ARTICLE IN PRESS

Revista Colombiana de Anestesiología
Colombian Journal of Anesthesiology

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Case report

Prophylactic percutaneous dilatational cricothyrotomy, prior to surgical tracheostomy: Case report☆

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ARTICLE INFO

Article history:
Received 31 May 2015
Accepted 5 February 2016
Available online xxx

Keywords:
Tracheostomy
Airway management
Airway obstruction, Anesthesia, general
Case report

ABSTRACT

Introduction: Percutaneous dilational cricothyrotomy is considered a quick technique to access the airway during urgent situations, especially "cannot intubate/cannot ventilate" scenarios; nevertheless it can also constitute a technique to temporarily and preventative secure the airway in cases of glotic or supraglotic obstruction, in patients in whom interventions of the obstructive lesion or definitive procedures for airway control will be done.

Clinical case: This is a report of a 90 year old patient with symptoms of dyspnea and dysphagia, with a multilobar, friable lesion, with areas of necrosis, suggestive of carcinoma, with involvement of left vallecula, epiglottis and glotis, with 90% occupation of the latter. It is decided to make an urgent tracheostomy. At the time of surgery, in the face of the imminent risk of obstruction, loss of the airway patency and death during the surgical intervention, it was decided to make a percutaneous cricothyrotomy previous to the tracheostomy. There were no complications associated with the airway neither during the procedure nor in the perioperative period.

Conclusion: Percutaneous dilational cricothyrotomy is a quick procedure and can become a valuable tool in securing the airway in cases of critical supraglottic obstruction in patients who will be taken to surgery and carry a risk of loss of permeability of the airway; in this article we make a report of a successful case of it utilization and we review the available evidence on the preventive use of cricothyrotomy and the outcomes in this context.

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☆ Please cite this article as: Medina-Ramírez S, Posada-Upegui JC, Hoyos-Fajardo LM, Avendaño-Quintero D. Realización de cricotiroidotomía percutánea por dilatación de manera profiláctica, previa a traqueostomía quirúrgica: reporte de un caso. Rev Colomb Anestesiol. 2016. http://dx.doi.org/10.1016/j.rca.2016.02.014

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Realización de cricotiroidotomía percutánea por dilatación de manera profiláctica, previa a traqueostomía quirúrgica: reporte de un caso

Palabras clave:
Traqueostomía
Manejo de la vía aérea
Obstrucción de las vías aéreas
Anestesia general
Informes de casos

RESUMEN

Introducción: La cricotiroidotomía percutánea por dilatación es considerada una técnica de acceso rápido a la vía aérea en situaciones emergentes, principalmente en situaciones de "no intubación/no ventilación", sin embargo también puede constituir una técnica para asegurar de manera preventiva y temporal la vía aérea en casos de obstrucción de la misma a nivel glótico o supraglótico, en pacientes a quienes se realizarán intervenciones de la lesión obstructiva o procedimientos definitivos para control de la vía aérea.
Caso clínico: Se presenta el caso de una paciente de 90 años con cuadro de disnea y disfagia, con una lesión tumoral multilobular friable y con áreas de necrosis, sugestiva de carcinoma, con compromiso de vallécula izquierda, epiglotis y glotis, con ocupación del 90% de ésta última. Se programa para traqueostomía urgente y ante el riesgo inminente de obstrucción, pérdida de la vía aérea y muerte durante la intervención quirúrgica, se decidió realizar una cricotiroidotomía percutánea previa a la traqueostomía. No hubo complicaciones relacionadas con la vía aérea durante el procedimiento ni en el transoperatorio.
Conclusión: La cricotiroidotomía percutánea por dilatación es un procedimiento rápido y puede ser una herramienta valiosa para asegurar la vía aérea en casos de obstrucción crítica supraglótica en pacientes que serán llevados a intervención quirúrgica y tienen riesgo de pérdida de la permeabilidad de la misma, en este artículo se reporta un caso exitoso de su utilización y se revisa la evidencia existente sobre el uso preventivo de la cricotiroidotomía y los desenlaces obtenidos en este contexto.
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Introduction

According to ASA's Closed Claims Project, adverse outcomes related to respiratory events are one of the main causes of "anesthesia-related lesions". There were three mechanisms accounting for most respiratory adverse events: difficult intubation (23%), inadequate ventilation (22%) and esophageal intubation (13%).[1] The analysis of claims against the UK National Health System between 1995 and 2007 showed that 12% of the anesthesia-related claims were due to airway (AW) problems or breathing, accounting for 53% of fatalities during this period of time.[2] There are three potential scenarios when managing the airway: the first is that the AW is easily controlled using facemask ventilation, but tracheal intubation fails; the second scenario is less frequent because the patient cannot be ventilated using a facemask, but can be successfully intubated; the third case is cannot intubate – cannot ventilate and hence is a real problem. According to the literature, between 0.05 and 0.35% of patients belong in this latter category.[3] So in the cannot intubate – cannot ventilate situation, percutaneous cricothyrotomy is the technique of choice suggested under the difficult airway algorithms, based on the fact that it may be easily and quickly done. However, cricothyrotomy may also be used as a technique to preventively and temporarily secure the airway in case of glottic or supraglottic obstruction, in patients undergoing obstructive lesion procedures or definite procedures for airway control.

Clinical case

90-year old female patient, housewife, admitted to the San Vicente Foundation University Hospital because of a 20-day course of asthenia, subjective fever, progressive dysphagia for liquids and solids, dyspnea, coughing with greenish expectoration and 24 kg loss of body weight in the last 4 months. The patient's upper GI tract endoscopy report describes an oropharyngeal tumor lesion suggestive of carcinoma. The patient has a history of heavy smoking and COPD with no spirometric classification, ipratropium, bromide, beclometasone and salbutamol treatment; 92% environment oxygen saturation on admission. Paraclinical tests on admission: CBC, glucose, renal function, ionogram, TTP, TP and INR within the normal range. The neck CT reported a large heterogeneous mass involving the left supraglottic region, extending into the midline and with involvement of the aryepoglottic folds, significantly obliterating the airway lumen.

The physical examination shows a patient without respiratory distress, desaturation or stridor; however, the patient is dysphonic, partially edentulous with the remaining teeth in poor condition, no trismus or mouth opening limitation, Mallampati III.

The patient was admitted for endoscopic gastrostomy; additionally, the ENT team did indirect laryngoscopy, visualizing a 70% airway obstruction leading to the need of tracheostomy that the patient refused. Then the decision was made to do a fibrolaryngoscopy for proper lesion characterization. The procedure was done the next day and identified a friable multilobular tumor lesion, with some bleeding – prone areas and other necrotic segments occupying the left vallecula and obstructing 90% of the area, mostly on the left side and blocking the view of the epiglottis. The glottis is 90% occupied by the tumor lesion, with evidence of adequate mobilization of the right vocal fold. This findings point to the impending risk of an upper airway obstruction so the patient is again educated again about the risks of not doing

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