

ANESTHETIC MANAGEMENT OF PATIENT WITH THYROIDECTOMY

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قسم تقنيات التخدير

4th Stage

المرحلة الرابعة

محاضرة رقم

نظري

Lecture No. 10

Theoretical

استاذ المادة : د. زهراء زهير تركي

INTRODUCTION

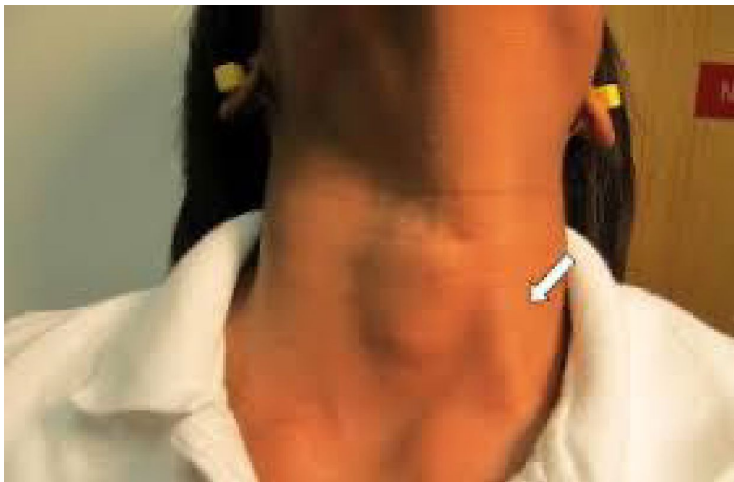
- Procedure Removal of all or part of the thyroid gland
- • • • Blood loss Usually minimal. Potentially major if retrosternal extension
- Practical technique IPPV + reinforced ETT

PREOPERATIVE

- Ensure that the patient is euthyroid
- Check for complications associated with hyperthyroidism: AF
- Ask about duration of goitre. Long-standing compression of the trachea may be associated with tracheomalacia

Ask about positional breathlessness. Assess the airway.

- ☐ Examine the neck. How big is the goitre?
- ☐ Listen for stridor.



INVESTIGATIONS

1-FBC, U&Es, Ca²⁺, and thyroid function tests are routine.

2-Chest radiograph. Check for tracheal deviation and narrowing.

3-CT scan. Advisable if there are

@symptoms of narrowing (e.g. stridor, positional breathlessness)

@50% narrowing on the radiograph.

@CT scan will help assess the degree of retrosternal extension.

4-ENT consultation to document cord function Pre-existing cord dysfunction may be asymptomatic.

