

Unsuspected Hypothyroidism as a Cause of Delayed Return of Consciousness Following Post Burn Contracture Neck Release Surgery

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Abstract: A 40 yr old female posted for post burn contracture neck release surgery encountered an unusual delay in the return of consciousness following anaesthesia and surgery. The patient was retrospectively evaluated for the reasons leading to the delayed return of consciousness. The patient was otherwise healthy except for the fact that she was dull, reserved, detached and disinterested in her surroundings and the burn contracture of the neck was following a suicidal attempt. A chance idea that the extensive contracture in the neck would have destroyed and burnt the thyroid gland due to the widespread fibrous scar occupying the front of the neck lead us to suspect hypofunction of the thyroid gland as the culprit and initiated us to investigate and evaluate the thyroid function. The patient was subsequently found to be severely hypothyroid. The need for a mandatory thyroid evaluation in all dense post burn contracture of the neck is discussed.

Keywords: unsuspected hypothyroidism, delayed recovery, postburn neck contracture, destroyed thyroid tissue

1. Introduction

Post burn contractures of neck are a perennial challenge for the anesthetist and the surgeon in view of the complexities involving the airway, wound healing and infection. Post burn contractures usually involve the anterior and lateral aspects of neck and rarely involve the back of neck. We hereby report an unusually delayed return to consciousness following surgery for a post burn contracture neck extending from mentum to sternum.

2. Case Report

A 40 yrs old female, moderately built and fairly nourished was posted for a PBC neck release and skin grafting under General anesthesia.

3. Preoperative Evaluation

Patient was investigated by way of a surgical profile (complete blood picture, random blood sugar, blood urea, serum creatinine, serum electrolytes, X ray neck and chest, ECG 12 Leads, Hbsag, HIV, and HCV) and all parameters were within acceptable limits.

On examination the contracture was very dense, tough one extending from mandible to sternum and had included both sternocleidomastoid muscles. The mouth opening was adequate enough for laryngoscopy and insertion of a supraglottic device.

3.1 Preoperative preparation

A peripheral IV line was secured on the Left upper limb. ECG, SPO₂, EtCO₂, NIBP and nasopharyngeal temperature

were the monitors established. 40mg pantoprazole and 4mg ondansetron were given as premedication intravenously.

Patient was given 10 ml of lignocaine viscous (2%) to rinse her oral cavity and was instructed to keep the viscous at the back of the throat for around three minutes and later asked to spit out the residual viscous. The patient was again asked to open her mouth and a 10% lignocaine spray was sprayed on the back of tongue in two puffs (around 20 mg) as an additive measure to ensure thorough topical anaesthesia of posterior pharyngeal wall to inactivate gag reflex. A tumescent infiltration of the neck was carried out with a lignocaine + adrenaline + hyaluronidase mixture in a volume of around 60 ml of normal saline with lignocaine in 0.5% concentration.

At around the same time, 100 mg of ketamine with 0.6 mg atropine was given intramuscularly into deltoid to augment analgesia for operative field.

4. Induction and Intubation

Around five minutes after IM Ketamine, the patient was put on inhalational induction by facemask with oxygen, nitrous oxide and sevoflurane and taken deep up to 8% sevoflurane. In the mean while, the contracture was reasonably released, direct laryngoscope performed and an intubating bougie was passed under vision and a 6.5 cuffed armoured tube was threaded and passed without any hitch.

5. Maintenance

Subsequent analgesia was maintained with 100mics fentanyl IV, O₂, N₂O, Sevoflurane and atracurium as the muscle relaxant in a closed circuit with circle absorber.

The operative procedure lasted around 2 hours and the neck was covered by occlusive dressing after securing skin graft as a cover to the raw neck area.

6. Recovery

The patient was reversed at the end of surgery with 0.5mg glycopyrrolate and 2.5 mg neostigmine given IV (Neuromuscular monitoring was not used during operative procedure, there were spontaneous respiratory efforts at the end of surgery). 60mg of ketorolac was given IM at the end of surgery for post operative analgesia.

The patient regained adequate respirations and was breathing adequately but remained drowsy. The gag and cough reflex were present but were not that brisk. All the clinical parameters including Etco₂ were normal. The patient was put on Assist control mode ventilation. An ABG was done 2 hours after surgery along with electrolyte estimation and was found to be normal. As patient was still deep and drowsy, ventilation was continued. Eight hours after surgery, patient regained full consciousness and was subsequently extubated. Rest of the post operative course was uneventful.

As the contracture was dense and the post burn mutilation of neck was extensive, the normal anatomy of the neck was missing in this case, anterior to larynx and tracheal rings. Thyroid gland was not identifiable. The issue was discussed with surgeon and on a unanimous note of mutual suspicion, a decision to evaluate thyroid function was taken. The thyroid function test sample was taken after surgery and the report came 24hrs later which revealed a grossly elevated TSH with T₃ and T₄ in the lower range of the normal. The TSH WAS 30.5 IU and the patient was started on L-Thyroxine 100 mics from second post operative day and discharged after 3 weeks.

7. Discussion

Post burn contractures destroy every tissue in neck and what ultimately remains is a dense fibrous tissue devoid of life and normal function. When the neck is injured following a post thermal flame burns, there is every possibility that a cervical structure like thyroid gland overlying anterior aspect of neck, could be destroyed and necrosed by the coagulative cauterizing effects of a thermal flame burn.

All over the world, evaluation of thyroid function is not done as a routine for post burn contractures of neck. The suspicion is always on serum potassium and the use of suxamethonium in burn surgery.

Our suspicion on the thyroid gland as the culprit was by fluke and by a chance observation.

During pre anesthesia check up, the patient was found to be docile and slightly detached and disinterested in her surroundings but was otherwise cooperative. It was a suicidal burn and her periods were occurring once in 40-50 days, which we thought were due to her reaching menopausal age.

8. Take Home Message

It is advisable to rule out hypothyroidism in all severe post burn contractures of anterior and lateral aspects of neck and it may not be a negative and bad idea to evaluate thyroid function as a routine before post burn contracture release surgery. The following clinical points are to be elicited to arouse a suspicion of hypothyroidism

- 1) A dull, detached patient
- 2) Female nearing menopause
- 3) Irregular and delayed menses
- 4) History of constipation
- 5) Female with history of depression and suicidal tendencies.

References

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