

EASY INTUBATOR

This application is a continuation-in-part of application Ser. No. 07/767/873, filed Sep. 30, 1991, now abandoned.

BACKGROUND OF THE INVENTION

Examples of prior known intubator devices are shown in U.S. Pat. Nos. 5,038,766; 2,433,705; 2,854,004; and 4,947,896.

SUMMARY OF THE INVENTION

The invention refers to an instrument for medical use in endotracheal intubation during elective or emergency indications for ventilatory support. Endotracheal intubation is a procedure which requires a plastic, flexible tube to be passed through the nasal or oral cavity in a downward direction through the vocal cords and into the trachea. This procedure is performed during circumstances which require ventilatory support such as anesthesia during surgical procedures, trauma, and severe respiratory failure. Endotracheal intubation requires the use of a laryngoscope for visualization of anatomical structures. This is not always accomplished, requiring blind endotracheal intubation based on trial and error. This procedure carries high risk of injury to the vocal cords and adjacent anatomical structures. Failed attempts can be frequent and require a high degree of training to safely perform the procedure of intubation. The invention consists of a curved, one piece, disposable, hard plastic structure which embodies channels for suctioning, direct viewing of anatomical structures involved in endotracheal intubation, and a channel which houses a preloaded endotracheal tube. The end of the endotracheal tube, to be placed in the trachea is located at the lower end of the invention. Once the anatomical structures are visualized through the device, the endotracheal tube may be advanced through the vocal cords into the trachea, which is the desired area of placement.

The Easy Intubator consists of a curved, single unit, the upper portion being used as a handle, and the angled lower portion being used as a blade which gently lifts the base of the tongue in an upward direction to obtain direct visualization of the upper airways and vocal cords.

The Easy Intubator provides channels which extend downward through the length of the device. One channel can be used for suctioning of secretions, eliminating the necessity of a suction catheter, to enable enhanced direct visualization of the anatomical structures involved. A second channel holds an endotracheal tube which can be advanced with little effort through the vocal cords when direct visualization is obtained. With the use of this invention, endotracheal intubation can be accomplished under direct visualization of the anatomical structures in a safe, direct, easy, and rapid manner minimizing complications. Once endotracheal intubation is accomplished, the device may be removed by retracting the entire body of the device upward over the endotracheal tube, which securely remains in the desired location in the trachea. The preloaded endotracheal tube projects upward from the device allowing upward removal of the intubator while maintaining placement of the endotracheal tube in the trachea. The intubator may then be discarded.

The illuminating system of the invention may be powered by either a battery or electrical source and includes a light source, which attaches to a connecting port located at the upper end of the handle portion of the device. The area is illuminated and provides better visualization of the anatomical structures involved. Fiberoptic bundles enable transmission of light and images from the end of the device to the viewing portion of the invention.

BRIEF DESCRIPTION OF THE DRAWINGS

The features and advantages of this invention will be further clarified by the description as follows, accompanied by drawings wherein:

FIG. 1 is a front view of the one piece intubator showing an upper handle portion and a lower blade portion which houses three bored internal channels: a preloaded endotracheal tube, suction capability, and light source connection, respectively. An eyepiece is located in the upper back of the upper handle portion. Depicted in this figure is an endotracheal tube with an inflatable balloon and its mechanism for inflation. Also shown is a light-power supply source.

FIG. 2 is an idealized inner view of the channels described in FIG. 1.

FIG. 3 is a side view of the invention showing the upper handle, eyepiece, and lower blade portion with the beginning opening of the suction channel.

FIG. 4 is a rear view of the upper portion of the invention showing eyepiece, viewer lens structures, and suction channel. The recessed portion shows a preloaded endotracheal tube.

FIG. 5 is a side view of the snap-on eyepiece portion and external sheath carrying fiberoptics and light to the end portion of the device.

FIG. 6 is a cross section of the structure shown in FIG. 5, showing the location of the fiberoptic bundle, and the electrical conduction structure of the device.

FIG. 7 is a top view of the structures depicted in FIG. 5.

FIG. 8 is an environmental view of the subject intubation device.

FURTHER DISCUSSION OF THE INVENTION REFERENCING THE DRAWINGS

Referring to FIG. 1, there is shown a front view of the curved, one piece, hard plastic intubator which has an upper handle portion and a lower blade portion 31. An open port 33 runs from the bottom of the intubator, through the intubator, to the top of the intubator handle. Direct suction may be applied to the top port 33, eliminating the need for suction catheters. A small port 35 for the connection of a light source 42 powered by either a power cell 37 or external source 44 is provided. A lateral recessed port 32 runs the length of the device and centrally exits the end of the lower blade portion 31. The recessed bored channel 32 accommodates endotracheal tube 51,52,53 which may be prepositioned in channel 32 for direct intubation. An eyepiece 34 carries the distal image through fiber bundle strands upward to the eyepiece, which is angled anatomically to provide ease of visualization of the vocal cords and allows direct visual access for safe and certain intubation by advancing the preloaded endotracheal tube 51 down through the vocal cords into the trachea.

Referring to FIG. 2, there is shown an cross-sectional view of the intubating device shown in FIG. 1. FIG. 2 shows a channel for suctioning 33 which runs the length