Acute Airway Obstruction Due to Post Thyroidectomy Haematoma: A case Report

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Case Report

Subject: Anaesthesia

Abstract:

Postoperative bleeding of the surgical site after thyroidectomy may result in a hematoma in the neck that causes airway obstruction and asphyxiation. Common symptoms of a hematoma in the neck include neck swelling, neck pain and pressure, dyspnea and stridor. Initial treatment includes the emergency evacuation of the hematoma followed by airway management, because of the possibly long interval between the initial operation and hematoma formation, ambulatory and one-day thyroid surgery is not advisable. We report a case of acute airway obstruction occurring within few hours after subtotal thyroidectomy.

Key words: Airway, Haematoma, Obstruction, Thyroidectomy.

Introduction:

Postoperative haematoma is a rare but potentially life-threatening and unpredictable complication of thyroid surgery. It has a variably reported incidence in the literature of between 0.1% and 4.7% [1,2,3]. An unrecognized or rapidly expanding hematoma can cause airway compromise and asphyxiation, which can be fatal and a challenge to anaesthetist and surgeon. Evacuation of hematoma and early tracheal intubation are of paramount importance in a case of acute asphyxia to avoid mortality.

The patients may present with respiratory distress, pain or pressure sensation in the neck or dysphagia. Signs include progressive neck swelling, suture line bleeding, dyspnea and/or stridor and possibly, significant drain tube losses if a drain has been left in situ [3, 4,5,6,7].

Case Report:

A nineteen year old ASA grade I female patient weighing about 52kgs, presented with a single butterfly shaped swelling of size 8x10cms in the front and sides of the neck since 10years. The swelling was confined to the neck and there was no retrosternal extension. There were no pressure symptoms. There were no symptoms or signs suggestive of hypo or hyperthyroidism. Preoperative thyroid function tests were suggestive of subclinical hypothyroidism, for which she was using Eltroxin 50µg once daily. Airway examination revealed mouth opening of three finger breadth, Mallampatti grade II, normal temporo-mandibular joint mobility and a good range of neck movements. X-ray neck AP & lateral views did not reveal any deviation or compression of trachea. Indirect laryngoscopy showed normal vocal cord movements. Fine needle aspiration cytology was suggestive of colloid nodular goitre. After attaining euthyroid status, she was posted for Subtotal thyroidectomy under General anaesthesia.

Oral tab. Alprazolam 0.4mg and tab. Ranitidine 150mg were given night before surgery. After taking informed consent patient was shifted to operation theatre. IV lines were secured. She was premedicated with inj. Glycopyrrolate 0.2mg iv, inj. Midazolam 1mg i.v, inj. Fentanyl100µg i.v, inj. Ondansetron4mg i.v. Pre oxygenation was done. Induction of anaesthesia was achieved with inj. Propofol 2mg/kg i.v. After checking for the ability to ventilate, inj. suxamethonium 1.5mg/kg i.v. was given. Intubation was done with 7.5mm ID cuffed oral ET tube, maintained with 1% sevoflurane, O2:N2O :: 60:40. Vecuronium was used as muscle relaxant. Intraoperative anaesthetic course was uneventful.

With the patient in supine position and neck extension, subtotal thyroidectomy was performed. The blood loss was not significant. Haemostasis was secured. The surgery was uneventful and lasted for about 2 hours 40minutes. Before closure, a negative suction drain was kept. Compression bandage was applied.

At the end of the surgery, neuromuscular blockade was reversed with inj. Glycopyrrolate 0.4 mg and inj. Neostigmine 2.5 mg. At the time of
extubation patient was sedated but responding to verbal commands. Vocal cord movements were normal. The leak test was positive and extubation was done.

A few minutes after extubation, just before shifting the patient to the recovery room, we noticed sudden increase in size of the swelling with massive collection in the drain. The patient was restless, dyspnoeic and there was in drawing of the chest. Shedesaturated a couple of minutes. Her pulse rate was 134 beats per minute and blood pressure was 80/50 mm Hg. Positive Pressure Ventilation was given, re intubated with a smaller size (6.5mm ID) ET tube. The patient was shifted to the operating table. Suspecting haematoma, compression bandage and dressing were removed, there was oozing from the wound, bulging of skin flaps. After exploring the wound, there was bleeding from the superior pedicle, which was identified and ligated. Normal hemodynamic were achieved and maintained. At the end of the procedure, patient became conscious, responding well to verbal commands. Patient was shifted to ICU and kept intubated till the next day. Thereafter her postoperative course was uneventful, discharged home on 12th POD.

