Key Points

- Assessment of acute pain is based on behavior which ideally includes dynamic and interactive components.
- Distinguishing pain from anxiety or dysphoria allows treatment goals to be optimized.
- Pain scales can be useful, but observers must be trained and limitations can be a problem.

Pain assessment is challenging, yet something we all want to do well. Most experts agree: studying behavior is the best way to assess pain in animals. There is no gold standard measurement of pain. Skillful reduction of negative experiences in the acute pain context requires pharmacologic therapy as well as physical, environmental, and emotional support. Assessment methods are subjective; they depend on an observer’s level of experience and preconceived beliefs. There is no substitute for directly examining patients to guide treatment; thus training yourself and caregivers to observe and communicate your findings is essential.

Assessment of Pain:

Painful animals (and humans) may have elevated blood pressure, respiratory rate, or heart rate and in the past, pain assessment schemes have included physiologic variables. Current evidence does not favor this approach, because the process of taking physiologic measurements can alter the variable itself. Also, they are non-specific, elevated in fear, stress, shock, during recovery from anesthesia, and may be normal when the patient is experiencing pain. While there are good reasons to use vital signs for regular patient health monitoring, consider these two points. One is the value of the quality of respiratory effort; a quietly resting patient should have a relatively slow respiratory rate and an end-expiratory pause, similar to that occurring during sleep. The other is that as opioids and acepromazine may cause lower rectal temperatures, low body temperature is not per se, a contraindication to giving additional medications. Instead, use a sedation scoring system, (see Figure 1), as guidance in medicating for pain. If a patient is alert enough to respond to you when you greet him, then more pain medication should not be harmful.

There are essentially four aspects of behavioral observation that may be used to assess whether an animal is adequately comfortable.

First is to look for the impact of pain on normal behavior. It’s helpful to know what is “normal” for that patient in the clinical environment – was he anxious, subdued, resistant, or friendly & social? Normal orientation in the cage/run, posture and facial expression are key observations; most dogs will face and watch the outside of the enclosure when awake. For cats, this is more variable. Learning facial expression language is important, stressed dogs tend to show white around the eye (whale eye), furrowed brow, lips pulled back and ears often attuned to the challenge; relaxed dogs a more elliptical eye shape, smooth brow, and alert or relaxed ears. Generally, willingness to engage in normal postures or activities can be used as comfort indicators. Upon rising, dogs often do a vigorous “whole body shake” or stretch. In the authors’ experience, an injured dog will terminate the shake at the level of injury (i.e. stop at diaphragm with abdominal or back pain) or fail to shake at all (head/neck, severe debilitating pain), and when this is seen to be restored to normal, it indicates comfort. Social interest in nearby patients...
is a normal activity for many. With mental dullness, or decreased response to handling or approach of an observer, the condition should be rated “abnormal”; and efforts taken to determine the cause. In severe adverse states, (which may be due to pain, nausea, weakness, electrolyte abnormality, etc.); animals appear unable to respond to or unaware of human presence. It the cage door is open and the patient doesn’t seem to notice you, intervention is urgently needed. Conversely, dogs observed to be dull and depressed by remote video responded to the entry of a human by tail wags and greeting (which was, however, still subtly diminished from normal quality) (Hansen, 2003). This may lead to the conclusion that such animals are not in significant pain when, in fact, additional analgesia reverses their dullness when alone and improves vigor of greeting and interactions with humans. Also, not all animals will be able to exhibit “normal” behavioral repertoire. Critically ill or chronically debilitated animals may not be able to walk or react as healthier animals do, and so use of other assessment methods is essential.

Second, is to look for abnormal behaviors indicative of pain. Hansen (2003) characterized new onset pain behaviors as occurring for a variety of reasons: as protective against exacerbation of pain (guarding or escape), as expressions of pain that are designed to distract or call attention, as learned responses, or due to physical impairment. Although it is possible an animal might limp from non-painful limb dysfunction, administration of an effective analgesic helps distinguish this by improving the lameness if due to pain. Grooming and behaviors directed at the painful body part, (looking, biting or chewing, kicking, rubbing, and paw or head shaking) may be new onset indicators of pain. Abnormal postures frequently occur in painful animals, and include writhing, hunching, inability to lie down or to roll into sternal, stiffness, walking on toes, and abnormal tail position. These depend upon the affected body part. Abdominal and thoracic pain often causes an increase in tone of abdominal muscles (“splinting”) and breath-holding or shallow respiration. Spontaneous vocalization is often assumed to be a universal pain symptom; however, vocalization in dogs after surgery is less specifically indicative of pain and more commonly a sign of anxiety, and is not a feature of pain in cats unless pain is extreme.

Third is to use evoked behavioral responses - pain in relation to movement or palpation. In human clinical studies, pain scores are often similar in treatment versus control groups when pain is assessed at rest. When dynamic pain is studied (ask subjects to do a task, sit up or cough) differences between groups in mean pain score become evident. Inactivity is protective of some types of pain, but not all. Most currently accepted veterinary pain scoring systems include an interactive component, e.g., ambulation, or wound palpation. This is of significant value in detecting moderate to severe pain in animals whose behavior may appear normal at rest.

Fourth is to use behavioral changes in response to analgesic administration - observing return of normal behavior, or cessation of abnormal behavior in response to analgesic administration is a convincing gauge that pain was indeed present when it is observed.

