

Successful Anaesthetic Management of a Patient with Post Burn Contracture and Difficult Airway: A Case Report

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ABSTRACT

Introduction: A post burn patient with contracture involving the orofascial tissues was posted for contracture release and skin grafting. Due to extensive scarring of orofascial tissues, the mouth opening was very less and orifices of nostrils were distorted. Limited mouth opening lead to reduced intake of food by the patient, hence was malnourished and emaciated.

Case report: This patient posed two problems to us viz. difficult airway due to limited mouth opening resulting from orofascial scarring; relaxant dose adjustment because of malnourishment and emaciation. In the anaesthetic management, surgeon was requested to incise the scar tissue at the angle of mouth on both sides after infiltration of local anaesthetics. Once mouth opening widened, routine general anaesthesia with intubation was administered. Patient was managed with single dose of suxamethonium and did not require long acting relaxant. The course and recovery from anaesthesia were largely uneventful.

Conclusion: Management of difficult airway becomes easier with adequate planning and when due precautions are taken. In malnourished and emaciated individuals, judicious use of muscle relaxants is advisable.

Keywords: Difficult Airway, Post Burn Contracture, Muscle Relaxant, Local Anaesthesia.

fascial region on left side. One month post burns, the patient was brought to operation theatre for skin grafting over burnt raw area. The case was managed successfully with routine general anaesthesia after endotracheal intubation. During this time we diagnosed that larynx was anterior but we could intubate without much difficulty. The course of anaesthesia was uneventful.

The patient reported again after three months as she developed contracture of graft site. She was brought to the operation theatre for contracture release and skin grafting. On examination, her mouth opening was about 1.5 centimetres and the view consisted of only part of both upper and lower teeth and tip of the tongue. Soft and hard palate could not be visualised. Her airway was Mallampati class 4.³ Thyromental distance was 6.5 cm. Extension of the head was slightly restricted. As already mentioned patient was a known epileptic and on anticonvulsants. She was malnourished and emaciated and weighed 38 kgs. Her lab reports were within the normal limits. One favourable point at this juncture was, her airway was successfully managed three months back. Patient was posted for scar excision and skin grafting. She was classified as ASA grade II.

Within the operation theatre all difficult airway management equipments like Gudel's airway, two sets of laryngoscopes, three different size endotracheal tubes, stylet, bougie and laryngeal mask airway were arranged. Patient was reassured and was explained about the procedures that were to be carried out. Connections were made to the monitors and patient's IV access was secured. An intravenous infusion of Ringer lactate was started. Area around the mouth was cleaned with betadine and spirit. A 10 cc syringe was loaded with 2% lignocaine with adrenaline and 5 ml of distilled water. 5 ml of this local anaesthetic was infiltrated over the left angle of mouth after due consultation with the surgeon regarding the line of incision. 5 ml was infiltrated over the right angle of mouth. Once adequate amount of local anaesthesia was achieved, the surgeon was asked to proceed. Two incisions were made by the surgeon at either angle of the mouth adequate enough that would cause mouth opening wider. Haemostasis was secured with cautery.

Inj glycopyrolate 0.2 mg and ondansetron 4 mg was given intravenously. Followed by Inj fentanyl 50 mcg IV. Patient was preoxygenated with 100% oxygen for three minutes.

INTRODUCTION

The primary goal and an important duty of anaesthesiologist is to secure and maintain patent airway of the patient during conduct of anaesthesia. This obligation is same whether it is general or regional anaesthesia, as even in regional anaesthesia, the anaesthesiologist should be able to intubate if the conditions warrant. It is known the course under regional anaesthesia cannot be predicted. Sometimes the sight of an abnormal airway gallops the heart rate of the anaesthesiologist, however staying calm, positive thinking and planning often makes securing and maintenance of airway easier than expected. Scarring after orofascial burns makes the airway management difficult, because of microstomia, fixed flexion abnormality with limited extension and airway distortion due to scarring of the cervical tissues.^{1,2} We are reporting this case of successful anaesthetic management of a patient with cervico fascial burns followed by scarring with limited mouth opening, who was subjected to scar excision and skin grafting. It is significant that patient had an uneventful anaesthesia and surgery three months back for skin grafting over raw burnt area. But old graft became contracted and this was her second surgery.

