 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




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### Case study: Telstar

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




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### Case study: Telstar

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




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**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...



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**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



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**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

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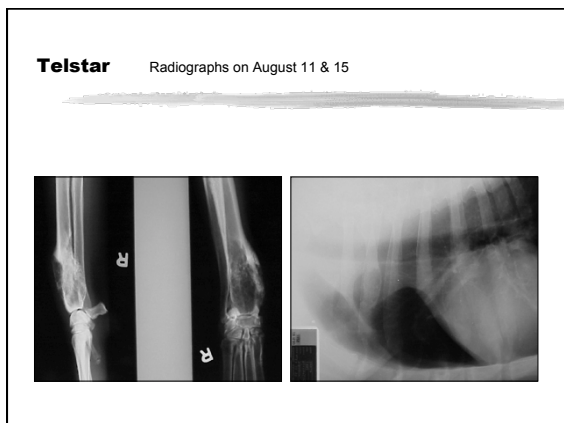
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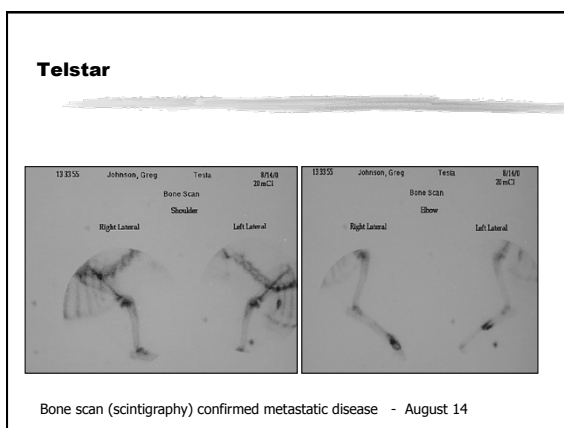
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**Options specific for OSA**

- Palliative RT
  - Extremely effective
- Bisphosphonates
  - Inhibit bone resorption
  - Pamidronate, Zoledronate
- Samarium
  - Radiopharmaceutical
  - Samarium153 lexidronam

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## Local Anesthetics

- Continuous infusion via soaker catheter




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## 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




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## 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

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**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

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**Telstar**

- January 13 - nine months after diagnosis
- Presented 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

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**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

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## 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? ➡




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## Keys to Success:

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




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## Pain Management in Cancer Care

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