Red flags

Like most critical incidents, warning signs often precedes tracheostomy-related clinical problems. Because these signs are sometimes only apparent with hindsight, it is essential that you know what to look out for, so that you can trouble shoot at an early stage and stop minor problems escalating. Tracheostomy-related clinical problems are called 'tracheostomy red flags', although some are applicable to laryngectomy patients too.

It is easy to develop a false sense of security when a patient has a tracheostomy tube in situ. Remember though that this is an artificial airway, just like an endotracheal tube. Problems that arise are therefore airway problems and can develop quickly and dramatically into life threatening situations, especially if the patient is ventilator-dependent or critically ill. Think about a patient on ICU or in the operating theatre with a large air leak from an endotracheal tube - everyone would agree that this needs to be attended to as a matter of urgency. This is the same for a tracheostomy tube.

What should you do if you detect a red flag?

A prompt assessment of the tracheostomy and the patient should be made by someone who is competent to do so. Who this is depends on how the patient is, your role and where you work, but the person making the assessment must to be able to work out what the problem is and address it. Interventions could range from a simple reassuring assessment, a fibreoptic inspection of the tube or airways, or replacement of the tracheostomy tube.

Like any assessment of the unwell patient, this should always start with ‘A for airway’. In the case of a patient with a tracheostomy, there *may* be two airways to consider, or with a laryngectomy, only one (in the front of the neck, not the face). Any airway problem can cause the patient to become unwell and show signs of distress. Conversely, patients with tracheostomies can become unwell with all the problems that other patients get too. It is easy to become fixated with the tracheostomy.

The ‘flags’ can be divided up into different categories:

- Airway flags
- Breathing flags
- Specific tracheostomy flags
- General flags

Airway flags

If the patient has a cuffed tracheostomy correctly sited in the trachea, no gas should escape through the mouth. If the patient is talking to you, or audible air leaks or bubbles of saliva are seen or heard at the mouth or nose, then gas is escaping past the cuff. This may imply that the cuff is damaged or the tube tip is not correctly sited. Grunting, snoring or stridor are also signs that there is an airway problem.

Breathing flags

Listening to the patient, or observation of the patient or instrumentation, may show that the patient:

- Is not breathing (apnoea), which is detected by capnography or clinically
- Has difficulty in breathing (or with ventilation), which may be reported by the patient or observed clinically:
    - Accessory muscle use
    - Increased respiratory rate
    - Higher airway pressures
    - Lower tidal volumes
- Has hypoxia
- Is making whistling noises or has noisy breathing

Specific tracheostomy flags

Careful observation may show that the patient:

- Has a visibly displaced tracheostomy tube. If this is an adjustable flange tube, check to see where it was last positioned
- Has blood or blood-stained secretions around the tube - a recently performed or changed tracheostomy bleeds a little, but if in doubt, it should be assessed
- Reports increased discomfort or pain
- Requires a lot of air to keep the cuff inflated, which may be because:
    - The cuff is damaged or has an air leak (in which case, it needs to be replaced)
    - The tube may be displaced and the cuff needs hyper-inflation to keep it 'sealed'

General flags

Any physiological changes can be due to an airway problem. Specifically, changes in:

- Respiratory rate
- Heart rate
- Blood pressure
- Level of consciousness

Anxiety, restlessness, agitation and confusion may also be due to an airway problem.

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