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ENDOTRACHEAL INTUBATING STYLET

Filed Nov. 24, 1947

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The present invention relates to a stylet adapted for use with an endotracheal tube or catheter to facilitate insertion of the latter into the trachea.

As endotracheal tubes or catheters are usually made of soft flexible rubber or the like, it is very difficult to direct the same between the vocal chords. In order to effectively overcome this difficulty, I provide an improved stylet adapted to be inserted in the tube to stiffen it and to anteriorly curve and distend its distal end into a laterally flattened cross sectional form substantially resembling the shape of the laryngeal opening. When the tube is thus conditioned, intubation may be accomplished with facility and speed.

To facilitate manipulation of the device during intubation and to fix the tube in proper relation to the stylet regardless of the length of the tube, the stylet includes a relatively long stiff wire or rod having an elongated handle slidably adjustable on its proximal portion. The distal end of the handle is reduced to make a close sliding fit within the proximal end of the tube or within the usual coupling member which may be provided on the proximal end of the tube for use in connecting it to the control valve of apparatus used to supply oxygen or other gas to the lungs through the tube when the latter is inserted into the trachea. This tube or catheter is made of soft flexible rubber or the like, so that without a stylet it is difficult to direct the same between the vocal cords.

In order to facilitate insertion of the tube or catheter, I have provided an improved stylet which includes a relatively long stiff wire or rod 6, the major portion of which is straight, and the remaining distal portion 9 of which is gradually curved anteriorly. The rod 6 is somewhat longer than the longest type of endotracheal tube, and the distal end portion thereof is composed of a pair of forwardly diverging spring arms 10 having intubated free forward ends 11. The arms 10 are normally tensioned to spring apart in such relation that they will flatten the distal portion of the tube 5 when disposed within the same as shown in Figure 2, thereby giving this portion of the tube a cross sectional form substantially resembling the shape of the laryngeal opening. The stylet further includes an elongated handle 12 having an axial bore 13 through which the rod 6 slidably extends. Thus, the handle 12 is slidably adjustable on the proximal portion of the rod 6, and it is provided with a set screw 14 which may be tightened into engagement with the rod 6 to secure the handle in an adjusted position. As seen in Figure 4, the rod 6 is flattened at one side so that when it is impinged by the set screw 14, relative rotation of the rod 6 and handle 12 is prevented. It will be seen that the distal end of handle 12 is reduced to provide a cylindrical portion 15 adapted to make a close sliding fit within the coupling member 7 and thereby effectively connect the proximal end of the tube with the handle so that they will not freely turn relative to each other. The reduced end portion 15 is provided with a tapered extension 16 which gradually reduces in diameter forwardly and acts to guide the coupling member 7 or the end of a tube not provided with such a coupling, onto the reduced end portion 15.

In using the present stylet, the parts thereof are lubricated to facilitate insertion of the same into the tube 6. Such insertion is carried out so that the distal ends 11 of the arms 10 are located a slight distance inwardly of the open distal end of the tube 5 as shown in Figure 2. The handle 12 is then slid forwardly on rod 6 so as to enter the reduced portion 15 of the handle within the coupling 7 as shown. The set screw 14 is then tightened so as to secure the handle in this properly adjusted position, and it will be apparent that the
degree of adjustment of the handle 12 which is necessary will depend upon the particular length of the tube 5 being employed. In Figure 3 the manner in which the arms 10 distend and flatten the distal portion of the tube 5 will be apparent. After externally lubricating the tube 5, the assembly of Figure 2 will be held in one hand by grasping the handle 12 in a manner similar to that in which an ordinary pencil is held while writing. The tube 5, thus conditioned, may then be readily inserted into the trachea, no difficulty being experienced in directing the tube between the vocal chords. When intubation has been properly accomplished, the stylet is withdrawn from the tube, and the latter may then be coupled to the associated apparatus for supplying oxygen or other gas to the lungs through the inserted tube.

It will be understood that changes in the details herein described and illustrated may be made by those skilled in the art without departing from the spirit and scope of the invention as claimed.

Having described the invention, what is claimed as new is:

1. A stylet for an endotracheal tube comprising a stiff elongated rod having an anteriorly curved distal portion, and an elongated axially bored handle slidably adjustable on the proximal portion of said rod and having a reduced distal portion adapted to make a close sliding fit within the proximal end of the tube, the distal portion of the rod being composed of a pair of forwardly diverging spring arms tensioned to spring apart so as to fix and antero-posteriorly distend and laterally flatten the distal portion of the tube into a cross sectional form substantially similar to the shape of the laryngeal opening.

2. The construction defined in claim 1, wherein the rod is flattened at one side, in combination with a set screw carried by the handle and engageable with the flat side of the rod to secure the handle in adjusted position and positively prevent relative rotation of the rod and handle.

CURTIS W. CAINE.

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