

Airway Management Through Quick Tracheostomy in Large Burn Intended for Helicopter-Ambulance Transfer

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ABSTRACT

Catanzaro, Italy: Adult man, large burned and in a coma, is initially rescued through placement of the Laryngeal Mask (LMA). The patient, who was transferred by the ambulance at hub hospital, underwent an emergency tracheostomy. This made it possible to better manage the airways during the subsequent transfer of helicopter ambulances to the available large burns centers. This is the first regionally documented case of a patient undergoing rapid tracheostomy with a view to an imminent heliambulance transfer.

Quick Tracheostomy: Among the techniques of percutaneous tracheostomy (and among these we remember the most widespread techniques: according to Griggs and according to Ciaglia1 Blue Rhino, suitable for the patient in intensive care who needs long-term ventilation), rapid tracheostomy is certainly the best approach to immediately and safely manage the respiratory tract in critical patients in emergency conditions. It consists of quickly introducing a small caliber cannula into the tracheal space. To this end, it is necessary for the operator to know with extreme confidence the anatomical recovery of the neck region corresponding to the structures of the larynx and trachea. It is essential to identify on the anterior region of the neck of the crania-caudal thyroid cartilage with its upper and lower margins, below this, the thyroid space and the cricoid, finally the first and second tracheal ring. The cannula used in this case is mounted on a spindle needle at the end of which a syringe connects. The technique consists in the puncture, by the spindle needle, of the skin centrally in the crick-thyroid space or under the lower edge of the cricoid cartilage, between this and the first tracheal ring or between the first and second ring once detected at the digit pressure. Once you have crossed the layer of the skin with the spindle of the needle, proceed until air is sucked through the connected syringe, a sign indicating the entry into the tracheal light. At this point, the cannula slips along the spindle inside the trachea.

Presentation of the patient: November 2019: A 58-year-old man sets himself on fire through gasoline inside the city cemetery. The patient was rescued by the medical staff of 118 of the HEMS base in Loci (Calabria, Italy) who provided the positioning of LMA for rapid airway management; then he was transported to the Hub Hospital in Catanzaro during clinical stabilization and in anticipation of possible transfer to the nearest burns center. The patient, suffering from severe obesity, presented our observation with a state of GCS 3 coma with widespread stiffness, reporting severe burns⁴ of the 3rd and 4th in about 95% of the body surface, with evident widespread edema, especially on the region of the face. He was assisted by Maple son circuit connected with LMA in 100% O₂; for monitoring the parameters were as follows: NIBP 95/50 mmHg, c.f. 120 bpm, SpO₂ 92%. Given the high risk of LMA dislocation due to massive edema, particularly evident in the labial region, and the high predictive index of

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difficult intubation, it would have been rather imprudent to remove the LMA to proceed with or tracheal intubation. Therefore, to ensure access to the airways and the subsequent transport of the patient with heliambulance to the center with large burns, it was decided to proceed with an emergency tracheostomy by an emergency tracheostomy device with cannula n°4.0 without cuff. The burnouse skin in the crick-thyroid region was of hard wooden consistency, while, below the lower margin of the cricoid region, the skin was relatively more elastic.

Keywords: Large burn; Quick tracheostomy; Helicopter-ambulance

INTRODUCTION

Emergency tracheostomy device, quick cannula n 4.0 i.d.; Mapleson circuit; mechanical ventilator; triangular-tipped scalpels; Catheter-mount; Optical fibroscope; Central venous catheter Fr; Lidocaine 2%; Chlorhexidine 2%; sterile sheets; sterile gauzes.

The patient was arranged with a hyper-extended head, as far as possible given the cervical stiffness, and after the preparation of the operating field by disinfection with chlorhexidine and infiltration of the affected area with lidocaine 2%, outlining the anatomical finding points, the spindle needle embedded in the cannula was introduced, along the sagittal plane and perpendicular to the skin, below 0.5cm from the lower cricoid margin; once certain to be inside the trachea by air extraction technique through the attached syringe pre-filled with water, the needle-cannula was proceeded to the safety stopper, removed which, the tracheostomy cannula flowed in a crania-caudal direction, along the appropriate spindle needle, inside the tracheal lumen [1]. After microscopic control and securing the flanges with tube ties, the cannula was connected with catheter mount to a mechanical ventilation set in VCV mode with the following parameters: PEEP 6 cmH₂O, VTi 600ml, RFi 15apm, FiO₂ 60%. LMA is left *in situ*. During mechanical ventilation, due to the absence of cannula's cuff, the difference between VTi and VTe was about 100 ml [2,3]. There was a rapid rise of Spo₂ to 99% and relative hemodynamic stability. After placing a central venous access in the right internal jugular vein by ultrasound guide, the physiological solution was infused 0.9% to 250ml/h; they were were applied to the front surface of the body gauze soaked in chlorhexidine 2%. Meanwhile, the patient was transferred by heliambulance to the Burns Center of the Sant'Eugenio Hospital in Rome [4]. The patient was transferred to the heliport near the nosology and, after transshipment by helicopter, continued mechanical ventilation with the parameters previously set. During flight, it was necessary to use continuous i.v infusion of Noradrenaline at 0.05mcg/Kg/min to support hemodynamic stability [5]. The transfer was successful, despite the patient's extremely critical condition [6].

DISCUSSION

In this case, the LMA could not constitute a stable garrison due to the progressive increase in edema of the mucous membranes,

which would certainly lead to its dislocation. In addition, predictive indices of difficult intubation have led operators to opt for a quick and secure solution at the same time. This solution could only be the rapid tracheostomy with a small caliber cannula that guaranteed immediate access to the trachea and optimal ventilation management in the following moments, especially in view of the immediate transfer to heliambulance. The presence of tracheostomy has proved crucial especially in the helicopter flight phase, where the clinical stability of the patient is fundamental to minimize any type of intervention in a very limited space such as the cockpit of an AW 109 model helicopter, the vehicle through which the patient was transported. Mechanical ventilation through the cannula without cuff, although of small caliber, proved optimal during all phases of transport, with a tidal volume around 450-550ml and peak pressure not exceeding 24 cmH₂O. This allowed the maintenance of vital parameters within physiological limits, although supported by the continuous infusion of noradrenaline.

CONCLUSION

Given the patient's very serious clinical condition, to ensure better management of the respiratory tract, a net of the precarious stability of the vital parameters, the timely use of quick tracheostomy has proved to be of vital importance for the correct clinical management without complications⁵ during the transfer to heliambulance, while ensuring the success of the entire operation.

REFERENCES

1. Minuto A, Besozzi M. Dilated percutaneous tracheostomy according to Ciaglia in intensive care Perioperative complications and remote outcomes. Bertolini P, Spanu G. Iapichino. Minerva Anesthesiology.
2. Percutaneous and surgical tracheostomy.
3. Quick Response Tracheotomy: A Novel Surgical Procedure, Graeme A Browne
4. Kamolz LP, Parvizi D, Giretzlehner M. Burn surface area calculation: What do we need in future.
5. A new nomogram to predict the need for tracheostomy in burned patients, Affiliations expand.