

TITLE : RETROGRADE TRACHEAL INTUBATION IN TRAUMA PATIENTS

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INTRODUCTION Tracheal intubation in trauma patients who are unconscious or who experience respiratory distress is a fundamental factor in successful resuscitation. Among the various procedures which have been described for difficult intubations, the use of fiberoptic bronchoscope has provided a major advance in difficult intubation in the operating room. Nevertheless, at the accident scene, fiberoptic bronchoscope is not available to emergency physicians, and difficulty in identifying the structures and secretions or blood obscuring the field of vision frequently occur in the trauma patient. The retrograde technique has been described as easy and safe, with a high success rate, while requiring no complex equipment (1). However, this technique has not been reported in trauma patients. This prospective study was undertaken to assess the retrograde technique for difficult tracheal intubation in trauma patients.

METHODS : During a 18-month period, in a mobile emergency care unit, 19 patients were intubated using the retrograde technique by physicians trained to emergency medicine. Criteria for inclusion were : 1) indication of tracheal intubation because of unconsciousness, respiratory distress, or upper airway obstruction ; 2) failure of conventional technique of tracheal intubation, including blind intubation. Nevertheless during the last 6 months, retrograde technique has been first attempted when failure of conventional techniques have been anticipated. The duration of tracheal intubation attempts was recorded. Complications induced by retrograde technique were noted. The technique of retrograde intubation was as following : after disinfection of the skin with povidone-iodine, lidocaine hydrochloride 1% was injected percutaneously through the cricothyroid membrane (2ml), and into the trachea (2ml), then sprayed in the pharynx. A needle was inserted into the trachea, and a guide (Seldinger wire or central venous catheter) was directed in a cephalad direction and delivered through the mouth. An endotracheal tube was placed over the guide and advanced into the trachea, the guide being tracted. Then, the guide was removed.

RESULTS : 12 patients had maxillofacial trauma, 2 had a cervical spine fracture with quadriparesia, and 5 had both, maxillofacial trauma and cervical spine fracture with quadriparesia, which were responsible for difficult intubation.

The first 13 patients experienced failure of conventional techniques (duration : 15 to 20 min). In 6 patients, nasal intubation was judged too dangerous because of nasal CSF leak, flattening of the mid-third of the face, or probable orbital fracture. Retrograde technique was successful with a duration < 5 min in these 13 patients.

The last 6 patients experienced retrograde technique first because difficulties in conventional techniques were anticipated. All 6 patients were intubated within 5 min.

Retrograde technique induced no serious complication in the 19 patients ; minor bleeding at the puncture site occurred in 3 cases. In patients with severe maxillofacial trauma related to gun shot, the use of a central venous catheter as a wire for retrograde technique was appreciated, because it allowed air injection through the catheter to locate it in the mouth.

CONCLUSION : The retrograde technique for tracheal intubation is a safe and rapid technique in trauma patients. This study corroborates previous results of retrograde intubation in non-trauma patients concerning the high success rate and the lack of serious complication (1,2). It is easy to learn and should be developed for prehospital care of trauma patients, especially in cases of maxillofacial trauma and fracture of cervical spine. The use of a central venous catheter as a wire in cases of maxillofacial trauma is preferable.

REFERENCES

1. LATTO IP, ROSEN M : Difficulties in tracheal intubation. BAILLERE TINDALL, London 1985.
2. AKINYEMI OO : Complications of guided blind endotracheal intubation. Anaesthesia 1979, 34 : 590-592.