Physiology of the Airway

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INTRODUCTION

The airway is the conduit for oxygen from the environment to enter the lungs and for carbon dioxide to be removed from the lungs back into the environment. It refers to the passage extending from the nose or the open mouth through to the pharynx, the larynx, the glottis, trachea, bronchus and bronchioles in the lungs. The airway gradually decreases in diameter from the beginning to the end at the terminal bronchiole. For the gases to move in and out, this passage must be patent.

AIRWAY PATENCY

Patency of the airway refers to the provision of an unobstructed passage for oxygen or air to move in and out through the nose or mouth into the lungs. Airway patency is maintained when awake or during sleep. The passage is normally cleared by mucociliary action of the mucosal lining and for more forceful clearance, two natural processes – sneezing and coughing, keep the airway patent. Hence, if a patient can cough, we know he/she has good control of the airway.

Sneeze

A sneeze is the explosive expiratory flow of air from the lungs through the nose and mouth through an open glottis. It is due to irritation of the nasal mucosa.

Cough

A cough is a reflex seen when the airway is irritated, or it can be a voluntary process. Coughing occurs with the sudden release of air from the lungs against a closed glottis after an inspiratory breath. The sudden release of the high-pressure built up results in high velocity air flows that are adequate to clear secretions as well as to expel foreign bodies, which may lodge in the airway. The strength of the cough depends on the ability to take a deep breath. The larger the volume of air in the lungs at the end of inspiration, the stronger the cough will be.

The airway (Figure 4.1, overleaf) can be divided into the upper airway which includes the passage from the nose/mouth, oro/naopharynx, glottic opening...