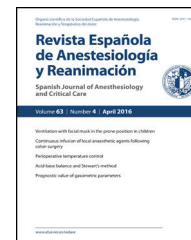




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LETTER TO THE DIRECTOR

Hybrid tracheotomy. A valid alternative for obese critical patients COVID-19[☆]



Traqueotomía híbrida. Una alternativa válida para pacientes críticos obesos COVID-19

COVID-19 has sparked a global health crisis that will mark an era. Following its appearance in China a few months ago, the coronavirus has spread across all continents, affecting thousands of people in Europe and the United States. The outbreak of the pandemic in Spain compelled the government to declare a state of alarm in March 2020; the number of new cases is now decreasing, but new outbreaks or new lockdown measures cannot be ruled out. Around 10%–15% of hospitalised patients have been admitted to critical care units, where the most serious cases undergo prolonged intubation that require tracheotomy after a few weeks due to the risk of subglottic stenosis and to improve patient well-being.

The special characteristics of COVID-19 patients transform a standard procedure such tracheostomy into a critical situation where simply moving the patient can produce acute decompensation and rapid desaturation. That is why it is probably best to perform the tracheostomy in the intensive care unit (ICU) itself, and in that setting it is best to perform percutaneous tracheostomy.^{1,2}

Surgical and percutaneous tracheostomies are routinely used in clinical practice, but the best tracheostomy procedure for critically ill patients with COVID-19 has not yet been evaluated. Some studies show a higher rate of mortality in surgical tracheostomies performed in the operating room, but not specifically in these patients, and the protocols published by health authorities and medical societies disagree on the question of where the tracheostomy should be performed.^{3,4}

We present the first case described in the literature of a hybrid tracheostomy in an obese COVID-19 patient during this pandemic. This was a 60-year-old male patient weighing

95 kg with a history of type I diabetes mellitus and dyslipidaemia under treatment. He presented onset of symptoms consisting of fever, dyspnoea, dry cough and myalgia. Four days later his condition worsened, and he was admitted to our hospital. Two days after admission, due the worsening of bilateral pneumonia, he required orotracheal intubation and mechanical ventilation in the ICU. A tracheostomy was required 3 weeks after the onset of symptoms. Given the instability of the patient and his tendency to desaturate rapidly when moved, and even when trying to transfer his bed to the surgical area, it was decided to perform a percutaneous tracheostomy. However, given the characteristics of the patient's neck (obese with a short wide neck), a hybrid tracheostomy was chosen.

The bed was placed in a slight anti-Trendelenburg position, placing the pillow under the shoulders to achieve greater neck extension. The tubes and nasogastric tube were repositioned to keep the field free and allow access to the orotracheal tube and facilitate removal. A surgeon stood on each side of the patient and the critical care specialist at the head of the bed. The use of electrical cutting and coagulation systems was avoided, since they could spread particulate matter and produce vaporization. The patient was preoxygenated and in order to avoid coughing and aerosolization muscle relaxants were administered for complete relaxation throughout the procedure, and particularly during removal of the orotracheal tube and insertion of the cannula.

A 1.5–2 cm vertical incision was made in the midline below the cricoid cartilage towards the jugulum, the subcutaneous tissue was separated using blunt dissection techniques and dissection scissors or mosquito forceps and swab until the infrahyoid musculature was identified. The median raphe and the sternohyoid muscles were identified, separated and pulled to the side using a Farabeuf retractor, thus exposing the thyroid gland. After identifying the thyroid isthmus, it was pulled caudally with another retractor until the first and second tracheal rings were exposed. Finally, to avoid traumatic opening of the trachea, the standard percutaneous technique was performed directly in the exposed trachea, avoiding cutting or opening the standard window in the tracheal rings. After inserting the needle into the trachea, followed by the guide wire and successive dilations, the cannula was placed after stopping the ventilator. In our case, we decided against using a fiberoptic bronchoscope in order to avoid exposing others to potential viral infection, because in our experience it increases the number of inter-

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mediate steps and the duration of the procedure, although it does not increase the risk of complications; however, the use of this instrument is not totally contraindicated.

Hybrid tracheostomy is a mixture of percutaneous and surgical tracheostomy. It facilitates identification of anatomical tracheal landmarks in unfavourable necks, even in obese patients who probably require longer cannulas when performing an open dissection to expose the tracheal rings. At this point, the tracheal tube is inserted using the percutaneous kit under direct vision. This allows clinicians to perform the procedure in the critical care unit without moving the patient to another bed.⁵ Although obesity is not currently an absolute contraindication for performing percutaneous tracheostomy, certain precautions must be taken in obese patients. There are few studies comparing the safety of the percutaneous technique in obese patients.

Age, male sex, and the existence of comorbidities (ischaemic heart disease, atrial fibrillation, stroke, COPD, hypertension, diabetes, active cancer in the previous 5 years, chronic liver disease, chronic kidney disease) are risk factors for mortality in these COVID-19 patients. A common condition in these patients is obesity, and percutaneous tracheostomy is difficult in obese patients.

Our report shows that hybrid tracheostomy can be performed in certain COVID-19 patients, i.e., those who are obese, with wide, short necks, in whom transfer to the operating room would be contraindicated due to their unstable situation. Therefore, it can be considered a safe and effective option in new coronavirus outbreaks.

References

1. Meng L, Qiu H, Wan L, Ai Y, Xue Z, Guo Q, et al. Intubation and ventilation amid the COVID-19 outbreak: Wuhan's experience. *Anesthesiology*. 2020;10, <http://dx.doi.org/10.1097/ALN.0000000000003296>.
 2. Takhar A, Walker A, Tricklebank S, Wyncoll D, Hart N, Jacob T, et al. Recommendation of a practical guideline for safe tracheostomy during the COVID-19 pandemic. *Eur Arch Otorhinolaryngol*. 2020;21, <http://dx.doi.org/10.1007/s00405-020-05993-x>.
 3. Brass P, Hellmich M, Ladra A, Ladra J, Wrzosek A. Percutaneous techniques versus surgical techniques for tracheostomy. *Cochrane Database Syst Rev*. 2016;7:CD008045, <http://dx.doi.org/10.1002/14651858.CD008045.pub2>. Published 2016 Jul 20.
 4. Mecham JC, Thomas OJ, Pirgousis P, Janus JR. Utility of tracheostomy in patients with COVID-19 and other special considerations. *Laryngoscope*. 2020, <http://dx.doi.org/10.1002/lary.28734>.
 5. Molardi A, Benassi F, Manca T, Ramelli A, Vezzani A, Nicolini, et al. Parma tracheostomy technique: a hybrid approach to tracheostomy between classical surgical and percutaneous tracheostomies. *J Thorac Dis*. 2016;8:3633–8, <http://dx.doi.org/10.21037/jtd.2016.12.100>.
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1. Meng L, Qiu H, Wan L, Ai Y, Xue Z, Guo Q, et al. Intubation and ventilation amid the COVID-19 outbreak: