

# **Guideline for the management of a neck haematoma following thyroid surgery in a ward setting**

Rev 1.0

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## **Introduction**

The National Clinical Programme in Surgery have been commissioned by the National Clinical Adviser and Group Lead (NCAGL) for Acute Operations, Dr Vida Hamilton, to produce a guideline for healthcare workers to manage patients who develop post- operative neck haematoma in a ward setting.

This is the first guideline of this kind for the Irish healthcare setting.

## **Background**

There were 301 thyroidectomies carried out in Ireland in 2019<sup>1</sup>. International literature review reveals the majority of these procedures proceed without complication, however a neck haematoma can occur in 1% of patients undergoing Thyroid Surgery (Rosato, Avenian, *et al.* 2004), in some incidences, this can enlarge rapidly, it may cause with secondary oedema of the larynx which has the potential to cause fatal airway obstruction.

Cervical haematoma is associated with a 540% increased odds ratio of death (Becker *et al.* 2018).

It is imperative that practice is standardised nationwide and it is the aim of this guideline to show best practice for the care of patients who develop a post-operative neck haematoma following thyroid surgery.

## **Risk factors**

A haematoma can occur in any patient undergoing thyroid surgery, therefore all patients must be managed with this potential in view.

There are a number of factors that can increase risk in a patient to develop a haematoma, the following sections give more detail on relative and intraoperative factors.

## **Relative Risk Factors**

Patients who undergo surgical intervention on the neck should undergo pre-assessment screening in preparation for their planned surgery.

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<sup>1</sup> Source HIPE data 2019

Risk factors for a post-operative haematoma are identified in Table 1. These should be identified early and a management plan put in place pre-operatively.

Table 1. Risk factors (Fan et al, 2019)

| Individual Factors | Medical history factors   | Associated factors  |
|--------------------|---|---|
| Age<br>Males       | Graves' disease<br>Total thyroidectomy<br>Prior thyroid surgery<br>Anticoagulation medication | Thyroid surgery in a low volume hospital,<br>Accompanying neck dissection |

### Intraoperative risk factors

There are a number of interventions that can be carried out intraoperatively to reduce the risk of post-operative complications:

- Meticulous haemostasis is essential: the particular technique to be used is the surgeon's choice however; use of vessel sealing devices may improve haemostasis. When used sutures should be braided absorbable or non-absorbable
- Interrupted closure of strap muscles to facilitate drainage
- Skin closure: subcuticular sutures / skin clips / tissue glue
- Insertion of drain is at the surgeon's discretion, however drains do not prevent haematoma formation (Woods *et al*, 2014), and may increase risk of wound infection and prolong length of hospital stay (Maroun, et al. 2020)
- Effective communication with the anaesthesiologist is essential
- A Valsalva manoeuvre should be carried out (40mm Hg) prior to closure, to detect occult venous bleeding
- A rise in intrathoracic pressure is known to be an important contributory risk factor to post-operative bleeding/haematoma, often caused by coughing or retching on extubation. Therefore, care should be taken to minimise this on extubation (Clemens, 2019).

## Care of post-thyroidectomy patients

- The operating surgeon must assesses the wound for swelling before the patient is discharged from recovery.
- The operation note should clearly document the post-operative instructions and describe the method of wound closure i.e. clips, subcuticular sutures or glue.
- Equipment appropriate to the wound closure should be available at the patient's bedside in case of emergency, i.e. Suture removal set, clip remover or paraffin jelly for tissue glue.
- Bedside emergency oxygen should always be available in case of desaturation.
- Clinical handover at all stages of the patient journey (recovery, ward and shift to shift) must emphasise the importance of observing for neck swelling/breathing difficulty.
- The patient's post-operative observations should be in line with local policy, keeping the patient under close observation, ideally with in view of the nurse's station. Any patient 'scoring' on the National Early Warning System should be appropriately escalated.
- Experienced surgical personnel should be available in the early post- operative period.
- Post-operative review should be performed by the registrar on the evening of surgery.
- In the event of distress symptoms (shown in table 2), nursing staff should communicate urgently with the Surgical Registrar / Consultant.
- In the event of further deterioration, the first responder (Nurse/SHO /Intern) should escalate concerns to the Surgical Registrar / Consultant.
- If the patient develops airway compromise or more substantial swelling, local emergency protocols should be followed.

