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# The dyspnoeic cat

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**ABSTRACT:** This article outlines the veterinary nurse's role in dealing with a dyspnoeic cat that is brought into the veterinary practice. It covers a discussion of emergency triage, oxygen delivery methods and stabilisation.

When a dyspnoeic cat is brought into the veterinary practice for triage, unless there is a known history of trauma – a RTA, for example – it is sensible to assume the patient may have been ill for some time. Cats can be the masters of disguise when it comes to hiding an illness.

In an ideal situation, the veterinary surgeon would perform a full clinical examination as soon as possible. However, in an emergency situation – an out-of-hours emergency clinic manned by a registered veterinary nurse, for instance – it is often the nurse who has the first contact with the patient.

A clinical examination and any other procedures must be carried out swiftly causing minimum stress, because a dyspnoeic cat may decompensate quickly.<sup>1</sup> The cat should also be minimally restrained, if at all, so as to prevent any further distress and deterioration of the condition.

## Emergency triage

Emergency triage involves the 'ABC assessment' – airway, breathing, and circulation.<sup>2</sup> It is imperative to alert the veterinary surgeon to the emergency at the earliest available opportunity. As a veterinary nurse your aim is to prevent suffering, but to be aware of your limitations regarding what treatment you can provide under the terms and conditions laid down in the RCVS *Code of Professional Conduct for Veterinary Nurses*.

### Airway

Does the patient have a clear airway? If not can you see an obstruction?

If there is an obvious obstruction, it is safe to do so and does not distress the

patient, try to clear the airway. Suction machines can be useful for this; but be careful not to get bitten!

If you are unable to establish a patent airway, then immediate veterinary intervention to allow some form of sedation and intubation and ventilation will be required as a matter of urgency to prevent rapid death of the patient.

### Breathing

Is the patient able to breathe easily? Observe and note the respiratory rate, effort, pattern and noise, such as stertor or stridor. You should also ask yourself is the cat open mouth-breathing? Is there marked abdominal effort?

Observing the cat's respiratory pattern and noise can give you vital clues as to where in the respiratory tract the problem may lie. For example, a cat with an inspiratory dyspnoea is likely to have an upper airway obstruction; whereas an expiratory dyspnoea would more commonly be associated with lower airway disease/obstruction.

Stertorous breathing is characterised by a snoring/snorting sound and indicates an obstruction to the respiratory tract anywhere from the nares to the larynx; whereas stridor is characterised by a higher pitched squeaking sound which commonly originates from the larynx and trachea.

Dyspnoeic cats will often choose to sit or lie in sternal recumbency to ease pressure on the lungs, so allow them to settle in their chosen position if possible.

### Circulation

Can you hear a heart beat and/or feel any pulses? Are the pulses weak and 'thready'?

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or clear and strong? Note and record the heart rate and accompanying pulses. Are they palpable distally and with each heart beat?

Observe and note the mucous membrane colour and capillary refill time. Be aware that some cats can still have very pink mucous membrane colour despite being quite hypoxic.<sup>3</sup>

As with any emergency situation, it is essential to have all the necessary equipment at hand – a fully stocked 'crash box', oxygen supply with a selection of delivery methods, a selection of intravenous catheters, intravenous fluids and equipment for collecting any diagnostic samples, bedding and blankets and warming equipment. If it is the middle of the night when you are first alerted to the emergency, it is sensible to ensure your laboratory diagnostic machines are up and running.

Dyspnoeic patients will generally respond well to oxygen therapy, which can be instigated as a first aid measure while waiting for the veterinary surgeon to arrive. (This is discussed in greater detail later on in the article).

During this critical stage, it is often easy to neglect the needs of the owner, who is likely to be very distressed and upset about their pet. If possible another veterinary nurse – or if there is not one available, a receptionist – should ensure the client is kept informed about the condition of their pet. Try and keep them calm and, if possible, obtain some degree of history.

This is something the veterinary surgeon or veterinary nurse is likely to do more thoroughly once the patient is stable; however having a basic knowledge of events leading up to the cat's arrival at the practice can often be useful.

Figure 1. Face mask



Figure 2. Oxygen collar

## Oxygen delivery methods

As mentioned above, dyspnoeic patients generally respond well to oxygen supplementation and oxygen-rich environments. While delivering oxygen supplementation, it is once again essential to ensure that minimal restraint, if any, is used. A cat already struggling to breathe is likely to panic and further deteriorate if stressed any more.<sup>4</sup>

Any treatment should always be at the direction of a veterinary surgeon, but in a first aid situation you would not be wrong to initiate oxygen supplementation to a dyspnoeic patient, provided you are not causing any unnecessary distress.

### Flow-by oxygen

This is one of the least invasive methods of oxygen delivery and is generally well tolerated by cats; anaesthetic tubing is attached to an oxygen source and held close to the patient's airways. It is important not to put the tubing too close to the face as this is likely to cause distress.<sup>5</sup>

### Face mask

Some cats will tolerate a face mask well; however, to deliver optimal oxygen supply the mask should be a snug fit, which in the case of most dyspnoeic cats, especially if they are already mouth breathing, is less well tolerated.

Consider which type of mask you are using (Figure 1). For example, many cats will tolerate a transparent mask better than an opaque one. With a looser fit, a higher oxygen flow rate is required which can cause drying and irritation of the mucous membranes if used for a prolonged period.

