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Anaesthetic Management of a Case of Post Burns Contracture Coming for Contracture Release

P. Meenakshi [1], A.Shanmugapriya[2] , K.Vinod[3] , M.Raj[4] , R.Sudhakaran[5] , B.Akash[6]

[1] Post Graduate, Department Of Anaesthesiology, Sree Balaji Medical College And Hospital:

[2] Assisstant Professor, Department Of Anaesthesiology; Sree Balaji Medical College And Hospital:

[3] Professor, Department Of Anaesthesiology; Sree Balaji Medical College And Hospital;

[4] Assisstant Professor, Department Of Anaesthesiology, Sree Balaji Medical College And Hospital:

[5;] Assisstant Professor, Department Of Anaesthesiology, Sree Balaji Medical College And Hospital:

[6] Senior Resident, Department Of Anaesthesiology; Sree Balaji Medical College And Hospital.

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KEYWORDS

Post burns

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ABSTRACT:

Most common postburn problem that requires management by the burn reconstructive surgeon are post burn contractures. They are characterized by tight, shortened scar tissue which form over joints, creating a limitation of movement therefore create a deformity as they form defect over anatomic structure. Contractures may involve skin, with shortening or fibrosis of underlying muscle, fascia, and joint structures. Oral, facial and burns involving neck are challenging because nose and extrernal nare can be fibrosed and reduced mouth opening can be present which may be an important factor for difficult airway. Neck contractures may reduce atlanto occipital joint extension which also aids for difficult airway. Here we report a case of post burn contracture came for contracture release with anticipated difficult airway managed well with awake fiber optic bronchoscopic intubation.The reported incidence of difficult intubation is 5.85%, cannot intubate situation is 0.35% and cannot ventilate - cannot intubate situation is 0.02% and these can be major causes of anaesthesia-related morbidity and mortality(1)

Introduction

Post burn scar contracture involve deeper tissues that may be affected either due to their involvement in the initial burn injury (e.g., electrical burns) or secondary to the presence of a skin contracture over a prolonged period of many years, which leads to shortening of musculotendinous units and neurovascular structures. A post-burn contracture associated with a hypertrophic or an atrophic scar or a depigmented area may all need excision–release to achieve best results not only functionally but also aesthetically. Surgical intervention for post-burn contractures should not be undertaken during the active phase of healing and scarring, i.e., as long as the scar is immature and highly vascular. One must allow the scar to become mature, soft and supple and "avascular" before undertaking surgery for contractures. *Severe contracture of the neck or microstomia* leading to difficulties in intubation should be corrected before planning any other contracture release or reconstructive procedure requiring general anaesthesia. Additionally, the complete release of a neck contracture removes the extrinsic pull-on facial structures (lips, chin and even lower eyelids) and contractures of the axilla and the breast

Case report:

A 59-year-old female patient gives history of burns three years back which was managed conservatively now presented with post-burn contracture (PBC) over face, neck, arms, thigh, back (FIGURE 1,2). It was a full thickness THIRD DEGREE BURNS. The patient was posted for a neck and oral contracture release procedure. On assessment patient found to have contracture obliterating the lower lip, difficulty in vocalizing and dribbling of saliva (FIGURE 3). No known comorbidities. No previous surgical history. Her METS SCORE>4. Airway assessment predictors revealed difficult intubation (2) MMPC-IV (Figure4), admits 1 finger, neck extension totally restricted, could

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not asses thyromental distance (FIGURE 4) or palpate neck structures. Contracture band was 30 cm long and 15 cm wide at neck leading to a fixed flexion deformity with no possible atlanto-occipital extension. (Figure 5).

