

Treatment of acute tracheal obstruction

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In patients with benign or malignant narrowing of the lower trachea the risk of sudden total respiratory obstruction is always present. If this should occur some means of maintaining a patent airway is required until more permanent surgical relief or radiotherapy can be applied (Clagett, Moersch, and Grindlay, 1952 ; Markel and Abell, 1964). The three possible methods are the passage of a bronchoscope or a long endotracheal tube, cervical tracheostomy, and thoracic tracheostomy.

When a thoracic tracheostomy is undesirable or technically impracticable, and because an endotracheal tube can only be left *in situ* for a maximum of 48 hours, the usual procedure in these circumstances is to make a cervical tracheostome and to insert a tracheostomy tube. If, however, the narrowing is in the lower trachea,

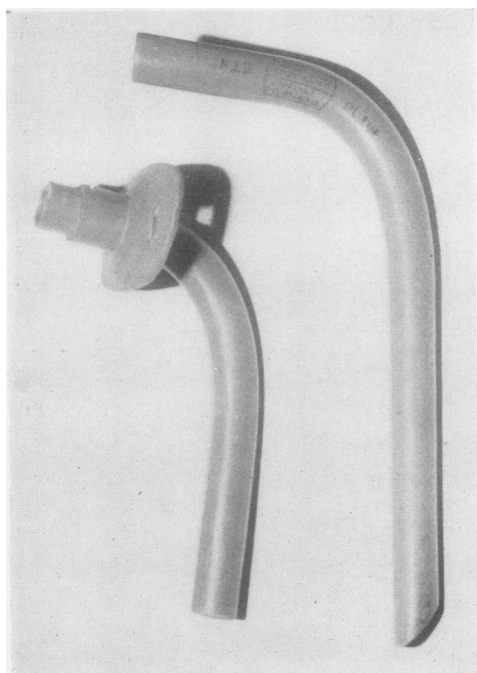


FIG. 1a. An Oxford endotracheal tube (right), and the tube as adapted for tracheostomy (left).

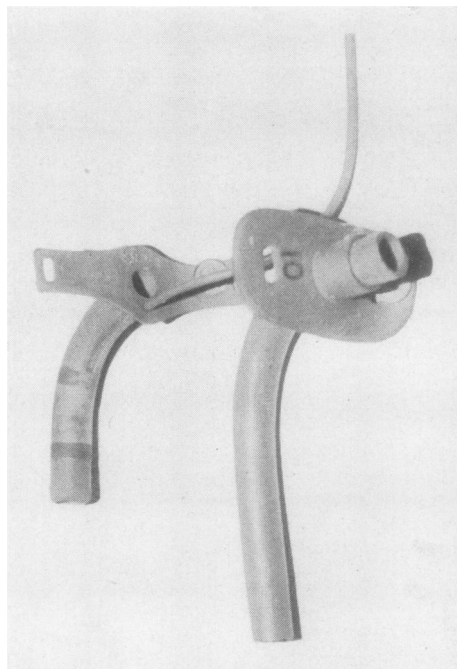


FIG. 1b. An ordinary tracheostomy tube and an adapted Oxford endotracheal tube showing the difference in length.

an ordinary tracheostomy tube is not long enough. To overcome this a Magill endotracheal tube may be passed through the tracheostome until its lower orifice lies near the carina. This tube is liable to kink at the right-angled bend where it enters the trachea.

We have found that the Oxford non-kinking endotracheal tube (Alsop, 1955 ; Duckworth, 1962) provides a solution to both these problems. This tube is constructed so that it has strong walls at its preformed right-angled bend and yet retains a large lumen in its long tracheal part. We have adapted it as follows. The tracheal part was cut so that its lower orifice lay just above the carina, and its length was estimated by passing a small bronchoscope through the tracheostome to the carina and measuring the distance between these

two points. The tube is held in position by stitching a Morant Baker flange to its outer part and fixing the flange with tapes round the neck in the usual way. A silver speaking valve can be inserted into the tube and a hole cut in its laryngeal aspect to allow air to reach the vocal cords.

Figure 1 shows an Oxford tube in its original form and also one which has been adapted. Figure

2 shows the tube in position and the speaking valve can also be seen.

We have used this modification in three patients, each with advanced malignant disease involving the lower trachea. The first patient had a poorly differentiated carcinoma of the trachea. Unfortunately he was unable to tolerate the presence of the tube for more than a few days. The second and third patients were admitted to us unconscious and *in extremis* due to almost total tracheal obstruction. Both recovered rapidly after insertion of the tube and survived for five days and six weeks respectively without any discomfort due to the presence of the tube.

Constant attention must be paid to the effective aspiration of secretions, because these can easily obstruct the lower orifice of the tube.

It is suggested that the use of the tube in this way might be applicable when there is some hope of recovery by means of surgery or radiotherapy, or as a palliative measure in more advanced cases.

We wish to thank Mr. J. R. Belcher for encouraging us in the use of this method.

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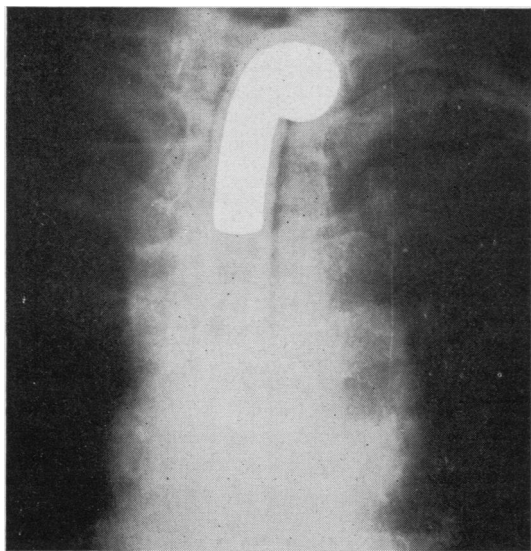


FIG. 2. Chest film showing the adapted tube, fitted with a speaking valve, in position.