**Discussion:**

Despite the ongoing advances of the techniques, the innovations in the surgical field and a better understanding of the underlying thyroid pathologies, postoperative hematoma remains a potentially serious complication of thyroid surgery [4]. When fatality occurs because of this postoperative hematoma, it is due to acute airway distress and cardiac arrest [3]. Haematoma is more common in patients with large dead space. If the strap muscles are closed too tightly, haematoma may not be evident under the skin. However, the clots may dissect below the strap muscles in the peritracheal area along the deep neck spaces. Total airway obstruction may progress within no time, once the critical compression in this tight compartment below the strap muscles is reached. This leads to compression of the trachea and impairment of the venous and lymphatic drainage and then laryngopharyngeal edema, which may be the real site of airway obstruction [8,9]. It seems to be reasonable not to close the strap muscles very tightly so that any deep hematoma that develops may become apparent in the subcutaneous region before the patient develops a major airway problem [3,9].

The time interval to the development of hematoma has been mostly reported to be within 24 hours, the same as was observed in our patient [1,3,4,5]. The surgeons and medical staff at the ward should pay special attention for any signs and symptoms of bleeding during the period. However, there are still some other reported cases, although only a few, in which delayed hemorrhage developed more than 24 hours after surgery [2,3].

Slipping of the ligature from the major vessels could have been the main cause of the bleeding in our case. The importance of meticulous hemostasis cannot be overemphasized. Whether the patients’ retching and bucking during recovery, a Valsalva maneuver or any event of increased blood pressure caused the slipping could not be confirmed unless, if the hematoma has developed just after the patient began to cough. A poor tying technique for ligating the vessels should also be considered. Matory and Spiro [11] in their study, concluded that smooth arousal from general anesthesia is paramount for patients who have just undergone thyroid surgery. Increasing the venous pressure through a Valsalva maneuver or placing the patient in a 30° head down position before wound closure could be another method to prevent postoperative hemorrhage because these procedures will help to identify potential bleeding points [4,12]. Since the branches of the superior thyroid artery may be very difficult to identify after the slipping of ligature, special attention is required to ligate these vessels.

Patients with post-thyroidectomy hematoma may present with respiratory distress, pain or a pressure sensation in the neck or dysphagia. The signs include progressive neck swelling, suture line bleeding, dyspnea or stridor and a significant amount of drain losses [4]. As early recognition with immediate intervention is the key to managing this complication, the medical staff should be thoroughly aware of these signs and symptoms [2]. Immediate intubation should be performed in the case of respiratory distress from airway obstruction. If this procedure is not available, then bedside decompression of the wound is the key factor for providing relief from hypoxia and the resulting cardiovascular instability [4,8]. We assume that early detection and management before the onset of any laryngopharyngeal edema contributed to early and better recovery in our case.

Post-thyroidectomy haemorrhage shows different clinical patterns between the superficial cases and the deep cases. It could be considered that superficial hematoma may frequently cause ecchymosis, while hematoma deep to the strap muscles could lead to life-threatening airway obstruction. The clinical patterns of the signs and symptoms according to the bleeding focus (be it superficial or deep to the strap muscles), may be...
helpful to determine the severity and the sources of the hemorrhage.

Etiology of post-thyroidectomy haematoma may include slipping of ligature on major vessels reopening of cauterized veins, retching, vomiting, bucking during recovery, valsalva manoeuvre, increased blood pressure during recovery, oozing from cut area of thyroid.

Precautions are to be taken to avoid unnecessary morbidity and mortality, like meticulous haemostasis. Close postoperative monitoring for features of hypoxia rather than external evidence of haemorrhage is the key factor in early detection and successful management of such a fatal complication. A smooth extubation without significant coughing or retching and controlling both postoperative vomiting and pain to avoid raised venous and/or arterial pressures are important considerations in minimising the risk for postoperative haemorrhage.

Conclusion:

Post-thyroidectomy haematoma, though rare, is most serious amongst other complications, as it can be fatal. However, this can be efficiently managed by meticulous attention to haemostasis, careful monitoring in the recovery room, appreciation of subtle signs of respiratory distress, early airway and surgical intervention and finally by following the dictum that every case of thyroidectomy is a potential candidate for postoperative haemorrhage. Any delay in detection and intervention can be fatal.

References: