of the bladder will cause a wet bed and can be mistaken for normal urination.

Bladders can be managed via manual expression or placement of a urinary catheter. Manual expression allows the patient the opportunity to urinate independently upon improvement of the condition but can be traumatic and is not always well tolerated. Intermittent catheterization can cause trauma to the urethra and carries an increased risk of urinary tract infections. IDUCs are well tolerated and allow the bladder to be maintained empty in cases of over-stretching and close monitoring of urinary output, but take away the opportunity for the patient to urinate independently. Each patient's condition should be considered carefully before a bladder-management technique is chosen.

IDUCs should always be placed using a sterile technique and patient interference should be prohibited. Manual expression should be done carefully. The patient should be appropriately restrained and continuously reassured and even pressure should always be applied to reduce bruising or injury to the bladder. Excessive pressure should never be applied as there is a risk of bladder rupture. Drugs such as diazepam or prazosin can be prescribed by the veterinary surgeon to assist in relaxation of the external sphincter and bladder wall.

KEY LEARNING OBJECTIVES

- Understand how the bladder works and the types of problems commonly seen
- Recognize when bladder management is necessary

- Have a clear understanding of the types of bladder management, including indwelling urinary catheters (IDUCs) and bladder expression, and the nursing considerations involved

MULTIPLE CHOICE QUESTIONS

1. Which of the following statements about the pelvic nerve is true?
 - (A) A parasympathetic nerve that helps the bladder to contract for urination
 - (B) A sympathetic nerve that helps the bladder to contract for urination
 - (C) A parasympathetic nerve that helps the bladder relax for refilling
 - (D) A sympathetic nerve that helps the bladder relax for refilling
2. Which of the following can be caused by damage to the thoracolumbar spine?
 - (A) Urinary incontinence
 - (B) A blocked urethra
 - (C) An upper motor neuron bladder
 - (D) A lower motor neuron bladder
3. What is it important to do when manually expressing the urinary bladder?
 - (A) Appropriately restrain the patient
 - (B) Apply gentle even pressure to avoid bruising the bladder
 - (C) Offer reassurance throughout the procedure
 - (D) All of the above

Nursing considerations for the spinal patient

Natalie Roper

The aims of this lecture are to provide veterinary nurses with the knowledge and understanding of IVDD, how they can help and advise owners and how to manage and nurse patients with spinal conditions. We will initially look at the different types of IVDD, how patients can present clinically, the type of breeds that are more susceptible and why, and discuss the nursing care of these patients.

A type 1 disc herniation is the most common presentation and normally causes both contusion and compression of the spinal cord, whereas a type 2 disc herniation normally causes compression of the cord only. A traumatic disc (sometimes called a type 3 disc) causes quite a severe contusion with no compression. It is important to understand the different presentations and resulting damage to the spinal cord in order to be able to nurse and rehabilitate these patients correctly and effectively.

The location of the disc, the severity of the damage and whether the patient is being managed conservatively or surgically, will determine how these patients are cared

for. We will review the different options that are available for surgical management (hemilaminectomy, ventral slot) and why conservative management is sometimes offered instead. It is important to recognize why a decision is made one way or another regarding a patient's treatment pathway. Understanding these concepts will allow delegates to better select the correct nursing management.

The nursing care of spinal patients will be discussed in detail, primarily bladder care, pain management and physiotherapy. Bladder care is extremely important in spinal patients as they are often not able to void and need assistance. It can be quite difficult to empty a patient's bladder adequately and different techniques often need to be used. Spinal patients can sometimes experience a high level of pain, so it is important to know how to identify the source of pain and how to manage it effectively. Physiotherapy is an important aspect of a spinal patient's recovery and usually includes passive, active-assisted and active exercises, which we will discuss in further detail during the lecture.

KEY LEARNING OBJECTIVES

- To understand the different types of intervertebral disc disease (IVDD) and how these patients can present
- To understand the different management options and why they are offered
- To understand how to manage spinal patients effectively during their recovery and rehabilitation

MULTIPLE CHOICE QUESTIONS

1. What type of damage does a type 1 disc extrusion usually cause to the spinal cord?
 - (A) Contusion
 - (B) Compression
 - (C) Contusion and compression
 - (D) Myelomalacia
2. What are the three types of physiotherapy exercises used for spinal patients?

- (A) Massage, vibration, coupage
 - (B) Passive, active-assisted, active
 - (C) Massage, active, hydrotherapy
 - (D) Turning, massage, hydrotherapy
3. What are the important aftercare considerations for spinal patients?
 - (A) Bedding, bladder, nutrition
 - (B) Nutrition, pain, ambulation
 - (C) Physiotherapy, bladder, bedding
 - (D) Bladder, pain, physiotherapy

Nursing neurological examination and when to worry

Raquel Trevail

Part of the nursing care is to monitor progress by knowing what to monitor within the neurological examination.

The neurological examination includes both hands-off and hands-on observations. It is always important to understand the basics of the neurological examination and what the findings might mean. By observing your patient (hands off), you can have a good assessment of mentation and gait. Changes in mentation are important in cases of systemic and intracranial pathologies, and gait changes are relevant in spinal but also intracranial cases such as in vestibular disease. Hands-on examination includes postural reaction testing, reflexes, cranial nerve testing and pain assessment/nociception.

Ability to assess muscle tone and reflexes is important for not only identifying but also monitoring of spinal and neuromuscular cases. Pain assessment is important in order to keep your patient comfortable and compliant; and nociception assessment is necessary in spinal patients not only as part of the initial assessment but also to monitor progression.

Generally speaking, you will have ambulatory and non-ambulatory patients, in some cases with compromised swallowing or breathing. Ambulatory patients are usually easier to manage but in some situations support may still be necessary to facilitate moving around. Urination and defecation should be closely monitored. In recumbent patients there are several important considerations such as avoiding aspiration pneumonia, lung atelectasis, pressure sores and urine scalding, and maintaining limb and joint function.

With spinal cord injury it is also important to monitor for signs of deterioration so that some action can be taken, or in cases where myelomalacia is a possibility that

this is identified and suffering is avoided. Monitoring nociception, muscle tone, reflexes and cutaneous trunci reflex will provide you with the information needed to interpret progression. When spinal shock is present, segmental spinal reflexes may be absent but subsequent examinations (usually over 24–48 hours) will show a return of the reflexes.

In neuromuscular cases, the presentation can also vary but it is usually characterized by inability to support weight, decreased/absent muscle tone and decreased/absent reflexes. Megaoesophagus and problems ventilating can also be present, and monitoring of progression as well as anticipation of possible complications are, again, very important.

In cases of intracranial pathology, the same principles apply (ambulatory vs. non-ambulatory) but other considerations also need to be taken into account. Regular monitoring and recording of vital parameters, temperature and blood pressure as well as mentation and cranial nerve examination are required. The modified Glasgow coma scale can be used for monitoring these patients or at least part of it. The modified Glasgow coma scale is divided in three parts: motor activity, brainstem reflexes and level of consciousness. Brainstem and level of consciousness are generally used more than motor activity. Therefore ability to perform a neurological examination, evaluate gait and identify specific postures or mental status is paramount.

The neurological patient can be very demanding with regards to nursing care. Early identification of deterioration and anticipation of complications can significantly change the outcome.

KEY LEARNING OBJECTIVES

- Understand the basics of the neurological examination
- Appreciate the importance of monitoring as well as anticipation of complications
- Recognize the changes in the neurological examination associated with deterioration of a spinal cord injury, neuromuscular disease and intracranial pathology