Figure1

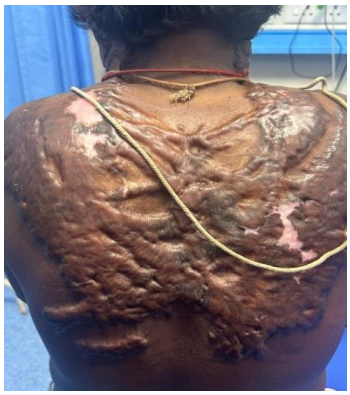

Figure 2

All baseline investigations were found to be normal. Cardiac evaluation with echocardiography was within normal limits. Laryngeal mask airway (LMA), conventional laryngoscopy, or fibreoptic bronchoscopy (FOB) were ruled out due to the placement of the scar and the proposed surgery. Thus, awake fibreoptic nasal intubation was planned. Patient and attenders were counselled about the risk and intubation procedure in detail before and consents were obtained for the same. Tracheostomy consents were also obtained. Patient was taken up for surgery under ASA PS II. Securing intravenous line in both upper limbs were challenging as there were contractures, thus intravenous line has been secured in right foot. As awake fiber optic nasal intubation was planned anesthetizing the upper airway is important to abolish the reflexes. Patient was nebulized withINJ.4%lignocaine,nasalpackingwith INJ.2%Lignocaine+adrenalinewasdone.INJ.GLYCOPYRROLATE0.2MG+INJ.MORPHINE 5MG IM given preoperatively Patient shifted to operation theatre, baseline monitors connected and baseline vitals noted. Premedicated with INJ.MIDAZOLAM 1MG+INJ.FENTANYL 100MCG+ INJ DEXMEDETOMIDINE 1MCG/KG loading dose given for 20 mins, followed by preoxygenation with 100% oxygen for four minutes. As transtracheal block could not be performed due to distorted anatomy of neck and contracture we proceeded with INJ 10% LIGNOCAINE SPRAY (SPRAY AS YOU GO TECHNIQUE) Fiber optic bronchoscopy passed in left nostril, vocal cords visualized tube threaded patient induced with INJ.PROPOFOL 1.5-2.5mg/kg, Paralyzed with INJ.ATRACURIUM 0.5mg/kg, intubated with flexometalic 6.5 ET TUBE fixed at 23cm after checking bilateral air entry. Intraoperatively hemodynamics was stable. Maintanence of anesthesia with oxygen/N2O/sevoflurane/Atracurium. Inj dexamethasone 0.1mg/kg administered. Once contracture released larngoscopy has been done to visualize vocal cords and CL grading improved to GRADE IIIB Analgesic given intraoperatively was INJ.DEXMEDETOMIDINE 0.5MCG/KG (over 1 hr)+ INJ.PARACETAMOL 15MG/KG. After completion of procedure INJ.HYDROCORTISONE 100MG given and adequate reversal with INJ.GLYCOPYRROLATE 0.01MG/KG+ING.NEOSTIGMINE 0.05MG/KG given after spontaneous breathing efforts, cuff leak test done which showed leak around the tube and ventilating bougie was passed through the flexometallic tube adequate respiratory efforts were seen followed which patient was extubated. Patient shifted to postoperative ward.

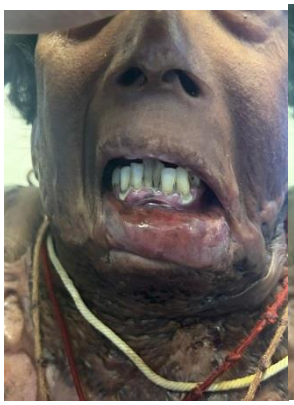

Figure 3

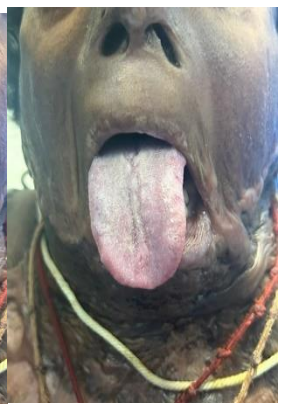

Figure 4

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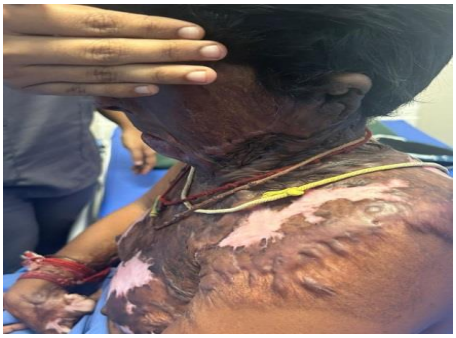

Figure 5

Discussion: In this case we proceeded with GENERAL ANESTHESIA as patient presented with post burn contracture over face, lips, upper chest and predicted duration of surgery is also longer securing definitive airway will be ideal. Pre induction release of contracture with ketamine (3) was not done as contractures involved lips, face henceforth mouth opening will be restricted even after neck contracture release, also orotracheal intubation also not planned for the same reason. Hence awake fiberoptic intubation was proceeded which is being considered as gold standard for burns contracture release involving head and neck. Preparation of patient for an awake FOB includes airway blocks (recurrent laryngeal nerve and trans tracheal block (4) which is not possible in this case because of neck contracture. Hence, we proceeded with other alternatives like adequate nasal packing with INJ 2% LIGNOCAINE+ADRENALINE, nebulization with INJ.4% LIGNOCAINE (5), INJ.MORPHINE 5MG IM preoperatively, INJ.DEXMEDETOMIDINE 1MCG/KG started along with premedication (6), prior FOB 2% lignocaine jelly was instilled in nostrils, spray as you go technique with INJ 2% LIGNOCAINE 10ml for abolition of airway reflexes. Local anaesthetic was carefully used without exceeding the toxic dose. Airway block being superior for abolishing airway reflexes during awake FOB (7) as it cannot be performed in this patient due to neck contractures we proceeded with all other multimodal way of local, topical anaesthesia and conscious sedation techniques to abolish airway reflex which may aid for smooth intubation.

Conclusion:

Post burn contracture release involving head, face, neck being challenging for anaesthesiologist as it may present with difficult airway and henceforth proper airway assessment and preparation to overcome difficulties may reduce perioperative airway difficulties and related complications. In this case as we anticipated difficult airway, proper airway measures are taken hence complications were avoided.

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