

ENDOTRACHEAL TUBE HOLDER

BACKGROUND OF THE INVENTION

The present invention relates to an endotracheal tube holder. Such tube holders are known, for example, in the U.S. Pat. Nos. 4,325,515 to Shaffer et al, 4,520,813 to Young and 4,223,671 to Muto. Such devices are used, for example, in emergency medical service events as well as routine hospital and operating room requirements where a tube must be inserted directly through the mouth of a patient. The tube is inserted into the patient's mouth and trachea and the tube holder is then placed around the tube and over the patient's mouth and the integral bite block is inserted between the teeth.

The devices of the prior art have, in general, been somewhat complicated and do not readily adjust to accommodate a variety of different tube sizes. In addition, they also do not provide an arrangement for easily locking the tube securely nor give easy access to the patient's mouth while the tube is held by the holder and is in the patient's mouth. In addition, all of these devices have a cumbersome attachment system.

BRIEF SUMMARY OF THE PRESENT INVENTION

The present invention relates to an endotracheal tube holder formed of two or more pieces one of which is slidable relative to the other. In a preferred embodiment, the holder has a gripping arrangement, with a spiked or ridged surface, for holding the tube securely therein aligned in a position generally transverse to the holder as the pieces of the holder are adjusted to accommodate the size of the tube. A locking arrangement, of a ratchet type in the preferred embodiment, operates to securely hold the tube. In addition, the two pieces are formed with openings along their lengths so that when the holder is placed over the face of the patient, the openings are aligned with the mouth to provide access.

OBJECTS OF THE INVENTION

It is therefore an object of the present invention to provide an endotracheal tube holder which can accommodate a number of different sizes of supply tubes and lock the tube used firmly in position.

An additional object is to provide an endotracheal tube holder having openings therein which at all times provide access to the mouth of the patient.

A further object is to provide an endotracheal tube holder formed from two or more pieces of plastic material which readily conforms closely to the contours of the face.

An additional object is to provide an endotracheal tube holder which can easily be secured to the patient's head, provide access to the patient's mouth and can accommodate and securely hold a number of different size tubes.

Another object is to provide an endotracheal tube holder with a positive locking arrangement for holding the tube inserted into the patient's mouth.

An additional object is to provide a device for holding other orally routed tubes as well.

A further object is to provide an endotracheal tube holder with an integral bite block with a ridged surface to interact with the teeth to help hold it in position. Further, the bite block may be provided with a soft outer surface to accept the teeth or gums comfortably.

A further object is to provide an endotracheal tube holder with an integral protuberance extending outwardly and axially with the tube for use in optional taping of the endotracheal tube to the endotracheal tube holder.

BRIEF DESCRIPTION OF THE DRAWINGS

Other objects and advantages of the present invention will become more apparent upon reference to the following specification and annexed drawings in which:

FIG. 1 is an exploded perspective view of one embodiment of the holder;

FIG. 2 is an elevational view of the holder of FIG. 1 in assembled condition;

FIG. 3 is a plan view of the holder of FIG. 1 in an assembled condition;

FIG. 4 is a plan view of the locking and bite block end of one of the pieces of the holder of FIG. 1;

FIG. 5 is an elevational view of the other piece of the holder of FIG. 1;

FIG. 6 is an exploded, perspective view of a second embodiment of the invention; and

FIG. 7 is an exploded perspective view of a third embodiment.

DETAILED DESCRIPTION OF THE INVENTION

Referring to the FIGS. 1-5 of the drawings, the tube holder 10 is formed of two pieces which are hereinafter referred to as the center piece 12 and the locking piece 14. The locking piece 14 is of one piece construction, preferably molded from a suitable medically acceptable plastic material, e.g. polyethylene, which has reasonable flexibility and strength. In FIG. 1, the inside face of the locking piece is shown, i.e., the face which is to engage and ride over the center piece 12. Locking piece 14 has a tab 15 at one end thereof from which extends upper and lower frame rails 16 and 18 defining a generally elongated rectangular opening 20 therebetween. The opening 20 is, for example, wide enough to permit the mouth of the patient to be exposed therethrough, preferably for example, about one inch to three inches long and five eighths of an inch to one inch between the rails 16, 18, but not limited to these particular dimensions.

A plurality of serrated ratchet teeth 22 are formed over a part of the inner edge of each of the two rails 16 and 18. The ratchet teeth 22 can occupy about one-third to one-half of the length of the rails 16, 18, starting from about one-third of the opening 20 closest to the tube 72. The number and exact location of the ratchet teeth are selected to cooperate with the center piece 12 as described below.

The end 23 of the locking piece 14 preferably has a raised shoulder 24 on its outer surface for use as part of the vise grip used to hold the tube. The inner face of the raised shoulder 24 is formed with two substantially straight edges 26 forming a V. As described below, they aid in holding the tube in place.

The outer face of the tab 15 has a piece of Velcro type material 17, either of the hook or loop type, affixed thereto by any suitable arrangement, for example, heat sealing, adhesive, etc. As explained below, this is used to fasten a strap which secures the holder 10 around the head of the patient.

The center piece 12 is formed of an elongated piece of plastic of the same type as the locking piece 14. In FIGS. 1 and 2 the piece is shown in its semi-folded