### Oxygen collar

An Elizabethan collar and Clingfilm can be used to make a very effective oxygen collar (Figure 2). The Clingfilm is attached across the front of the collar, with a small gap left for the oxygen supply (generally some anaesthetic tubing is used) – this should be at the bottom of the collar to allow ventilation and release of exhaled carbon dioxide.

This method of oxygen supplementation can cause the patients to become overheated, so careful monitoring is essential. Some cats may also panic when a collar is placed on their heads. If this is the case, then another method of oxygen delivery will need to be chosen.

### Oxygen cage

This is an excellent way of providing oxygen supplementation with no restraint required which can be invaluable when you are presented with a dyspnoeic cat (Figure 3).<sup>6</sup> Incubators with a built-in oxygen supply can also be used.

The main disadvantages of this method are overheating, and drying out and irritation of mucous membranes; so oxygen can be bubbled through some sterile water in a container to allow some moisture for humidification, ice can be used around the water to keep it cool and to try to prevent excessive overheating of the cage.

Doors have to be opened for a clinical examination which rapidly reduces the oxygen saturation in the environment; so this needs to be taken into consideration when deciding on the method of oxygen delivery used.<sup>5</sup>

Figure 3. Oxygen cage



### Nasal prongs

This is a method more commonly used in larger canine patients owing to the limited range of sizes available – even the very tiny ‘newborn’ size can be too large for a small cat. However, if you can find ones that fit, this method may be well tolerated, especially if used with a topical local anaesthetic.

The nasal prongs can easily fall out of the nostrils and sometimes require a surgical staple to keep them in place.

### Nasal catheters

This is a very good choice for oxygen supplementation in cats and the placement is relatively simple. It is the same procedure as placing a nasal-oesophageal tube but only inserting the tube to the naso-pharynx level. It is tolerated well owing to the small gauge tubing you are able to use; but be aware that some cats will object to the initial insertion.

If this method is to be used for long-term oxygen supplementation, humidification, as with the oxygen cage, will be necessary to prevent irritation of the mucous membranes.<sup>6</sup>

Nasal prongs and catheters should not be used in cats with possibly increased intracranial pressure (ICP) – head trauma, for instance – because sneezing associated with the placement of the catheter or prongs will increase ICP further.

## Monitoring

If the patient is in an oxygen tent, frequent, non-invasive monitoring is imperative. The pros and cons have to be weighed up regarding how often you will open the cage for full monitoring as mentioned previously, as this will greatly reduce the oxygen saturation of the immediate environment.

A pulse oximeter can be used (Figure 4). This is an excellent, non-invasive method of monitoring oxygen saturation of the patient – ears, toes and skin folds can be used; although the nurse must be aware of this equipment’s limitations and continue to be vigilant about monitoring, even when the machinery is giving a reassuring result.<sup>5</sup>

A vet once said to me she trusts an attentive, alert veterinary nurse much more than machines! Therefore, any further deterioration in the condition of the patient must be brought to the



Figure 4. Pulse oximeter

attention of the veterinary surgeon as a matter of urgency.

## Stabilisation

Once patient stabilisation has begun using the chosen method of oxygen supplementation delivery, it falls to the veterinary surgeon to decide upon emergency therapeutic and diagnostic options as soon as possible.

Emergency medicine may include diuretics, bronchodilators and glucocorticoids. It is beyond the scope of this article, however, to discuss specific drug doses and administration methods.

Once the patient is stable, diagnostic tests should be undertaken to establish a cause of the dyspnoea; these can include laboratory tests (biochemistry and haematology), imaging techniques (ultrasonography, radiography and MRI), thoracocentesis and subsequent pleural fluid analysis.

Whatever diagnostic test is being performed, the nurse should ensure that it is carried out with as little stress as possible. For example, the environment for the cat should be calm and quiet, EMLA cream should be used for venepuncture and thoracocentesis and minimal restraint used at all times.

Positioning for imaging should also be considered ensuring minimal time in lateral recumbency unless the cat favours this.

Once you have assisted the veterinary surgeon with all the diagnostic tests required, it is still imperative to continue the constant monitoring – even though your patient may be stable it is highly possible that they could decompensate at anytime.

As return to full health may involve a lengthy stay at the veterinary practice, it is vital that a nursing care plan is


undertaken to allow the patient to be treated holistically and to ensure a stress-free stay – and, hopefully, a swift recovery.

During the patient’s stay, it is important that all members of staff thoroughly understand the case and are able to evaluate the effectiveness of the care being given. If you feel the patient is suffering or deteriorating at any time, you must report this promptly to the case veterinary surgeon.

Some owners may wish to visit their cats during the period of hospitalisation. This is a personal choice and their wishes must be followed as long as this will not cause any decompensation of the patient’s condition.

## Conclusion

There are many different ways to manage a dyspnoeic cat – with particular reference to the method of oxygen supplementation, types of drug used and methods and modes of investigative techniques to be undertaken. However, one of the most critical points to remember when dealing with an already stressed cat is the adage that ‘less is more’. This will ultimately help to reduce the demand for oxygen supply.<sup>4</sup>

The veterinary nurse plays a vital role in the outcome of dyspnoeic cat cases brought to the veterinary practice. When a calm and methodical approach is adopted, the outcome is more likely to be favourable for the patient, and satisfying for the client and all members of staff involved. 

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### Further reading

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