



# Anesthetic Management in a Case of Post-Burn Contracture Neck Release

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## Abstract

This is a case of a female of 24 years referred to the institute for post-burn contracture management after LPG gas burn 4 months back, involving the face, neck, chest, back, and right elbow. A fiber optic intubation under topical anesthesia technique was used in this case. The safety and advantages of this anesthetic strategy were evaluated.

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## INTRODUCTION

Airway management along with post-burn contracture neck poses a great challenge to the anaesthesiologist. This case being of multiple contractures involving the periorbital area, perioral area, and neck led to difficult mask ventilation and difficult intubation. Can't Ventilate Can't Intubate (CVCI), an apt strategy of anesthesia was adopted that does not impede the airway but with no compromise with surgical results.

## CASE REPORT

A 24-year-old female sustained multiple post-burn contractures due to a domestic LPG fire. As she was wearing a saree and sweater, she got a deep burn of grade III over neck, chest, back, and right elbow. The area of the burn was 35–40%.

*On examination:* Patient was cooperative, average built with no pallor and icterus, ASA grade I, Mallampati grade IV (mouth opening < 1 finger) with all vitals within range. All reports were within normal range. The procedure was planned to release the neck and elbow contracture with a split-thickness skin graft. Intubation was planned with a fiberoptic bronchoscope after proper topical anesthesia, the most appropriate methodology in such cases. The patient was counseled about the technique of anesthesia and written informed consent was taken.

IV line with 18G cannula was secured and monitors were attached. Before half an hour of surgery, nebulization with 2 mL of 4% Lignocaine was done in the operation theatre. The difficult airway cart was kept ready. Emergency tracheostomy was kept ready if needed during failed fiberoptic intubation in crisis. IV midazolam 1-mg (anxiolytic) and glycopyrrolate 0.2 mg were given. Dexmedetomidine infusion 0.4 mcg per kg given 10 minutes prior to the procedure and 0.2 mcg per minute infusion during the procedure. This infusion dose allayed stress response with

the incidence of bradycardia. 10% Lignocaine spray was used as a topical anesthetic agent for posterior pharyngeal wall. Oxymetazoline drops were given intranasally and 2% xylocaine jelly was applied. Pre-oxygenation with 100% oxygen for about 5 minutes was done and high flow oxygen was administered through nasal prongs placed over the chin during the procedure. Fiberoptic intubation was done and a 6.5 mm ID cuffed flexometallic ET tube was placed in the right nasal cavity. SAGO technique was used with 10 mL of 1% Lignocaine as the scope reached the vocal cord and in the trachea. Intermittent suctioning was done for proper view of the tract. As vocal cords and the tracheal rings were visualized, the ET tube was pushed over the scope into the trachea, and bronchoscope was gently removed to visualize the tip of the ET tube. The tube was fixed and the bronchoscope was removed. Then the patient was given IV propofol 100 mg, fentanyl 100 mcg and Inj. Atracurium 25 mg. Anesthesia was maintained with O<sub>2</sub> + N<sub>2</sub>O (50%:50%) + isoflurane (0.6-0.8%) + Inj. Atracurium on demand and put on a ventilator on volume control mode intraoperatively. The intraoperative period was uneventful. The pain was managed by IV infusion paracetamol 1-gram and IV fentanyl intermittently. Once the spontaneous respiration started at the end of the surgery, the patient was reversed and extubated and was observed in the post-operative room for two-hours.

## DISCUSSION

Airway management with neck contractures after burns is a difficult task. Restricted neck deformity causes difficult airway management due to decreased oro-pharyngeal space, pharyngeal space, neck extension along with submandibular compliance. Different laryngeal mask airways, blind nasal intubation, retrograde intubation, tracheostomy, release of contracture using tumescent mixture of local anesthesia or with Ketamine supplementation /inhalational anesthesia,<sup>1-3</sup> followed by endotracheal intubation and general anesthesia are available techniques. Still, fiber optic intubation is the gold standard

when in comparison to other methods.<sup>4</sup> We used fiberoptic bronchoscopy for flexometallic tube insertion. The introduction of dexmedetomidine allayed stress response during the procedure and a low dose of dexmedetomidine did not lead to bradycardia. Laryngeal Mask Airway and retrograde intubation were impossible due to restricted mouth opening. Tracheostomy was not feasible due to fibrosed tissue over the neck. So, in such patients with extreme deformity ET tube can be negotiated over the scope into the trachea.<sup>5-7</sup>

## CONCLUSION

The fiberoptic bronchoscope-guided intubation permits visual control of the nasopharyngeal, laryngeal, and tracheal structures. As per the studies, the winning possibility of fiberoptic bronchoscope-guided intubation is 100% in the management of difficult airways. Fiberoptic bronchoscopy provides clear details of glottis and endotracheal tube until properly placed.

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