CASE REPORT

A forty five year old female presented with history of burns leading to contractures of orofacial region (figure 1-4). The patient was a known epileptic. She had an episode of convulsion and fell over a burning stove and received burns of cervico

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Induction with 200 mg of thiopentone sodium and 50 mg of suxamethonium was done. As the burns were less than 10%, we took a calculated risk in giving suxamethonium. After induction, ventilation became difficult as there was no visible thrust of chest wall movement. However by maintaining sustained pressure with 100% oxygen we could maintain oxygenation of the patient. Saturation was found to be 98% throughout mask ventilation. After one minute, direct laryngoscopy was performed. Laryngoscopic view of the glottis was Cormack Lahane grade III. Direct intubation was not possible. Hence we passed a bougie into trachea and passed an endotracheal tube over the bougie.⁴ The proper position of ET tube was confirmed by bilateral auscultation of chest. The cuff was inflated and the ET tube was connected to Boyle's machine via Bain's circuit.

Patient was ventilated with a breathing mixture of 4 litres of nitrous oxide, 2 litres of oxygen and 0.5% Halothane. Surgeon was allowed to proceed and we continued with intermittent positive pressure ventilation. Recovery from initial dose of suxamethonium was not achieved, hence long acting muscle relaxant was not given and anaesthesia was maintained with nitrous oxide and halothane with oxygen. Duration of surgery was two hours and during this period long acting muscle relaxant was not needed. Just before the end of surgery, finger movements in patient were observed. However no muscle relaxant was given at this point.

At the end of surgery the process of extubation was not expedited and ventilation was continued. We let the patient completely recover. After noticing eye opening and obeying commands, suction of the oral cavity was carried out and the patient was extubated. She was observed for another 15 minutes in the operation theatre. Supplementary oxygen was given during this period. Patient was then shifted to post operative ward. Observation was made by monitoring vitals and oxygen saturation. From here on she made uneventful recovery.

DISCUSSION

Patients with contractures of cervico facial tissues can be managed by three different methods. One is ketamine anaesthesia, contracture release, followed by induction, intubation and conventional general anaesthesia.^{5,6} Second is local anaesthesia, contracture release, induction intubation and routine general anaesthesia.⁷ Third method is to secure airway by elective tracheostomy and then administering routine general anaesthesia. Our patient was a known epileptic. Hence we could not use ketamine anaesthesia. Tracheostomy may be associated with considerable morbidity, hence was not considered.

We preferred the second method i.e local anaesthesia followed by general anaesthesia. Blind nasal intubation in our patient is not possible because of distorted nostrils. We used lignocaine with adrenaline for faster action and for minimizing bleeding.

Though Mask ventilation became difficult because of very anteriorly placed larynx, however our choice of suxamethonium as the relaxant proved to be a blessing in disguise. In malnourished patients pseudocholinesterase levels are found to be lower compared to normal. This may explain the unduly prolonged action of suxamethonium.⁸ Moreover a grossly emaciated patient with hardly any muscle mass may not require any muscle relaxant. That will explain the reduced need for long acting muscle relaxant. Difficult intubation predicts difficult



Figures-1: (Clock wise) 1) Patient's airway 2) Local infiltration 3) Surgical incision of scar 4) Incised scar and widened airway

extubation as well. Hence we did not extubate the patient immediately after surgery. We waited for the patient to open her eyes and obey commands. There are many such cases of similar situations having been reported.^{5,6,9,10}

CONCLUSION

Cases can be managed by ketamine and tumescent local anaesthesia. Few have even tried local nerve blocks. Fibreoptic endoscopy was another frequently used technique, but is not available with us.

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