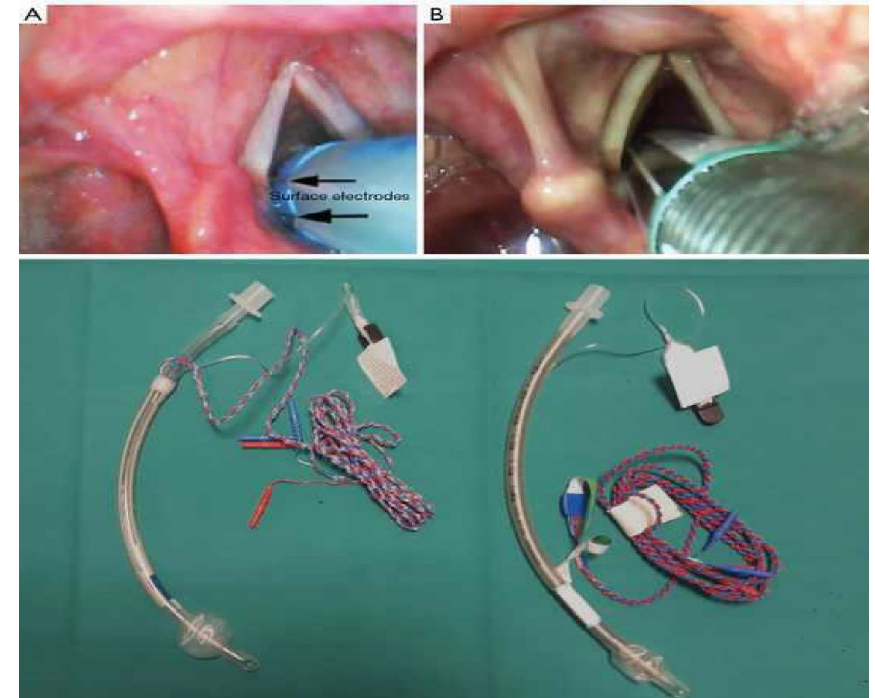
OPTIONS TO SECURE THE AIRWAY FOR COMPLICATED THYROID SURGERY

- 1- Inhalational induction with sevoflurane in patients with stridor and a suspected difficult upper airway.
- 2-Fibreoptic
- 3-LMA may be difficult to place in patients with laryngeal displacement.
- 4-Tracheostomy under LA..



PERIOPERATIVE

- - 1-Eye padding, lubrication, and tape are important, especially if the patient has exophthalmos.
 - 2-Full relaxation is required to accommodate tube movements.
 - 3-Electrophysiological monitoring of the recurrent laryngeal nerves is now possible intraoperatively, using specialized reinforced ETTs.
 - 4-Securely fix the ETT with tape,



POST-OPERATIVE

- 1- intermittent opioids with oral/rectal paracetamol and NSAIDs.
- 2-The opioid requirement is reduced with SC infiltration and superficial cervical plexus blocks.
- 3-Use fiberoptic nas endoscopy if there is doubt about recurrent laryngeal nerve injury.

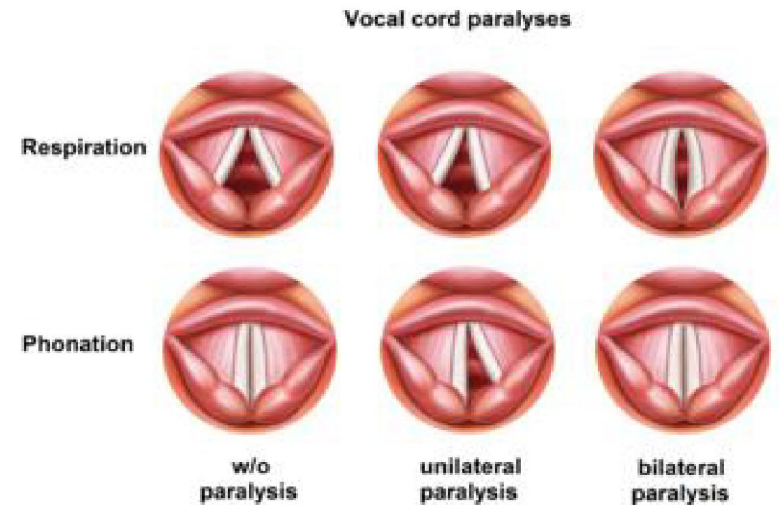
POST-OPERATIVE COMPLICATION

1-**Hemorrhage** with tense swelling of the neck. Remove clips from the skin in extremis, this should be done at the bedside. Otherwise return to theatre without delay.

2-**tracheomalacia**. Long-standing large goitres may cause tracheal collapse.

3-**Bilateral recurrent laryngeal nerve palsies**. This may present with respiratory difficulty immediately post-operatively or after a variable period. Stridor may only occur when the patient becomes agitated. Assess by fiberoptic nasendoscopy.

4-**Pneumothorax** Pneumothorax is possible if there has been retrosternal dissection.



