Pain is a multifactorial experience, with sensory (“ouch”) and affective (emotional) components. Untreated pain can delay recovery, decrease quality of life, and disturb the human–animal bond. Pain also increases the body’s stress response to traumatic injury and causes alterations in metabolic and endocrine function. It is now well established that animals and humans have similar neuro-anatomical pathways for the transduction, transmission, and modulation of pain. A fundamental part of quality, compassionate veterinary care is prevention and management of pain, and, therefore, it must be quickly recognized, assessed, and treated by the veterinary team.

IDENTIFICATION OF PAIN IN CATS

Unfortunately, cats cannot verbally communicate to us that pain exists or where it is located—the veterinary team must determine these answers. In this species, pain assessment relies on owners’ communication with clinic staff, clinical judgement, and measurement of various parameters that have been shown to correlate with pain.

Pain scoring scales and pain management guidelines for cats have been developed for use in veterinary medicine. Standardized pain scoring scales and pain management guidelines promote a standard of care for hospitalized patients and facilitate optimal pain management, even though different personnel care for a patient during its stay. However, pain assessment is subjective, and changes in pain may be subtle and difficult to evaluate without an experienced eye.

Signs of pain and response to drugs vary greatly between patients based on genetics, breed, and age. For this reason, pain should be assessed visually and physically, providing the animal cooperates during handling.

Objective Measures of Pain
Physiological changes, such as changes in heart rate, blood pressure, and plasma cortisol, occur in response to sympathetic stimulation caused in part by pain. However, clinical experience should be used when assessing these objective measures of pain because fear, stress, anesthesia, and pharmacologic interventions also cause these parameters to change.

Pain Assessment Scales for Cats
Currently there is no gold standard for assessing acute pain in cats. Several research groups, including Brondani and colleagues, are in the process of developing and vali-
Assessment of Acute Pain in Cats

Dating pain scales for clinical use. A survey of veterinary nurses reported that only 8.1% of veterinary practices used a pain scoring system, yet 80.3% agreed it was a useful clinical tool. Some scales that have been used to assess pain in cats include:

- **Visual Analog Scale** (VAS): Consists of a line 100 mm long that has 0 (no pain) on one end and 100 (extreme pain) on the other. Based on visual observation, the user marks the point on the line that best correlates with the patient’s pain intensity. The VAS is scored by measuring the distance between “0” and the user’s mark.

- **Numerical Rating Scale**: Pain is scored on a numerical scale; for example, 0 to 5 or 0 to 10 based on different observational and physical characteristics.

- **Descriptive Scale**: Allows user to describe cat as having no, mild, moderate, or severe pain.

These scales are unidimensional and, although easy to use and interpret, they are not very useful in distinguishing subtle changes in pain, which prevents observers from “seeing the whole picture” or, in other words, noting the nuances that would provide a better assessment of the animal’s wellbeing. When using these scales, the variability in pain scoring among veterinary staff looking at the same patient can be as high as 35%, which highlights the difficulties encountered when different personnel care for a patient.

**Dynamic Interactive Visual Analog Scales (DIVAS)** have been used in cats in an attempt to improve on the above scales. These scales use a 100-mm line, but the final assessment is based on observation and interaction with the cat, including palpation of wounds or other known painful areas.

**Importance of Palpation**

Wound palpation is a frequently overlooked component of assessing comfort levels in animals following surgery. If analgesics have been used appropriately, the cat should not flinch or bite when gentle pressure is applied on and around a surgical wound (Figure 1). During palpation, gently restrain the cat’s head for protection in case the cat responds, and assess the response—from no response to the cat flinching, hissing/growling, turning toward handler, or turning and attempting to bite.

**PAIN SCORING SYSTEM COMPONENTS**

The characteristics of an optimal pain scoring system for cats are listed in Table 1. It is now accepted that, in nonverbal patients, pain scoring systems must be heavily based on behavior observation. These scales are multidimensional and often referred to as **composite pain scales**.

