



## Swelling and Elongated Uvula with Unilateral Vocal Cord Paralysis after General Anesthesia

CASE REPORT

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## ABSTRACT

Swelling and elongated uvula and vocal cord paralysis are very rare complications of general anesthesia. This report illustrates that these rare complications might occur together after general anesthesia. An adult male patient was operated for glomus tumor in left hand middle finger and six hours after the operation acute respiratory distress was diagnosed. There was no drug allergy in his medical history and breathing difficulty had not been observed after the operation which had been performed under general anesthesia ten years ago. Medical therapy with dexamethasone combined topical epinephrine was applied and complete recovery was obtained without surgery.

Key words: Anesthesia, general, intubation, uvula, vocal cord paralysis

### INTRODUCTION

Complications of endotracheal intubation (ETI) includes laryngeal edema, sore throat, swallowing difficulty, vocal cord paralysis, laryngeal ulcer, uvular edema or necrosis and infection, however both of uvular edema and vocal cord paralysis are very rare (1, 2). Swelling and elongated uvula may cause a life-threatening airway obstruction which has to be treated quickly. In this report, medical treatment of uvular edema with unilateral vocal cord paralysis after general anesthesia is presented.

### CASE REPORT

A 42-year-old man admitted to the Hand Surgery Unit with complaints of unbearable pain in his left middle finger, which aggravated by cold or by touching, continued for ten months. On his examination, the nail bed was pale and swollen. A hand magnetic resonance imaging (MRI) detected a radiopaque mass 3 mm in diameter under the nail bed. The lesion was diagnosed as a glomus tumor and an operation was suggested.

His preoperative physical status was ASA-I and his airway was assessed as Mallampati Class-I. The body-mass index was 23.35 kg/m<sup>2</sup>. The patient was a non-smoker and his medical history was unremarkable except an operation for acute appendectomy ten years ago.

The operation was performed under general anesthesia for one hour. No premedication was used. A 20 gauge anjio-cut was inserted and serum physiologic was infused throughout the surgery. Anesthesia was induced with fentanyl 2 µg.kg<sup>-1</sup> *i.v.*, propofol 2.5 mg.kg<sup>-1</sup> (Propofol 1% Fresenius, Kabi, Australi, GmbH) in a dose of adequate to block verbal response. Atracurium 0.5 mg.kg<sup>-1</sup> was administered to facilitate the orotracheal intubation. A size 8.0 endotracheal tube (ETT) was used for intubation. The patient was manually ventilated and anesthesia was maintained with a mixture of 50% oxygen/air and 1-1.5% end-tidal sevoflurane. There was no important problem about anesthesia during the operation. Intubation and extubation were done without any difficulty but before extubation the back of throat was suctioned roughly. There was no trouble after extubation and the patient was comfortable in the recovery room. During the observation half an hour after the surgery only complaint was sore throat and no allergic reaction, no rash or respiratory distress were observed and vital signs were unchanged. The signs of serious airway obstruction, however, were observed, such as fear of death, gagging and choking at six hour after the operation. An epiglottical edema was suspected and arterial blood-gasses were examined at first, however, elongated and swelling uvula was observed and hoarseness was recognized on physical examination (Figure 1). The oxygen saturation and P<sub>CO2</sub> were measured as 87% and 50 mmHg, respectively. Then supplemental oxygen (2.5 L/min) via nasal canule, topical epinephrine and 8 mg. *i.v* dexamethasone were administered. The saturation improved to 98% and P<sub>CO2</sub> decreased to 42 mmHg and symptomatic relaxation was obtained in one hour.

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A unilateral vocal cord paralysis was diagnosed with fiber optic laryngoscope and it was related to hoarseness and breathless. The right vocal cord paralysis clinic type was assessed as cadaveric type and it is occurred when recurrent laryngeal nerve is damaged (Figure 2). MRI did not show any mass or tumor causing to vocal cord paralysis in head, neck or thorax.

The patient was hospitalized one more day and i.v. dexamethasone and topical epinephrine administration again at the twelve hour after the first medical administration. By the next day, significant symptomatic relief and reduction of uvular size were observed. Only complaint was hoarseness and it had been kept on following two months.

## DISCUSSION

Swelling and elongated uvula is a rare complication of general anesthesia, on the other hand, it was also reported after regional



**Figure 1.** Swelling and elongated uvula was seen at six hour after general anaesthesia



**Figure 2.** Paralytic right vocal cord in intermediate position was diagnosed by fiberoptic laryngoscope

anesthesia (2, 3). The reasons of uvular edema such as hereditary angioneurotic edema, irritant inhalation and allergy except infection can also cause Quincke's edema (4). In this case, possible reasons of uvular edema are direct trauma of endotracheal tube (ETT), displacement of ETT then pressure on uvula or suctioning trauma.

Vocal cord paralysis is also another rare complication of general anesthesia and most usually seen in children (1). Major symptoms of vocal cord paralysis are hoarseness and respiration difficulty. Possible reasons include hard intubation, malposition of the ETT, surgical trauma, using big size ETT or laryngeal mask, nerve traction, accompanied infection, over inflated cuff pressure on the vocal cord (1). These traumas might be harmful for anterior branch of recurrent laryngeal nerve, tube cuff pressure compress the nerve against the posteromedial aspect of thyroid cartilage and it might cause vocal cord paralysis and sometimes differential diagnosis between nerve injury and arytenoid dislocation needs additional imagine scans, especially a neck computerized tomography (5, 6).

To the best of our knowledge, while vocal cord paralysis and uvular edema after general anesthesia had been reported separately however cooccurrence of these complication had not been reported. Herein we present the first case complicated with vocal cord paralysis and uvular edema after general anesthesia. Cooccurrence of these complications requires a life-threatening emergency and carefully treatment.

Epinephrine causes bronchodilation and decreases serous secretion in upper and lower airway (4, 6). Steroids prevent to mucosal edema by increasing capillary permeability and also have anti-inflammatory effects (6). Dexamethasone has long half-life and its anti-inflammatory effect is very strong and it is still essential therapy for uvular edema (7). Diphenhydramine was another option, however, since allergic reaction was not considered, diphenhydramine was not given (4, 5). When uvular edema can be related with drug allergic reactions after anesthesia, diphenhydramine can be used (7).

## CONCLUSION

We conclude that ETI can be cause of life-threatening respiratory obstruction due to uvular edema and unilateral vocal cord paralysis in rarely. Respiratory distress occurred a few hours after the operation is required upper airway examination. Oral examination simply reveals a uvular edema but if there is a suspect about vocal cord paralysis bronchoscopy should be done. Conservative treatment can be enough for the treatment but surgery should be in mind if medical therapy insufficient.

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