THYROID STORM

- life-threatening exacerbation of the hyperthyroid state, with evidence of decompensation in one or more organ systems—mortality 20–30%.
- • usually presents **6–24hr post-surgery with fever ($>40^{\circ}\text{C}$), sweating, sinus tachycardia ($>140\text{bpm}$), coma, nausea, vomiting, diarrhea**
- . • rehydrate with IV saline and glucose.
- • Treat hyperthermia with tepid sponging and paracetamol.
- . • Give propranolol (1mg increments, up to 10mg),, to decrease the pulse rate to $<90\text{bpm}$.
- Alternatively, give esmolol (loading dose 250–500 micrograms/kg, followed by 50–100 micrograms/kg/min).
- • Give hydrocortisone (200mg IV qds) to decrease T4 release and conversion to T3 at very high levels.
- • Give propylthiouracil (1g loading dose via NGT, followed by 200–300mg qds). This inhibits thyroid hormone release and also decreases the peripheral conversion of T4 to T3.
- • After blockade by propylthiouracil, give sodium iodide (500mg tds IV), potassium iodide (five drops qds via NGT), or Lugol's iodine (5–10

ASPIRATION UNDER GENERAL ANAESTHESIA

- A 20-year-old patient undergoing a haemorrhoidectomy has been anaesthetised and has an LMA in place. He is positioned on the left lateral side for a caudal epidural. As you are about to perform the caudal epidural on the patient, you notice a copious volume of fluid in the LMA tube.
- **What is the immediate management?**
- Stop the procedure and keep the patient in the left lateral position;
- Administer 100% oxygen.
- Suction all the fluid through the LMA tube.
- If the laryngeal mask does not maintain the airway adequately, remove it and administer 100% oxygen via a tight-fitting face mask..
- Apply mask CPAP and consider deepening anaesthesia.
- Intubate the trachea with the aid of a muscle relaxant, and apply suction to the trachea. A bronchoscopy can be performed

How would you diagnose aspiration?

Diagnosis by:

w **Clinical examination**, which may reveal any of the following:

- laryngospasm/airway obstruction;
- bronchospasm/wheeze/crackles;
- hypoventilation/dyspnoea
- desaturation/bradycardia/cardiac arrest.

w **Monitoring:**

- decreased oxygen saturation;
- increased airway pressure;

w **Investigations:**

- chest radiograph: diffuse infiltration;
- arterial blood gases: hypoxia, hypercarbia and acidosis;
- bronchoscopy: visualisation of aspiration fluid.

What would be your subsequent management of this patient?

- w Sedation, analgesia and intermittent positive pressure ventilation via an ETT.
- w Suction of the airway.
- w Optimisation of FiO₂ possibly with positive end expiratory pressure (PEEP).
- w Bronchoscopy and bronchial lavage if necessary.
- w Emptying of the stomach with a large-bore nasogastric tube before extubation.
- w **Monitoring respiratory function.**
- w Chest X-ray looking for evidence of collapse or consolidation.

Further management depends on the clinical picture

- w If the SPO₂ is >95% on minimal oxygen and the chest X-ray is normal, the patient can be extubated and monitored for signs of respiratory complications.
- w If the SPO₂ remains at 95% and FiO₂ is <0.5, heart rate <100/min, respiratory rate <20/min the patient can be extubated and the oxygenation and atelectasis can be improved with CPAP (10cm H₂O) and chest physiotherapy.
- w If SPO₂ remains 95% despite FiO₂ being >0.5, there may be solid food material obstructing part of the bronchial tree. The patient should be transferred to the ICU postoperatively for ventilatory support.

WHAT ARE THE RISK FACTORS FOR ASPIRATION?

- ***Patient factors***

- w Full stomach,
- w Intra-abdominal pathology: intestinal obstruction, inflammation.
- w Gastric paresis: drugs such as opiate analgesics, diabetes,
- w Pregnancy. w Obesity.

- ***Anaesthetic factors***

- w Insufficient depth of anaesthesia with airway reflexes (coughing, laryngospasm),
- w During IPPV with a mask, anaesthetic gases may pass into the stomach and may increase the risk of regurgitation.

- ***Surgical factors***

- w Upper gastrointestinal surgery.
- w Increased intra-abdominal pressure, e.g. laparoscopic surgery.

Any questions?

*Thank
You*