**SELECTING & USING SCORING SYSTEMS**

When considering a scoring system, it is important to select a system that will suit the needs of the clinic. The system should be:

1. User friendly—consider those who will be scoring pain, such as veterinary technicians and owners; the system should be suitable for their needs.
2. When possible, used by the same individual each time pain is assessed in a single patient in order to minimize variation in scores, which can occur when several observers are involved.
3. Used in conjunction with the patient’s behavioral history in order to identify the cat’s “normal” behavior and changes in behavior that may indicate pain.
4. An integral and consistent part of the postoperative record.

**Table 1. Characteristics of an Optimal Pain Scoring System for Cats**

- Simple and easy to use
- Identifies type, source, cause, and duration of pain
- Clearly defines assessment criteria for all observers, including owners and veterinary team
- Sensitive to small changes in pain over time
- Describes where assessment should take place—homes versus veterinary clinic
- Guides the user toward a treatment plan
- Analyzes the system’s strengths and weaknesses
- Validated for use in cats

**Figure 2.** Prior to surgery, the cat is in a fearful position (A), while postsurgery, the cat’s position indicates pain due to its hunched, arched back and facial expression of squinting, slanted eyes and pulled back whiskers (B).
Assessment of Acute Pain in Cats

5. Applied both pre- and postoperatively—comparison of the cat’s behavior before and after surgery, and noting changes, is the best indicator of pain.

6. Part of the follow-up after injury or surgery; assessments should be repeated often to ensure the cat is recovering comfortably and appropriately, and responding to intervention.

ROLE OF BEHAVIOR IN ASSESSMENT

A trip to a veterinary clinic and interaction with veterinary staff can be very stressful for some cats; this stress results in changes in physiologic parameters that are also seen with pain. In addition, differentiating pain from fear and anxiety can be challenging because some behaviors and postures associated with pain and fear/anxiety are similar (Figure 2). The more familiar you become with observing animal posture and behavior, the easier this process becomes.

To assess behavior in cats:
- Identify the presence or absence of normal behavior and new or abnormal behaviors
- For cats presented due to injury, ask the owner about the cat’s normal behavior
- For cats presented for a surgical procedure, observe and document preoperative, “normal” behavior, which can then be compared to postoperative behavior

- Remember that it is not always the behavior itself, but rather the changes in behavior (Figure 3) that help determine whether a cat is in pain and requires an analgesic.

Table 2 provides a comprehensive list of key categories and clinical signs that should be assessed when determining whether a cat is in pain.

Behavioral domains, along with additional indicators, such as blood pressure, have been used to create the UNE-SP-Botucatu Multidimensional Composite Pain Scale for Assessing Postoperative Pain in Cats, available at animalpain.com.br/en-us/. The scale, complemented by videos demonstrating specific pain behaviors, results in a numerical pain score, and the website provides videos that can be used to assess a veterinary professional’s ability to use the scale. Initially, this system may take considerable time to complete but, with experience, it can be done rapidly.

ASSESSMENT OF EFFECTIVE PAIN MANAGEMENT

Pain assessment tools should help you develop a treatment plan, and should also indicate whether or not the intervention is effective. If, after an intervention, the pain score decreases, then treatment was effective, but continued monitoring is needed to ensure the patient remains comfortable. Treatment of acute pain in cats will be discussed in the next issue of Today’s Veterinary Practice.

Table 2. A List of Categories & Clinical Signs for Recognizing Acute Pain in Cats

