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Printed In U.S.A.

By Lawrence Heiskell, MD

Get 'Em Breathing—*STAT*

Tools and techniques for the tactical medic when seconds count!

In nearly all circumstances, airway management is the highest priority for casualty care. However, in the tactical environment, scene safety and hard cover takes even higher priority because you can do very little for your patient if you and your patient are under fire and at risk for being hit.

Airway management in the tactical environment is the process of ensuring that the victim has an open pathway between the lungs and the outside world, and that the lungs are safe from aspiration. If there is no airway, there can be no breathing, hence no oxygenation of blood and therefore circulation and all the other vital body processes will soon cease.

Simple, Fast Jaw Thrust

The simplest way of ensuring an open airway in an unconscious patient is to use a head tilt chin lift technique, thereby lifting the tongue from the back of the throat. This technique is taught on most first-aid courses as the standard way of clearing an airway. The jaw thrust is a technique used on patients with a suspected spinal injury and is used on a supine patient. The provider uses the thumbs to physically push the posterior aspects of the mandible upwards. When the mandible is displaced forward, it pulls the tongue forward and prevents it from blocking the entrance to the trachea, thus helping to ensure a patient airway.

In the case of a victim who vomits or has other secretions in the airway, these techniques will not be enough. Suitably trained medics may elect to use a suction devise to clean out the airway, although this may not always be possible in the field. An unconscious patient who is regurgitating stomach contents should be turned into the recovery position when there is no suction equipment available. This maneuver will allow, to a certain extent, the drainage of fluids out of the mouth instead of down the trachea—a very bad event called aspiration.

Tools For Airway Management

FACE MASK: Successful ventilation requires both an air-tight mask fit and a patent airway. Without an airtight seal between the skin of the patient's face and the mask, sufficient pressure to inflate the lungs will not develop. Leak is the most common problem in delivering face mask ventilation and can be avoided or resolved by proper technique. If you have a second medic who can squeeze the ventilation bag for you, use two hands to secure an air-tight seal.

The first step in evaluating and treating a trauma patient is to assess airway patency and, if compromised, restore it!

Signs of successful seal and ventilation include: rise and fall of the chest with delivery of positive pressure, a foggy mask, or breathing sounds on auscultation

OROPHARYNGEAL AIRWAY (OPA): This curved piece of plastic inserted over the tongue creates an air passage way between the mouth and the posterior pharyngeal wall. The preferred technique is to use a tongue blade to depress the tongue and then insert the airway posteriorly. An alternate technique is to insert the oral airway upside down until the soft palate is reached. Rotate the device 180 degrees and slip it over the tongue. Be sure not to use the airway to push the tongue backward and block, rather than clear, the airway. This device is poorly tolerated in conscious patients and may induce gagging, vomiting and aspiration.

NASOPHARYNGEAL AIRWAY (NPA): NPAs are inserted through one nostril to create an air passage between the nose and the nasopharynx. The NPA is preferred to the OPA in conscious patients because it is better tolerated and less likely to induce a gag reflex.

The length of the nasal airway can be estimated as the distance from the nares to the meatus of the ears and is usually 2-4 cm longer than the oral airway. Any tube inserted through the nose should be well lubricated and advanced at an angle perpendicular to the face.

LARYNGEAL MASK AIRWAY (LMA): The LMA is a cuff device that provides sufficient seal to allow for positive-pressure ventilation to be delivered. It is particularly useful in maintaining an airway when endotracheal intubation is not desired or during emergency situations in which mask ventilation is not possible, or intubation and/or ventilation fails.

The LMA is a wide-bore tube, with a connector at its proximal end and with an elliptical cuff at its distal end. When inflated, the elliptical cuff forms a low pressure seal around the entrance into the larynx. The LMA comes in a variety of pediatric and adult sizes and successful insertion requires appropriate size selection.

LARYNGOSCOPE: A laryngoscope is used to examine the larynx and to facilitate intubation of the trachea. It is composed of two separate parts: the handle and the blade, which is used to move the tongue and soft tissues aside to reveal a view of the larynx. To this end, an incandescent bulb can be found on the blade tip—it turns on when the blade is attached to the handle and locked into the 90 degree position to illuminate the larynx.

The two most commonly used blades in

the United States are the Macintosh, which is curved, and the Miller, which is straight. Both blades come in a variety of sizes. The choice of blade depends on personal preference and patient anatomy.

With either blade, the handle is raised up and away from the patient in a plane perpendicular to the patient's mandible. Avoid trapping a lip between the teeth and the blade and AVOID using the teeth as leverage.

ENDOTRACHEAL TUBE: Endotracheal tubes are most commonly made from polyvinyl chloride. Tubes come in a number of sizes, usually designated in millimeters of internal diameter. The choice of ETT size is always a compromise between choosing the largest size to maximize flow and minimize airway resistance and the smallest size to minimize airway trauma.

Once a view of the larynx is obtained via laryngoscopy, the ETT is introduced with the dominant hand through the right side of the mouth. Directly observe the tip of the tube passing into the larynx, between the abducted cords. Pass the tube 1 cm through the cords.

Other Useful Tools

STYLET: The stylet is a long, bendable rod that can be inserted into an endotracheal tube to facilitate intubation. It is placed into the tube prior to laryngoscopy and then the tube is bent to resemble a hockey stick. After insertion of the tube into the trachea, the stylet is removed.

• **BOUGIE:** The Bougie is a straight, semi-rigid stylette-like device with a bent tip that can be used when intubation is (or is predicted to be) difficult. During laryngoscopy, the bougie is carefully advanced into the larynx and through the cords until the tip enters a mainstem broncus. While maintaining the laryngoscope and Bougie in position, an assistant threads an ETT over the end of the bougie, into the larynx. Once the ETT is in place, the bougie is removed.

Airway management skills are perishable, especially orotracheal intubation. At the International School of Tactical Medicine we conduct a three-hour advanced airway management class to ensure that all students obtain a working knowledge of the airway tools available to the tactical medic. For more information visit www.tacticalmedicine.com. TW