## Post-operative sign & symptoms

The earliest signs of neck haematoma are neck swelling and / or dyspnoea, these symptoms should be watched for very closely in the first 6-12 hours after neck surgery. Deterioration can happen rapidly.

Table 2: Signs of distress

|                              |  |
|------------------------------|--|
| <b>Red Flag symptoms</b>     | Post-operative neck swelling<br>Difficulty breathing   |
| <b>Non-specific symptoms</b> | Change in voice quality,<br>Neck tightness, neck pain/pressure,<br>Dysphagia,<br>Sweating, agitation and anxiety<br>Increased restlessness<br>Stertor or Stridor<br>Ecchymosis may be seen if the haematoma is superficial to strap muscles, but it often absent if deeper |

Whilst the majority of post-operative haematomas occur within 6-12 hours following surgery, 20% may present more than 24 hours following, thus the diagnosis should be considered in any patient with the above symptoms following thyroidectomy.

### Emergency Management

On discovery of a patient with a likely haematoma in the wound:

- Follow local emergency measures- call for help.
- First responder must stay with patient and should delegate
- Sit patient upright
- Administer 100% oxygen

### If the patient is stable:

- The surgeon should organise return to theatre as an emergency without opening wound.
- The surgeon should accompany the patient during transfer in case deterioration occurs.
- In the theatre, if an anaesthetist is present, the patient may be intubated and the wound opened (Harding, Palazzo et al, 2006)

Attempts at tracheal intubation may be unsuccessful due to laryngeal oedema and may exacerbate the situation. If the patient is decompensating, the neck wound should be opened to the level of the trachea. This is the safest rapid method to relieve the airway obstruction.

It should be noted, no active bleeding maybe detected, just organised blood clot which should be removed.

**If the patient is unstable:**

- Clinically worsening respiratory distress, desaturation require immediate bedside retrieval by opening the neck wound. It is imperative that bedside retrieval should occur if any delay in theatre availability.
- Bedside opening of wound: Follow **SCOOP** guidance (Appendix 1) as recommended by British Association of Endocrine and Thyroid Surgeons (BAETS).

**S-** Steri-strips removed

**C-** Cut subcuticular/subcutaneous sutures

**O-** Open wound with fingers

**O-** Open by pushing fingers into wound to separate strap muscles. Open until anterior wall of trachea is visualised

**P** – Place finger over bleeding point if visualised

- The surgeon and anaesthesiologist should accompany the patient during transfer.

**Recommendations**

1. All units undertaking Thyroid Surgery should have clear written protocols detailing how acute postoperative haemorrhage should be managed, including who the first and second responders are and how they can be contacted.
2. All staff should be aware of the protocol and the actions required achieving a safe airway.
3. Appropriate communication is key, escalating concerns up to the surgical registrar and consultant on call.

4. A poster detailing SCOOP (see appendix 1) instructions on how to open the wound in the event of an acute post-operative haematoma should be displayed in a prominent area in the clinical area.
5. Management of post thyroidectomy haematoma should be a core topic on the induction course for surgical interns in hospitals where thyroid surgery is undertaken.
6. Management of post thyroidectomy neck haematoma is a rotating module on the core surgical training programme in RCSI for all surgical specialities and should be repeated every six months.
7. Nursing staff should be aware of protocol and have clear post-operative care guidelines, including a post thyroidectomy pack for the bedside to include emergency equipment e.g. gloves, suture cutter, clip remover, and copy of scoop poster.
8. Management of post thyroidectomy haematoma education should be delivered to nurses caring for this cohort of patients.

