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Succinylcholine Used for Difficult Airway Lead to Difficult Airway - A Case Report

Nazir N*

Department of Anaesthesiology, Government Institute of Medical Sciences, Greater Noida, Uttar Pradesh, India

***Corresponding author:** Nazir N, Department of Anaesthesiology, Government Institute of Medical Sciences, Greater Noida, Uttar Pradesh, 201310, India, Tel: +91-9560102957, E-mail: nazunazir@gmail.com

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Sir,

Succinylcholine (Sch) is usually given for intubation in suspected difficult airway due to its fast onset and short duration of action. We report a case of Masseter Muscle Rigidity (MMR) after giving Sch to a patient for lap cholecystectomy with difficult airway.

A healthy, 40 year old female weighing 85 kg was posted for laparoscopic cholecystectomy. She was Mallampatti grade III, mouth opening 4.5 cm, upper lip bite test class I, thyromental distance 6.5 cm and neck circumference 55 cm. She had no medical illness, no previous exposure to anaesthetic agents or family history of myopathy with normal investigations.

In operating room (OR), difficult intubation cart was kept ready. Pre-medication was done with glycopyrrolate 0.2 mg intravenous (IV), midazolam 1 mg IV and fentanyl 100 µg IV. After pre-oxygenation with 100% O_2, patient was induced with propofol 120mg IV. On confirming adequacy of bag and mask ventilation, Sch 120 mg IV was given. Laryngoscopy was attempted once Sch induced fasciculations were over. However, teeth were tightly clenched and it was impossible to open the mouth to allow advancement of the laryngoscope. Again, after few moments, attempt to open the mouth failed. Keeping masseter spasm in mind, mask ventilation was continued with 100 % oxygen and no further anaesthetics were administered. There was no disproportionate increase in $EtCO_2$ or body temperature during this period. After 5 minutes, jaw started relaxing and patient resumed spontaneous respiration. She was sent to the ICU for observation without surgery being performed.

In ICU, after 1st post-operative hour, blood test revealed normal ABG, slightly raised serum potassium (5.8meq/l) and creatinine phosphokinase (CPK) levels (188 IU/L). Patient remained afebrile throughout with clear urine. Next day, patient was discharged with a special note regarding not to use Sch and counselling for risk of malignant hyperthermia (MH) in future anaesthesia. Muscle biopsy for halothane caffeine test was advised. The case was done at a later date under Total intravenous anaesthesia uneventfully.

Our patient presented with difficult airway on account of Mallampati III, increased body weight and neck circumference. In our institute, Sch is routinely used in suspected difficult airway cases as newer short acting non depolarizing muscle relaxants (NDMR) are not available. A rare adverse effect of Sch is MMR which can occur in isolation or can be an early indicator of malignant hyperthermia (MH) [1]. Recent findings state that increased tone in the masseter muscle after giving Sch may be a normal pharmacological response of masseter muscle to Sch [2]. MMR causes difficult or impossible laryngoscopy leading to difficult or failed intubation. Alternative techniques like retrograde endotracheal intubation, fiberoptic nasotracheal intubation, trachlight™, laryngeal mask airway and surgical cricothyroidotomy [3] may be required to secure airway. In our patient, though Sch triggered MMR leading to difficult intubation, we were able to ventilate the patient with bag and mask.

Surgery was abandoned and patient monitored as there is a possibility of development of MH even after a lag of 20 -30 min [4]. Patient did not develop any signs and symptoms of MH during ICU stay. Mild elevation in CPK and K levels could suggest rhabdomyolysis secondary to MMR.

To summarize, this case highlights that Sch may produce isolated MMR leading to difficult laryngoscopy and intubation. In such patients, trigger factors of MH should be avoided during maintenance of anaesthesia and availability of dantrolene in OR ensured. We also suggest that the use of Sch is fraught with too much potential for a disastrous outcome and should not be relied upon in cases where difficult intubation is suspected.

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