

Anesthetic management of a case of multiple post-burn contractures

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Abstract

This is a case of anaesthetic management of multiple post-burn contractures involving the neck and Rt. Elbow. An unconventional approach of central neuraxial block was used in this case. The feasibility, safety and advantages of this anaesthetic strategy were demonstrated.

Keywords: burn; anaesthetic management, neuraxial block

1. Introduction

Airway management during reconstructive surgery in patients with post burn contracture, particularly the mento-sternal contractures, poses a great challenge to anaesthesiologist because the fibrosed neck contractures limit atlanto-occipital joint extension and inevitably lead to difficult airway. In this particular case of multiple post burn contractures, an anaesthesia strategy has been adapted which doesn't interfere with the airway without compromising with the surgical outcome.

2. Case Report

A 36 years old lady presented with multiple post-burn contractures following burns, which she had sustained 2 years back. She has developed mento-sternal contracture, contracture at the right elbow, and intermammary contracture. There is no significant family or past history.

On examination:-

Co-operative, slightly obese, no pallor, no icterus, P-reg, 68/mt, B.P.- 120/76 mmHg, ASA grade I and mallampati classification II Systemic examination did not reveal any abnormality. Laboratory workup was unremarkable with total leukocytic count – 8,700/-, P- 63, L-34, E- 2, B-1, Hb-11.6 mg%, LFT, Coagulation profile – normal, Sr. Creatinine -1.0 mg/dl, Blood Sugar(R) – 111mg%, HIV & Australia Antigen –Negative, ECG NAD, X- ray chest NAD

Procedure planned was to release the contractures with split thickness skin grafting of the neck and right elbow. Anaesthesia planned was to give central neuraxial blockade using a cervical epidural catheter for release of burn contracture and Lumbar epidural catheter for harvesting skin

graft. Patient counseling was done in detail regarding the technique of anaesthesia, the possible complications and the means to deal with the complications.

Pre-operatively the following medications were given:-An antacid i.e. Inj. Ranitidine 50mg and an antiemetic-Ondansetron 4mg. An anxiolytic was given to the patient on the previous night. IV fluids were started consisting of Lactated ringer solution.

Under all aseptic precautions an 18 gauze epidural catheter was inserted at C7-T1 and advanced cephalad. Similarly a lumbar epidural catheter was inserted at L3-L4 level. Test dose was given through the cervical epidural catheter using 3ml of 1% lignocaine with adrenaline. After 5 minutes waiting time to watch out for any untoward event, 7ml 1% lignocaine with adrenaline + 5 ml 0.25% Bupivacaine mixture was injected as bolus dose. The height of the block was tested every 5 min by pin prick. Surgery started after confirmation of block extension from C2 to T6. Inj Atropine 0.6mg and sedative Inj Midazolam 2mg was given. Oxygen was supplemented with nasal cannula at 2L/mt.

Top up doses were given twice at intervals of 1 ½ to 2 hours consisting of 5ml of Lignocaine 1% with Adrenaline + 3ml of Bupivacaine 0.25%. Before Skin grafting, 5ml Lignocaine 1% with adrenaline + 5ml Bupivacaine 0.25% was given through Lumbar epidural catheter. Surgery lasted for more than 5 hours. Hydration was maintained with Ringer's lactate solution. 2 units of whole blood was given. Intraoperatively heart rate, blood pressure, SpO₂, temperature and urine output was monitored. Intra- operatively, the vitals

remained stable and the patient even cooperated by giving appropriate positions during placement of grafts.

Postoperative Period: -

Patient was fully conscious and with vitals stable shifted to the ward. Post-op analgesia was maintained through the epidural catheters.

Figure 1: Preoperative photograph showing mento-sternal, right Cubital and inter-mammary contractures (Frontal view)



Figure 2: Showing skin grafting in progress to cover the neck wound after contracture release in the patient who is wide awake.



Figure 4: Showing Skin grafted right Cubital fossa after contracture release.



Figure 5: Same patient - Post-operative after 4 months



3. Summary and Discussion

Neck contracture is always a challenging entity from anesthesia point of view as these patients are difficult to intubate and even difficult to ventilate occasionally. The conventional method followed is to release the contracture under local anesthesia alone or with Ketamin supplementation/Inhalational anesthesia, followed by endotracheal intubation and general anaesthesia after release of contracture [1-3]. In this case cervical epidural anaesthesia was more particularly suitable because the distribution area of all the burn contractures to be operated upon could be covered in the same block [4,5]. There are many advantages of CEA over the conventional method like, there is less incidence of PONV and no chest complications which are a very important factor, as excessive movement of the neck can be very detrimental to the take-up of the graft. It is much less expensive and safer as compared to GA. Good post-op analgesia can be maintained through the epidural catheters. Also there is less requirement of blood and there is no interference with the immune mechanism as there is a large body of evidence that general anesthesia causes immune-suppression by various mechanisms which in turn can predispose the patient to infection and graft rejection[6]. Surprisingly, there is no reference in literature regarding the use or even contraindication to use this anesthesia modality in cases of neck contractures. Only one study could be found in, Indian J Plast Surg. 2010 September; 43(Suppl): S85–S87, where thoracic epidural anaesthesia was used for release of severe mento-sternal contracture [7]. An important pre-requisite of giving this block is that the patient has to be fully cooperative. However, any anxiety on the part of the patient can be taken care of by light sedation using Midazolam.

4. Conclusion

This case demonstrates the feasibility of central neuraxial blockade in suitable patients of post-burn neck contractures. This anesthesia strategy with huge advantages may be used in more number of cases than suggested by current practice.

References

- [1] Mathur R, Jain PK, Chakotiya PS, Rathore P. Department of Anaesthesiology and Plastic Surgery, S.M.S. Medical College and Hospitals, Jaipur, Rajasthan, India, Anaesthetic and airway management of a post-burn contracture neck patient with microstomia and distorted nasal anatomy. *Indian J Anaesth* 2014;58:210-3
- [2] Embu HY, Yiltok SJ, Isamade ES Anaesthetic management of mentosternal contractures where resources are limited. *Niger J Med.* 2008 Apr-Jun;17(2):143-5
- [3] Saraf S, Goyal P, Ranka P. Tumescent anesthesia: A useful technique for harvesting split-thickness skin graft. *Indian J Dermatol* 2004; 49:184-6.
- [4] Michalek P, David I, Adamec M, Janousek L. Cervical epidural anesthesia for combined neck and upper extremity procedure: A pilot study. *Anesth Analg.* 2004 Dec; 99(6): 1833-6
- [5] Khanna R, Singh DK, Cervical epidural anaesthesia for thyroid surgery, Kathmandu *Univ Med J (KUMJ)*. 2009 Jul-Sep; 7(27):242-5.
- [6] Maria Bauer, John E. George III, John Seif, and Ehab Farag. Review Article, *Recent Advances in Epidural Analgesia, Anesthesiology Research and Practice* Volume 2012 (2012), Article ID 309219, 14 pages
- [7] Vishal Mago and V. B. Singh, A new method for release of severe mentosternal contractures under central neuraxial blockade, *Indian J Plast Surg.* Sep 2010; 43(Suppl): S85–S87.