Post operative neck swelling

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Script Writer: Jenny Liu

Summary Writer: Jenny Liu

Editor: James Edwards

Interviewee: James Wykes

James talks to Dr James Wykes about the management of post operative neck swelling on the wards. Dr Wykes is the current Sydney Head Neck Cancer Institute Fellow based at Royal Prince Alfred Hospital and Lifehouse. He has a FRACS in General Surgery and trained at Bankstown, Liverpool and Prince of Wales Hospitals.

Approach to post operative neck swelling

With Dr James Wykes, Sydney Head and Neck Cancer Institute Fellow, New South Wales, Australia

Case 1 – you are a JMO asked to see a patient who has just returned from recovery following a total thyroidectomy. The nurse has called you because the patient has developed some swelling around the wound and seems anxious.

1. Initial questions over the phone?

- *Acute neck swelling in the post-operative period in a patient who has had neck surgery is a **surgical emergency.***
- Should prioritise this situation and review the patient immediately
- What surgery did the patient have?
- When was the surgery was performed?
- Can the patient talk in sentences? Is the patient able to maintain their own airway? Do they look comfortable?

2. Outline your assessment approach by the bedside. The patient is awake and talking.

- **History (assessing for signs of impending airway obstruction):**
    - Does the patient feel short of breath? *Simultaneously observe if the patient is looking well or in distress*

    - Have they noticed a voice change? This can occur in milder airway compromise
    - Any difficulty swallowing saliva?
    - Can they talk infull sentences?
    - Are they able to change their posture e.g. lie flat without feeling short of breath?
- **Examination:**
    - Post-thyroidectomy patients have a central neck scar. There can be some minor swelling above the scar
    - If the patient has lost the notch between the insertion points of the sternocleidomastoid muscles (if no longer concave and now convex) then this is a sign there may be some clinically significant post-op swelling
    - Any oedema/dimpling of the skin
    - Listening for voice changes. Note stridor is a LATE sign
    - Gross neck swelling is very concerning

3. Who does the JMO call if they are concerned?

- Notify the surgical team looking after the patient (ENT registrar or head and neck registrar) or the general surgical registrar if the treating team cannot be contacted
- Refer to the operation report to see who performed the operation
- Anaesthetic registrar on call will more than likely need to know about the case anyway and should be notified to give assistance

4. Any simple ward jobs the JMO can do while awaiting for help?

- Leave the patient in the most comfortable position for their airway.
- Give oxygen and ensure pain is adequately controlled
- May need to potentially use the scalpel/stitch cutter present with the patient by the bedside
    - Large post-op haematomas compress the lymphatics and compromise venous drainage and cause laryngeal oedema.
    - Releasing the haematoma by cutting any stitches and extracting the blood clot allows venous drainage to occur.
    - For someone in significant distress, it is OK for the JMO to release the wound if no senior help initially available.
    - Better taking the patient back to OT to close a wound than needing to perform a surgical airway if intervening too late!!

5. Do drugs like steroids or nebulised adrenaline have any role for the treatment of patients with airway compromise or is treatment entirely mechanical?

- Steroids and adrenalineshould not be part of the first line management strategy of JMOs
- These drugs are adjuncts tobe considered by someone experienced in airway management

6. Management approach for a patient with a mild degree of swelling near the wound

- Serial assessment is vital if a patient is otherwise OK with no voice change/difficulty swallowing/shortness of breath e.g. return to review every 20 minutes
- Patients with voice change or any difficulty swallowing MUST be reviewed by senior staff
- Waiting for a patient to developstridor is a recipe for disaster

7. Any other take home message?

- Treat this scenario as an emergency
- Take it seriously and go and see the patient ASAP.

Case 2 – you are a JMO asked to see the patient in Case 1 again in 2 days time, but this time the patient is a bit numb around the mouth.

8. Initial questions over the phone?

- For a patient 2 days post-thyroidectomy with perioral anaesthesia we would be worried about hypocalcaemia
- In contrast to an airway emergency this is urgent but not immediately life-threatening
- Ask what surgery they have had:
    - There are 4 parathyroid glands that control calcium homeostasis through PTH.
    - In the case of a total thyroidectomy the blood supply of the 4 parathyroid glands are closely related to the thyroid gland and they

can get stunned into not working causing hypocalcaemia.
    - However in patients with hemi-thyroidectomy, hypocalcaemia almost never occurs
    - Para-thyroidectomy for adenoma (in case of primary hyperparathyroidism) or renal failure patient (para-thyroidectomy for secondary/tertiary hyperparathyroidism) can result in hypocalcaemia

- Ask about symptoms of hypocalcaemia: Peripheral tingling/numbness in fingers or perioral anaesthesia
- Any bloods since surgery (calcium level?)
- Renal impairment
- Other comorbidities?

9. Are most cases of hypocalcaemia post-op detected via blood tests or when patients develop symptoms?

- They should be picked up **routinely during blood tests (serum calcium and PTH levels)**
- Traditional teaching looking for Trousseau's sign (tapping over the median nerve and eliciting finger twitching) and Chvostek's sign (tap over the root of the facial nerve and eliciting facial twitching) are signs from nerve hyperexcitability from hypocalcemia and **are LATE signs**
- The team should be routinely checking and staying on top of blood tests in the perioperative period

10. Management of post-operative hypocalcaemia?

- Most thyroid/endocrine units have a **protocol** on timing of testing and what to do when the calcium level is low – refer to this
- Serum calcium level is a good predictor of active calcium in the body (some units measure ionised calcium but this is not routinely done and serum calcium can be used if there is no significant acid/base disturbance)
- PTH level will help guide the anticipated trend in serum calcium – a patient with low PTH post-op is likely to become hypocalcemic as PTH has short half-life
- Calcium replacement often involves oral calcium, oral vitamin D and in some units IV calcium as well (**refer to local protocol**).
- If a patient is already symptomatic from hypocalcemia with perioral anaesthesia they are at risk of seizures and cardiac arrhythmias
- If concerned clinically regarding hypocalcemia, giving the patient 4 caltrate tablets STAT (which is rapidly absorbed) is a safe initial treatment
- Can give this before checking bloods (serum calcium and PTH levels)
- Use local protocols for subsequent replacement regimes
- Notify the team
- Note: Some hospitals/units will only allow IV calcium replacement with cardiac monitoring, so in these situations give oral supplementation whilst awaiting

CCU/ICU bed

11. Does hypocalcaemia resolve over time?

- Yes
- The rate of permanent hypocalcaemia post-op is very low <1%
- The rate of temporary hypocalcaemia post-op ~10% reported (but likely 20-30% from under reporting)

Take home messages

- Post-op hypocalcaemia is serious but not as severe an emergency as post-op neck swelling
- Check calcium/PTH levels and discuss with the team

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