### **Review Process**

1. Round table discussion on the grand rounds in Otolaryngology, Head and Neck surgery. Neck Haematoma and Airway Management. Jan 31<sup>st</sup> 2020. Contributors, Professors G Curley, Professor of Anaesthesiology RCSI, Professor James Paul O'Neill Professor of Otolaryngology Head & Neck Surgery RCSI.
2. Review by members of Irish Head and Neck Society.
3. Professor Patrick Sheehan, Mr Paul Lennon, Mr Liam Skinner, Mr John Kinsella, Miss Orla Young.
4. Contributions by Professor C Timon, Professor of Otolaryngology Head and Neck Surgery ,Trinity College and Mr Neville Shine , Beaumont Hospital and RCSI. Facilitator, Professor Michael Walsh, Clinical Advisor, Otolaryngology Head and Neck Surgery to the National Clinical Programme in Surgery.
5. Document approval within the National Clinical Programme in Surgery and RCSI governance frameworks.



## References

Becker, SS. et al. (2018) *Neck Haematoma after Major Head and Neck Surgery; Risk Factors, Costs and Resource Utilization*. Head & Neck, Wiley Publications, Vol 40, Issue 6, pp 1219-1227.

Chuniei Fan, Xin Zhou, Guogiang Su, Yanming Su, Jingjun Su, Mingxu LUO, Hui Li. (2019) *Risk factors for neck haematoma requiring surgical re-intervention after Thyroidectomy; a systematic review and meta-analysis*. BMC Surgery; 19-98. Available online at <https://doi.org/10.1186/s1289-019.00559-8>

Harding, J. Sebag, F. Sierra, M. Fausto, P. Henry, JF. (2006) *Thyroid Surgery; postoperative haematoma-prevention and treatment*. Langenbecks Arch Surg 391, 169-173.

NQAIS Clinical. Health Atlas Ireland (Online). Available: <https://www.healthatlasireland.ie/> (Accessed July 2020)

Maroun, Christopher A. El Asmar , Margueritta, et al. (2020) *Drain placement in Thyroidectomy is associated with longer hospital stay without haematoma formation*. Laryngoscope. Vol 130. Issue 5, 1349-1356.

Rosato I, Avenian, BP, et al. (2004) *Complications of Thyroid Surgery; Aanalysis of a multicentric study of 14,934 patients operated on in Italy over 5 years*. World J Surg. 2004, 28; 271-276.

Woods RSR. Woods JFC. Duignan ES. Timon. (2014) *Systematic review and meta analysis of wound drains after Thyroid Surgery*. Br J surg. 2014, 101, (5) 446-56

## Management of Acute Haemorrhage in Neck After Thyroid and Parathyroid Surgery



- \* Difficulty swallowing saliva
- \* Swelling in the neck



WRITE CONTACT  
NUMBERS HERE

|                          |  |   |  |
|--------------------------|--|---|--|
| <b>S</b><br>Steri-strips | <b>1</b><br>CONTACT CRASH TEAM<br>+ DUTY SURGEON | <b>2</b><br>REMOVE STERI-STRIPS                     |  |
|                          | <b>3</b><br>CUT SUBCUTICULAR SUTURES             | <b>4</b><br>PUSH FINGERS INTO WOUND                 |  |
|                          | <b>5</b><br>OPEN SKIN TO EXPOSE<br>STRAP MUSCLES | <b>6</b><br>OPEN STRAP MUSCLES TO<br>EXPOSE TRACHEA |  |
|                          | <b>7</b><br>PACK OVER<br>WOUND                   | <b>8</b><br>COVER WOUND WITH A PACK                 |  |
|                          | <b>C</b><br>Cut sutures                          |   |  |
|                          | <b>O</b><br>Open skin                            |   |  |
|                          | <b>O</b><br>Open muscles                         |   |  |
|                          | <b>P</b><br>Pack over<br>wound                   |   |  |