

or mediastinal emphysema, which may occur with the catheter. It is probable that a better-humidified oxygen mixture is delivered to the lungs with the cannula, because a greater portion of the natural humidifying mechanisms of the upper airway is bypassed with catheters.

We found a slightly higher  $\text{PaO}_2$  with the catheter than with the cannula. Both, however, gave adequate  $\text{PaO}_2$  values ( $>78$  mm Hg) with a 6 l/min flow. With a 3 l/min flow, there were a few low  $\text{PaO}_2$  measurements (50–70 mm Hg) with both the catheter and the cannula. The nasal cannula, therefore, compares favorably with the nasal catheter as a means of oxygenating patients in the post-operative period. Comfort and con-

venience recommend the cannula in preference to the catheter.

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## A New Laryngoscope Blade Designed to Facilitate Difficult Endotracheal Intubation

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Difficulty with exposure of the glottis in the patient with large, protruding upper incisor teeth who also has a receding lower jaw stimulated a search for an improved laryngoscope blade design. Occasionally it is impossible to elevate the epiglottis in these patients with the conventional straight blade because the upper incisor teeth act as a fulcrum which, together with the limiting element of the receding lower jaw, forces the tip of the blade to make an acute angle with the posterior pharyngeal wall (fig. 1).† Persistence in attempts to elevate the epiglottis in this situation frequently results in damage to the upper incisor teeth because of pressure exerted at the fulcrum point of the straight blade.

It was believed that a blade designed to eliminate contact with the upper incisor teeth and also to have its theoretical fulcrum at a lower point within the pharynx might simplify

elevation of the epiglottis and exposure of the larynx. With this in mind, a new type of laryngoscope blade was developed (figs. 1 and 2).

The blade has two right-angle bends which place the functional portion at a point within the oropharynx while the proximal part need not come in contact with the teeth. Once the glottis is exposed it is necessary to insert the endotracheal tube from the right side of the mouth since the same conditions which prevent exposure of the glottis with a straight blade also prevent the endotracheal tube from being inserted in the midline of the mouth. It may be necessary to prop the mouth open with a bite block and retract the lateral angle of the mouth so as to gain full direct vision of the larynx.

This blade has been used in 12 patients in whom intubation was difficult; in two of these it was impossible to expose the cords with any of the currently available straight blades. Additional experience was gained by using this blade merely to prevent damage to loose or capped teeth. In a few patients in whom

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† The Orr laryngoscope blade is manufactured by Foregger Hospital Equipment, 680 Old Willets Path, Smithtown, N. Y. 11787.

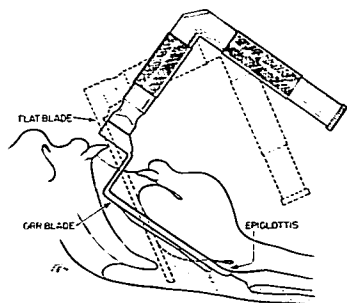


FIG. 1. Orr blade in position.

laryngeal exposure was difficult, a comparison was made between the conventional and the new blades, and exposure seemed to be facilitated with the latter.

The new laryngoscope blade has been made in two lengths, 100 mm and 120 mm, because

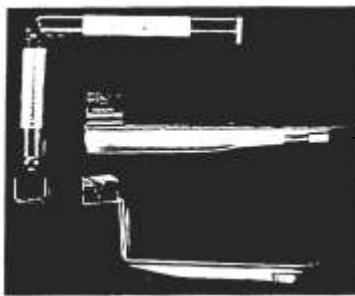


FIG. 2. Conventional and Orr laryngoscope blades.

if it is too long for an individual patient, the tip will probably be in the esophagus, which would prevent its being withdrawn to expose the larynx because of impingement of the upper incisor teeth against the vertical portion. In this circumstance only the shorter blade can be used.

## CASE REPORTS

### Dilatation of the Larynx with Cole Tubes

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Use of the Cole tracheal tube in small infants and children has earned a deserved popularity. In the patient whose airway diameter is of considerable importance, this tube permits the use of tube connectors of generous dimensions. Moreover, intubation of a bronchus is prevented by the tube shoulder resting on the glottis. The following two cases show that if the shoulder of a Cole tube is allowed to press on the glottis for a prolonged period it will have pressure effects which may be dangerous.

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#### CASE REPORTS

Two female infants were admitted on the same day with signs of tetanus neonatorum. One was seven days and the other eight days old; both had been normal full-term babies who had flourished for the first few days of life until pharyngeal spasm and generalized muscular rigidity began to appear. During the 36 hours after admission control of muscle spasms was sought, using large doses of diazepam and small doses of barbiturate, but in both infants control was short-lived, indicating that the toxemia had worsened and management by conservative means was unlikely to succeed.

A regime of muscle paralysis and mechanical ventilation was started in each infant. To maintain an airway in such cases it had been our practice to use simple Portex tracheal tubes inserted through the mouth or nose. However, because of difficulty in securing these tubes, and the telescoping effect which occurs when the infant's