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SPECIAL ARTICLE

Recommendations of the Spanish Society of Otolaryngology and Head and Neck Surgery for Performing Tracheotomies in Patients Infected by the Coronavirus, Covid-19☆

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KEYWORDS
Coronavirus;
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Abstract The recent COVID-19 (coronavirus) pandemic is causing an increase in the number of patients who, due to their pulmonary ventilatory status, may require orotracheal intubation. COVID-19 infection has demonstrated a high rate of transmissibility, especially via the respiratory tract and by droplet spread. The Spanish Society of Otolaryngology and Head and Neck Surgery, based on the article by Wei et al. (2003) regarding tracheotomies performed due to severe acute respiratory syndrome (SARS), has made a series of recommendations for the safe performance of tracheotomies.
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PALABRAS CLAVE
Coronavirus;
Traqueotomía

Recomendaciones de la Sociedad Española de Otorrinolaringología y Cirugía de Cabeza y Cuello para la realización de traqueotomías en relación con pacientes infectados por coronavirus COVID-19

Resumen La reciente pandemia por coronavirus COVID-19 está incrementando el número de pacientes que, debido a su situación ventilatoria pulmonar, pueden requerir de intubación

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orotraqueal. La infección por coronavirus COVID-19 ha demostrado una alta tasa de transmisibilidad, sobre todo por vía respiratoria y por dispersión de microgotas. La Sociedad Española de Otorrinolaringología y Cirugía de Cabeza y Cuello, basándose en el artículo de Wei et al. de 2003 en relación con las traqueotomías realizadas por el síndrome respiratorio agudo grave (SARS), realiza una serie de recomendaciones para la realización segura de las traqueotomías.
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The recent COVID-19 coronavirus pandemic is increasing the number of patients who, due to their pulmonary ventilatory status, may require orotracheal intubation. COVID-19 coronavirus infection has demonstrated a high rate of transmissibility, especially through the respiratory tract and by droplet spread. Based on the 2003 article by Wei et al., in relation to tracheotomies performed for severe acute respiratory syndrome,[1] the Spanish Society of Otolaryngology and Head and Neck Surgery proposes the following recommendations.

General Recommendations

1. Use of standard surgical material for tracheotomy.
2. As far as possible, avoid electrical or ultrasonic cutting and coagulation systems or any system that can spread aerial macroparticles. Preferably use cold material and conventional haemostasis systems.
3. Use closed circuit suction systems with anti-viral filters.
4. Perform the tracheotomy in the operating theatre or isolated intensive care room and, if possible, with a negative pressure system.
5. Have the minimum number of personnel present during the technique.
6. Have the tracheotomy performed by the most experienced personnel, over the shortest time possible
7. Use the appropriate protective measures (according to the regulations of the preventive medicine service of each centre): personal protective equipment, gown, cap and disposable and waterproof shoe covers. Disposable, plastic and waterproof full-screen eye and face protection. N95 protection mask (FFP2 or FFP3). Preferably use double surgical gloves.

Recommendations for Elective Tracheotomy (Intubated Patient)

Prolonged intubation is a frequent indication for tracheotomy, which in many cases is the responsibility of ENT services.

1. Consider the general recommendations as described in the first section.
2. Establish adequate preoxygenation for the patient (100% oxygen over 5 min).
3. Full muscle relaxation of the patient throughout the procedure and especially when intubation and cannulation are removed, to prevent coughing and aerosolisation.
4. Before starting the technique, proceed with the withdrawal of mechanical ventilation.
5. Perform the tracheotomy, withdraw the endotracheal intubation tube until possible to place the balloon cannula, inflate the balloon.
6. Connect the ventilator; when correct ventilation has been verified, remove the endotracheal tube and attach the tracheotomy cannula.
7. Collect all the tracheotomy material.
8. Remove all protective equipment from the surgeon in the operating theatre or room according to the regulations in force.
9. Exit the operating theatre or room according to the regulations.

Recommendations for Emergency Tracheotomy (Non-intubated Patient)

On occasion, depending on whether the patient's ventilation has deteriorated, an emergency tracheotomy may be required in patients who have not been intubated beforehand. In these cases, it a cricothyroidotomy using a predesigned set may be necessary. Because it is performed under unsuitable conditions, emergency tracheotomy should be avoided as far as possible. Intensive or emergency departments are advised to give advance notice to the ENT department of any difficult intubation that could require access to the airway by tracheotomy or cricothyroidotomy.

1. Consider the general recommendations as described in the first section.
2. Establish adequate preoxygenation for the patient (100% oxygen for 5 min).
3. Full muscle relaxation to avoid patient movement and coughing.
4. If a tracheotomy is not possible, perform a cricothyroidotomy according to technique.
5. Place the tracheotomy cannula and inflate the balloon.
6. Connect the mechanical ventilator and proceed to stabilise the patient.
7. Attach the cannula.
8. If a cricothyroidotomy has been performed, once the patient has been stabilised, perform a regu-

lated tracheotomy using a different incision. Close the cricothyroidotomy incision after removing the cricothyroidotomy cannula and placing the cannula in the tracheotomy.
9. Connect the mechanical ventilator and check the patient's ventilation.
10. Collect all the tracheotomy material.
11. Remove all protective equipment from the surgeon in the operating theatre or room according to the regulations in force.
12. Exit the operating theatre or room according to the regulations.

Conflict of Interests

The authors have no conflict of interests to declare.

Reference

1. Wei WI, Tuen HH, Ng RW, Lam LK. Safe tracheostomy for patients with severe acute respiratory syndrome. Laryngoscope. 2003;113:1777–9.