



Lidocaine Spray-Induced Laryngospasm: A Case Report

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ABSTRACT

Laryngospasm is a common complication, particularly in children, that can be seen during tracheal intubation and extubation when applying general anesthesia. Intravenous or topical lidocaine is administered during general anesthesia or before extubation in order to prevent this. This report discusses an infant case of lidocaine spray-induced laryngospasm. It should not be forgotten that laryngospasm may be encountered in emergency departments, where sedo-analgesia is often applied, and physicians must be aware of the treatment to be administered.

Keywords: Lidocaine, laryngospasm, children

ÖZ

Lidokain Spreye Bağlı Laringospazm: Olgu Sunumu

Laringospazm, genel anestezi uygulanırken trakeal entübasyon ve ekstübasyon sırasında görülebilen, özellikle çocuklarda sık rastlanılan bir komplikasyondur. Laringospazmı önlemek amaçlı genel anestezi sırasında ya da ekstübasyondan önce intravenöz veya topikal lidokain uygulamaları yapılmaktadır. Bu olgu sunumunda, lidokain spreye bağlı laringospazm gelişen infant olgu tartışıldı. Sedo-analjezinin sık uygulandığı acil servislerde de laringospazmı karşılaşılabileceği unutulmamalı, uygulanması gereken tedavi bilinmelidir.

Anahtar Kelimeler: Lidokain, laringospazm, çocuk

INTRODUCTION

Laryngospasm is a common complication, particularly in children, that can be seen during tracheal intubation and extubation when applying general anesthesia (1). Intravenous or topical lidocaine is administered during general anesthesia or before extubation in order to prevent this (2). While some studies suggest that lidocaine administration prevents laryngospasm, cough and agitation in children (3), others report that it confers no benefit and even increases perioperative airway complications (4). This report discusses an infant case of lidocaine spray-induced laryngospasm.

Case

A 2-month-old male patient with no known disease presented to the Ear Nose and Throat (ENT) Department for surgery due to frenulum in the tongue. Vemcaine spray (lidocaine 10%) was applied to the oropharynx as a local anesthetic before surgery. Sudden onset stridor developed during surgery, and the patient was brought to our pediatric emergency department. The patient had cyanotic appearance, and tachypnea, tachycardia and marked stridor were present. Vital signs were as follows: temperature 36.5°C, heart rate 160/min, respiration 60/min, and blood pressure 90/50 mmHg. Blood gas values were pH: 7.38, PaO₂: 147 mmHg, PaCO₂: 29 mmHg, HCO₃: 18.7 mmol/L, and

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BE:-7.1. Open airway was established and oxygen was started by mask with a reservoir bag. Dexamethasone at 0.5 mg/kg and 1 mg nebulize epinephrine were administered on suspicion of airway edema. Antihistaminic therapy at 1 mg/kg was given for the drug reaction. The stridor resolved entirely, and tachypnea and tachycardia improved. PA chest x-ray was normal. The ENT physician was consulted, and endoscopic examination was performed. The larynx was normal, the vocal cords were mobile, the arytenoids were normal, no edema was observed, passage openness was normal, and no ENT pathology was suspected. Laryngospasm was thought to have developed. The patient's vital signs were stable at follow-up and no additional problem occurred. The patient was discharged with recommendations in a healthy condition.

DISCUSSION

Laryngospasm is defined as sudden closure of the glottis in association with reflex contraction of the laryngeal muscles. Partial or complete obstruction may develop, and the condition may result in hypoxia, bradycardia and even cardiopulmonary arrest. Laryngospasm may develop in 1.7-25% of children under general anesthesia (2). Intravenous or topical lidocaine is used to prevent laryngospasm during surgery. While studies have reported that this significantly reduces laryngospasm, two topical lidocaine is reported to be capable of causing obstruction by affecting dynamic air flow in at-risk patients, and lidocaine-related anaphylaxis, altered mental state and seizure are also reported, albeit rarely (5-7). Some degree of air entry and inspiratory stridor are seen in partial laryngospasm, while in complete laryngospasm there is no air entry and no respiratory sounds are heard. Establishment of an open airway and oxygen administration are sufficient in the treatment of partial laryngospasm. In complete laryngospasm, the level of anesthesia can be deepened, and pressure can be applied to the site concerned. In our case, open airway was established, the patient was started on 100% oxygen, and we attempted to reduce the crying. Anti-edema treatment was administered considering the possibility that airway edema might also have developed at differential diagnosis, and the symptoms improved at fol-

low-up. Anesthesia-induced laryngospasm is more common in young age-group children, and we think that our patient, being two months old, may have developed laryngospasm as a rare side-effect of lidocaine.

To conclude, it should not be forgotten that laryngospasm may be encountered in emergency departments, where sedo-analgesia is often applied, and physicians must be aware of the treatment to be administered.

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REFERENCES

1. Gulhas N, Durmus M, Demirbilek S, Tugal T, Ozturk E, Ersoy MO. The use of magnesium to prevent laryngospasm after tonsillectomy and adenoidectomy: a preliminary study. *Pediatric Anesthesia* 2003;13(1):43-7.
2. Mihara T, Uchimoto K, Morita S, Goto T. The efficacy of lidocaine to prevent laryngospasm in children: a systematic review and meta-analysis. *Anaesthesia* 2014;69(12):1388-96.
3. Schebesta K, Guloglu E, Chiari A, Mayer N, Kimberger O. Topical lidocaine reduces the risk of perioperative airway complications in children with upper respiratory tract infections. *Can J Anaesth* 2010;57:745-50.
4. Hamilton ND, Hegarty M, Calder A, Erb TO, von Ungern-Sternberg BS. Does topical lidocaine before tracheal intubation attenuate airway responses in children? An observational audit. *Paediatr Anaesth* 2012;22(4):345-50.
5. Ho AM, Chung DC, Karmakar MK, et al. Dynamic airflow limitation after topical anaesthesia of the upper airway. *Anaesth Intensive Care* 2006;34(2):211-5.
6. Giordano D, Panini A, Pernice C, Raso MG, Barbieri V. Neurologic toxicity of lidocaine during awake intubation in a patient with tongue base abscess. Case report. *Am J Otolaryngol* 2014;35(1):62-5.
7. Soong WJ, Lee YS, Soong YH, Tsap PC, Yang CF, Jenng MJ, et al. Life-threatening anaphylactic reaction after the administration of airway topical lidocaine. *Pediatr Pulmonol* 2011;46(5):505-8.