OXYGEN-POWERED LARYNGOTRACHEAL SPRAYS

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SUMMARY

The aperture type of trigger mechanism for oxygen-powered endotracheal sprays can be adapted to suit any model of laryngotracheal spray. Three examples are described.

Any laryngotracheal spray can be worked off the oxygen supply, but remote control is inconvenient and it is preferable to have some form of trigger mechanism on the spray itself. Blayney (1954) attached a blow-gun to a Rowbotham spray in place of the hand bulb. A lighter and simpler model was described two years later by Kennedy (1956), who replaced the blow-gun with a straight metal connection containing an aperture drilled in its superior surface. The trigger mechanism was occlusion of this aperture with the forefinger. A third type, the Oxycaine spray, was produced commercially, but was bulky, awkward to operate and unreliable.

The aperture type of trigger suggested by Kennedy is both simple and effective and can be adapted to any type of spray. With the Macintosh type all that is needed is to attach a small Ayre's T-piece by rubber tubing in place of the bulb (fig. 1, No. 3). A more sophisticated handle, designed to fit those Macintosh sprays in which the bulb is attached by a screw fitting instead of a bulbous nipple, is also shown (fig. 1, No. 2). The projection marked by an arrow is a blind one and is placed between the middle and forefingers to prevent rotation of the handle and thus facilitate control, the trigger being operated by the thumb. The third spray shown (fig. 1, No. 1) is a Multicaine in which a Perspex handle with the usual aperture has been made to replace the bulb.

All these sprays will work through a Williams cuff inflator, but a simple on-and-off switch on the oxygen supply, such as that provided with the Oxycaine spray, is preferable.

Overdose. With the sprays illustrated, the capacity of the anaesthetic solution containers is 4 ml or less. As the atomization is efficient and fine droplets may be carried well down the trachea, the accepted safe dosage of the agent in the concentration chosen should never be exceeded.

A theoretical disadvantage of using a power drive with the Macintosh spray is that an increase in the driving pressure could increase the liability of the plastic nozzle to become detached and blown into the larynx or trachea. This accident has occurred three times in this hospital during...
the last ten years, but in each case the standard hand-operated type was being used. It has not occurred with the power-operated types, which have been in use for over three years.

Connecting the two types to an electronic pressure transducer showed that the maximum pressure attainable at the external end of the nozzle was slightly higher with the oxygen-powered model, but that the swings of pressure were far less violent, even when it was being used in short intermittent bursts. This suggests that it may well be safer than the hand-operated type in this respect.

REFERENCES


SPRAYS LARYNGO-TRACHEAUX ACTIONNÉS PAR L'OXYGÈNE

SOMMAIRE
Le détendeur à poussoir pour sprays endotrachéaux actionnés par l'oxygène peut être adapté à tout modèle de spray endotrachéal. Trois exemples sont décrits.

SAUERSTOFFBETRIEBENE LARYNGOTRACHEAL-SPRAYS

ZUSAMMENFASSUNG
Der Öffnungstyp des Auslösungsmechanismus für sauerstoffbetriebene Endotracheal-Sprays kann jedem Modell eines Laryngotracheal-Sprays angepaßt werden. Es werden drei Beispiele beschrieben.

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