<table>
<thead>
<tr>
<th>CATEGORY</th>
<th>NO PAIN</th>
<th>IN PAIN</th>
</tr>
</thead>
<tbody>
<tr>
<td>Posture</td>
<td>Relaxed</td>
<td>Tense, stiff, rigid</td>
</tr>
<tr>
<td></td>
<td>Slightly curled up</td>
<td>Stretched out or tucked up</td>
</tr>
<tr>
<td></td>
<td>Comfortable</td>
<td>Crouched and/or hunched</td>
</tr>
<tr>
<td>Behavior</td>
<td>Bright and alert</td>
<td>Licking lips and/or salivating</td>
</tr>
<tr>
<td></td>
<td>Head up</td>
<td>Head down</td>
</tr>
<tr>
<td></td>
<td>At front of cage</td>
<td>Hiding and/or at back of cage</td>
</tr>
<tr>
<td></td>
<td>Grooming</td>
<td>Cannot get comfortable</td>
</tr>
<tr>
<td></td>
<td>Active and/or playing</td>
<td>Licking at wounds</td>
</tr>
<tr>
<td></td>
<td>Interactive with people</td>
<td>Aggressive</td>
</tr>
<tr>
<td>Vocalization</td>
<td>Purrs when petted</td>
<td>Growl and/or hiss</td>
</tr>
<tr>
<td></td>
<td>Normal, chirpy meow</td>
<td>Long deep meow</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Purring</td>
</tr>
<tr>
<td>Palpation of Wound</td>
<td>No response to pressure</td>
<td>Quick turning, flinching</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Biting, aggression</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Vocalization</td>
</tr>
<tr>
<td>Demeanor</td>
<td>Interactive with people</td>
<td>Avoids people</td>
</tr>
<tr>
<td></td>
<td>Enjoys being petted</td>
<td>Avoids petting</td>
</tr>
<tr>
<td>Facial Expression*</td>
<td>Open and relaxed eyes</td>
<td>Squinting, slanted, or closed eyes</td>
</tr>
<tr>
<td></td>
<td>Head up</td>
<td>Head down</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Whiskers pulled back</td>
</tr>
</tbody>
</table>

Figure 3. Facial expression is an important indicator of pain: a comfortable cat will be bright and alert (A), while a painful cat may keep its head down and demonstrate squinting, slanted, and/or closed eyes; pushed back ears; and pulled back whiskers (B).
Role of Analgesics
Mechanistically, tissue damage from surgery or injury causes release of inflammatory mediators at the site of the wound. Inflammatory mediators sensitize the nerve endings around the wound, a process known as transduction. This information is then transmitted along the peripheral nerves to the central nervous system and then to higher centers where, in the conscious animal, it is perceived as pain. Pain medications alter the pain pathway to reduce pain perception.

Analgesic Requirements
Quite often it is difficult to determine how much and what type of pain medication should be administered to control pain in cats. Pain can be perceived differently in individual cats and the same degree of inflammation can cause varying amounts of pain. Pain medications also have unique effects on different animals due to metabolism, tissue specificity, and individual variation.5,6,16,17

To properly assess the effectiveness of pain management:
1. Perform frequent assessments by identifying whether clinical signs associated with acute pain in cats (Table 2) are present.
2. If, after analgesic administration, the cat is still displaying signs of discomfort and pain, treat again and reassess. Treatment may involve using the same opioid as originally administered, changing the dose, switching to another opioid or a different class of drug, or using a combination of drugs.
3. After additional pain medication is administered, improvement in behavior should be observed (Figure 4).
4. Remember, veterinarians have a responsibility to administer enough pain medication to keep the cat comfortable.1

Duration of Treatment
The duration of treatment of acute pain depends on the degree of inflammation, which is related to the amount of tissue trauma. It is critical to manage pain for the duration of active inflammation.18 For example, postsurgical inflammation can cause pain for days (eg, ovariohysterectomy) or weeks (eg, major orthopedic surgery).

If uncertainty exists about whether a cat still requires pain intervention, use pain assessment and response to treatment as diagnostic tools. One of the biggest mistakes in veterinary pain management is providing good pain control for a short time after tissue damage; then withdrawing analgesics before inflammation has started to subside. If sufficient inflammation is present, sensitizing the nerve endings, it causes re-initiation of the pain pathway and results in ongoing pain for the cat. There should be analgesic coverage for the entire healing process.

SUMMARY
Accurate pain assessment is essential for appropriate pain management. Key components to pain assessment include:
• Behavior and the cat’s interaction with humans
• Posture and facial expression
• Observation of the cat pre- and postoperatively
• Discussion with the owner about the cat’s usual behavior, if observation is not possible before injury/surgery
• Treatment and re-evaluation, if there is uncertainty about whether the cat is in pain.

Can pain be appropriately assessed and treated in cats? Yes. The more attentive the health care provider is to subtle changes in animal behavior, the more accurate pain recognition will be. There are excellent pain medications available for cats, which ultimately allow for the delivery of compassionate and humane care.

Read the next article in this series—Management of Acute Pain in Cats—in the March/April 2014 issue of Today’s Veterinary Practice.
VAS = visual analog scale; DIVAS = dynamic interactive visual analog scale;

References


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