

Outpatient Anesthetic Management of A Child With Difficult Airway

Ameliyathane Dışı Anestezi Uygulanacak Zor Havayolu Olgusunda
Anestezi Yönetimi
Anesteziyoloji ve Reanimasyon

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Özet

Pediyatrik hastalarda zor havayolu insidansı daha düşük olmakla beraber zor havayoluna bağlı komplikasyonlar daha katastrofikdir. Özellikle, anesteziyolojinin yalnız ve şartların yetersiz olduğu ameliyathane dışı anestezi uygulamalarında daha dikkatli olmak gerekir. Bu olgu ile ameliyathane dışında anestezi uygulanması planlanan, beklenen zor ventilasyon ve entübasyon durumunda anestezi yönetimini sunmayı amaçladık.

Anahtar kelimeler: Zor havayolu, Ameliyathane dışı anestezi, Dudak hemangiomu

Abstract

Although, the incidence of difficult airway of pediatric patients is lower, the complications due to the difficult airway are very catastrophic. Especially, in outpatient anesthesia, if the anesthesiologist is alone and the conditions are insufficient, then, the anesthesiologist should be aware of the difficulties and be more careful. The alternative practices are available for different situations. The clinician can modify the techniques used. Rarely, very difficult cases may need outpatient anesthesia. We aimed to present the management of an expected difficult ventilation and intubation case who underwent carotid artery angiography in an outpatient setting.

Keywords: Difficult airway, Outpatient anesthesia, Lip hemangioma

Introduction

In pediatric patients, compared with adults, the incidence of difficult airway has been reported lower, but difficult airway complications are more catastrophic. The anesthesiologists may encounter with unexpected or expected difficult pediatric airway. Inflammation, foreign body, trauma or allergy can result in unexpected difficult airway, while the head, neck and airway abnormalities, masses, subglottic or tracheal disorders result in expected difficult airway¹. The cases which are considered to be difficult airway must be transferred to the hospital where trained and experienced personnel and the necessary equipment are located. In this case report, we aimed to present an anticipated difficult airway pediatric patient who was managed successfully with outpatient anaesthesia.

Case Report

Our patient was a 20 month-old girl, weighing 10 kg. She applied to our clinic for outpatient anesthesia for carotid angiography because of a hemangioma extending from the upper and lower lips (Figure 1).



Figure 1
Before the intubation

In the preoperative assessment, no other systemic disease except an hemangioma extending from the upper and lower lips and an affected tongue were revealed. The laboratory results are Hb: 11 g/dL, Htc: % 33, WBC: 9730, Platelet: 378000.

The patient was decided to be intubated in the operating room as she was considered to be a difficult airway case. The patient was taken to the operating room after an intravenous line was inserted at the pediatric service.

After electrocardiogram (ECG), peripheral oxygen saturation (SpO₂) and non-invasive blood pressure monitoring, the anesthesia induction was performed by thiopental (3 mg/kg), 50 % O₂ + 50 % nitrous oxide and rocuronium (0,6 mg/kg). In mask ventilation, difficulties were encountered with number 2 mask. The patient was ventilated with the mask for two minutes, then, she was intubated with number 4,5 uncuffed endotracheal tube (Figure 2).



Figure 2
After the intubation

Our case was transferred to the angiography laboratory with portable monitors, intubated, and ventilated by the balloon. After injecting 50 cc contrast material, unilateral selective carotid angiography procedure was performed. No abnormalities were detected on the monitor.

She was transferred to the operating room after the procedure. In the operating room 2 mg/kg sugammadex was applied to her to reverse the neuromuscular blockade. About 1 minute later she was extubated without a problem. After being observed approximately 20 minutes in the recovery room, the patient was transferred to the pediatric clinic.

Case Discussion

Despite the advances in anesthesia and airway management, managing difficult airway is still an important clinical problem. Because of both anatomic and physiologic properties, in pediatric age group, managing a difficult airway becomes more of an issue. In cases that need outpatient anesthesia, anesthesiologists must be aware of the airway difficulties especially in pediatric population and must be comfortable with the equipments and techniques in the outpatient setting. Therefore, managing a difficult airway safely and effectively has a vital importance.

General anesthesia is necessary in the presence of airway and lung pathologies. Lack of necessary drugs and devices in emergency situations and deficiency of qualified staff are the most important problems that can be faced in outpatient anesthesia practice. If there is a difficult airway probability, in the situation of anaphylaxis due to contrast matter and respiratory depression due to the anesthetic agents, the patient's transfer to the catheterisation laboratory after the intubation in elective conditions will be appropriate.

The hemangiomas are benign, neoplastic vascular lesions mostly seen in children². It is reported that frequency in girls 2-5 fold more than boys³. In our case, there was a fairly large volume hemangioma feeding from large arteries and that affected nearly half of the upper airway. The preparation is necessary in airway management

before the anesthesia is performed. For our patient, cuffed and uncuffed intubation tubes in various sizes, stylet, laryngoscope blades in various sizes, laryngeal mask, videolaryngoscope were made ready. Any problem about the patient's mask ventilation and endotracheal intubation was encountered. Our patient was prepared for transport after the intubation. The children need endotracheal intubation before transport. They have risks like the fixation of the tube safely, the maintenance of anesthesia depth and providing muscle relaxation⁴. For our patient's transport, the drugs used in cardiopulmonary resuscitation, anesthetic and muscle relaxant agents were prepared so that they can be easily reached during the transfer. The patient was monitored by a portable monitor. Her SpO₂, heart rate and blood pressure were followed on the monitor during the angiography procedure. After the procedure, the case was transferred to the operation room. Sugammadex was applied to her to reverse the effects of muscle relaxation medication. Sugammadex is a cyclodextrin structured agent that antagonizes the effects of steroid structured muscle relaxants like rocuronium and vecuronium⁵. It is preferred in situations where rapid reversal of a rocuronium-induced neuromuscular blockade is necessary (eg. difficult airway). In our case, spontaneous ventilation began after the sugammadex was applied for rapid and safe reversal of rocuronium-induced neuromuscular blockade. She was extubated within few seconds. No neuromuscular residual effect was detected in our patient who was observed for 20 minutes in the recovery room.

Conclusion

Especially for pediatric cases the outpatient anesthesia practice increases each year. For this reason, it is important to assess the patients preoperatively in detail who will go under anesthesia in an outpatient setting. During the procedure, paying close attention to the patient's values on the monitor and giving special care to the position of the patient and response of the patient to the agents applied are of vital importance.

In patients known to have difficult airway, general anesthesia must be preferred and be monitored strictly⁶. Anesthesiologists must develop an anesthetic plan before the operation in order to overcome systemic and airway problems. Therefore, a thorough preoperative assessment should be done to find out the risk factors and all the equipment must be ready for the expected or unexpected probability of difficult airway.

We think that an endotracheal intubation must be performed in the operating room, especially in pediatric population with difficult airway. Anesthesiologists experienced in the management of difficult airway and carefully prepared necessary equipments are of utmost importance. Therefore, difficult airway always requires careful planning and expertise in any setting.

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Information Presentation

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