If your exam does not reveal pain at the surgical site – consider other sources of discomfort. These may be unrelated to surgery, such as: full bladder, constipation, bandage pain, joint pain from positioning during surgery, and in some cases – hunger! You already have a feel for the expected duration of postoperative pain. Severe pain when it is not expected should prompt a look for serious causes, such as infection, pin or screw migration, or pinched nerves.

**Pain scoring systems:**

Use of behavioral methods to assess pain requires a structured, reliable, valid and recorded system of evaluation and observer training. A pain scale that doesn’t do what it is
supposed to do wastes time and is unhelpful to the patients. Visual analog scales (VAS): a line with no markings and a 0 (no pain) and a 100 (worst pain imaginable) at either end. Numeric rating scales (NRS): a number line with discrete numerical markings (as in 1 through 10) which are chosen as a score. Simple descriptive scales (SDS): numerical values assigned to descriptions categorizing different levels of pain intensity (mild, moderate, severe). A pain scale that takes into account the various dimensions of pain is thought to be more useful in indicating how much the pain “meant” to the animal, but VAS, NRS and SDS scales are unidimensional. A pain scale should ideally be multidimensional, in that several aspects of pain intensity & pain related disability are included – especially the dynamic aspects. The composite measurement scale (CMS) is constructed to take into account such dimensions as the temporal patterns, location, interference with basic function, or well-being. There are few validated veterinary CMS pain scales, but this does not mean that scales can’t be crafted, using a basic understanding of pain rating tools and animal behavior, and combining those with actual “in the trenches” experience with observations. Ensure that all potential scale users assign equal meaning / importance to descriptive terms.

Assessment of fear and anxiety:

If the animal is vocalizing or struggling, but upon talking to and touching the patient, calming occurs, there is a chance that the problem is less pain and more anxiety. If analgesics have been given and the animal still vocalizes, and the exam reveals no pain upon palpation, consider giving a trial dose of acepromazine. A dexmedetomidine CRI may also be useful for sedation of overly anxious patients. Often within 30 minutes, the patient is quiet.

Dysphoria:

This is a special syndrome where opioid treated animals (particularly but not only those treated with pure agonist opioids) appear to be very agitated. It is often mistaken for pain and treated with additional opioid doses. Opioid induced dysphoria is recognized in the human anesthesia/critical care literature. In dogs we see vocalization, panting, and non-responsiveness to human contact, and the condition responds dramatically to reversal of the opioid by 0.01 mg/kg naloxone or, in this author’s experience, by 0.1 mg/kg butorphanol (both IV). Response occurs within minutes and the patient becomes oriented to surroundings with more normal behavior. The addition of tranquilizers or sedatives does not permanently resolve the condition. Also, in cats, a dysphoria-like state is observed after surgery on occasion with some opioids. Cats become agitated, develop hyperthermia, and this may also be effectively treated with butorphanol or naloxone reversal (Robertson, 2005). It is important to differentiate true dysphoria from anxiety or pain or discomfort from hyperthermia. Assess for various causes of pain, consider adding a sedative or tranquilizer, and if these do not resolve the issue, then try the antagonist. Animals thus reversed do not appear to be more painful, and “weaker” opioids, +/- adjunctive analgesics can be used to effectively treat pain from then on.

SEDATION SCORING FOR SMALL ANIMALS

<table>
<thead>
<tr>
<th>If the animal is:</th>
<th>score</th>
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<tbody>
<tr>
<td>Standing and/or vocalizing MOST of the time, <em>appears frantic or upset:</em></td>
<td>0</td>
</tr>
<tr>
<td>Sitting, standing or lying down, <em>alert, vocalizing sometimes, watching you with eyes wide open:</em></td>
<td>1</td>
</tr>
<tr>
<td>Sitting, standing or lying down, <em>eyes a bit drowsy, but alert:</em></td>
<td>2☺</td>
</tr>
<tr>
<td>Sitting, standing or lying down, eyes a bit drowsy or squinted, <em>not paying much attention to you unless you enter cage:</em></td>
<td>3☺</td>
</tr>
<tr>
<td>Asleep, but if you call pet’s name, <em>he opens eyes and lifts head</em> - “wakes up” (for deaf animals, gently tap cage door), can lie sternally or sit up:</td>
<td>4☺</td>
</tr>
<tr>
<td>Asleep or deeply sedated, when stimulated by touch or voice, <em>opens eyes and lifts head but goes right back to sleep:</em></td>
<td>5</td>
</tr>
<tr>
<td>Cannot rouse patient, <em>even when physically moved:</em></td>
<td>6</td>
</tr>
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- Sedation scoring gives criteria for discussions about patient care means this patient is probably doing well in general
- Opioids and some other pain medications can cause drowsiness. But so can anesthetics, & other conditions such as hypoglycemia, hypothermia, shock, and PAIN can make animals appear mentally dull. Patients having a score of 6 (when fully recovered from anesthesia) should be evaluated in case medical treatment is needed.
- Patients who vocalize or fret constantly or most of the time may benefit from a walk to urinate, a visit, drugs or techniques to calm them, or may need pain medications. So, if you feel that a patient has a sedation score of 0 or 1, it is worth mentioning to the doctor, noting in the record, or walking the patient if indicated.