

CATHETER SECURING DEVICE

This application claims the benefit of U.S. provisional Application Ser. No. 60/214,745, filed Jun. 29, 2000, which is hereby incorporated by reference.

I. FIELD OF THE INVENTION

This invention relates to a device for securing a catheter such as an endotracheal tube with respect to the patient's mouth while protecting the catheter against occlusion by the patient's teeth.

II. BACKGROUND OF THE INVENTION

Catheters are employed by medical personnel for many purposes such as providing for the passage of fluids, including gases, to and from the human body. In various medical procedures, it is common to introduce a catheter into a patient's airway through the mouth. One type of catheter is an endotracheal tube, which is adapted to be inserted through the oral cavity of a patient and into the trachea, for example, to provide for the supply of fluids to the body, for the monitoring of internal conditions in the body and for removal of secretions from within the body. Other examples of catheters include respiratory tubes for laryngeal masks, oral gastric tubes, and esophageal stethoscopes.

It is desirable to secure the catheter in place within the patient to prevent the catheter from being inadvertently mainstem intubated (advanced into the patient) or extubated (retracted (or removed) from the patient's mouth) after it has been properly positioned; however, it is difficult to properly secure catheters to a patient's face to prevent these events. Neck straps are effective for holding catheters, but the neck straps can often hinder jugular venous flow or impede line placement within the patient. Tapes and adhesives are ineffective routinely, because of the presence of facial hair, dirt, blood, debris, perspiration, excessive soft tissue or facial trauma.

Another problem is that the catheter is usually relatively easy to deform as it passes between the patient's teeth when inserted orally, it is desirable to prevent the lumen of the catheter from being occluded by a patient's teeth when the patient attempts to bite down. Occlusion of the catheter can lead to, for example, hypoxia, hypercarbia, and the syndrome known as negative pressure pulmonary edema. The various restraining approaches discussed above are ineffective in protecting against possible occlusion of the catheter.

Bite blocks can be effective in keeping a patient's jaw open and thus prevent the teeth from clamping down on the catheter. One problem with a bite block is that it is yet another piece of equipment that may be inserted into the patient's mouth along with other medical apparatuses including, for example, multiple hoses/tubes/catheters and pulse oximeter sensors. Another problem with some bite blocks that set loose within the oral cavity is that if the patient's mouth opens up wider than the bite block, the bite block may move from its position down into the patient's throat or airway. If this occurs, then the airway may become partially or completely blocked. In any event, someone will need to fish out the bite block with an instrument or hand while keeping the patient's mouth open.

A recurring problem during intubation is that a patient's teeth suffer dental trauma from being hit and/or jarred. This type of dental trauma results in the number one cause of claims against anesthesiologists. Thus, it is desirable to find a device capable of protecting a patient's teeth from dental trauma.

Notwithstanding the above devices, a need still exists for an apparatus to secure a catheter in place within the patient while also preventing the patient from occluding the inserted catheter and protecting the patient's teeth.

III. SUMMARY OF THE INVENTION

The present invention provides a securing device for a catheter that can easily immobilize the catheter with respect to a patient while preventing occlusion of the catheter by the patient's teeth and protecting the patient's teeth.

The present invention additionally provides a securing device for a catheter, which permits the vicinity of a patient's mouth to be easily cleaned.

According to one form of the present invention, a securing device for securing a catheter within a patient's mouth includes a guard shaped to fit over the teeth of a patient (or subject including human and animal) within the patient's mouth and a latch mounted on the guard for releasably holding the catheter.

In a preferred embodiment, the guard includes a recess on a first side thereof for receiving a first molar of the patient and a wedge on a second side thereof for contacting a second molar of the patient opposing the first molar. Contact between the recess, the wedge, and the molars prevents the securing device from shifting within the patient's mouth during use.

According to another form of the present invention, a method of securing a catheter within a patient's mouth includes covering a plurality of a patient's teeth with a guard, inserting the catheter into a patient's mouth, and securing the catheter to the guard.

According to one aspect of the invention, a device for securing a catheter within a mouth of a patient including a guard having an anterior region and two posterior regions, and a latch in communication with the guard; and wherein each of the posterior regions abuts the anterior region, and the posterior regions are spaced from each other. According to another aspect of the invention, the method for using the device includes covering a plurality of a patient's teeth with the guard disposed in the patient's mouth; inserting the catheter into the patient's mouth; and securing the catheter by clamping the catheter between the guard and the latch.

According to one aspect of the invention, a securing device includes means for protecting at least some teeth of a patient, means for maintaining a distance between the protected teeth and the opposing teeth, and means for holding a catheter against the teeth protecting means.

According to one aspect of the invention, a device for securing a catheter within a mouth of a patient includes a guard including a channel framed by two side walls and a wall connecting the side walls, a first post, and a second post, the guard having an anterior region and two posterior regions, a latch in communication with the first post of the guard, the latch engages the second post, and a wedge extending from the guard in one of the two posterior regions; and wherein the first post and the second post are spaced from each other in the anterior region.

An objective of the invention is to protect a patient's teeth during orotracheal intubation.

A further objective of the invention is to hold and maintain a catheter at a preselected depth within a patient.

A further objective of the invention is to allow easy adjustment of the depth of a catheter within a patient.

A yet further objective of the invention is to provide a rapid, simple, and effective means for securing a catheter without the requirement of other materials such as ties or tape.