

مادة أسس التخدير 1 الكورس الاول

Anesthetic crisis

Laryngospasm

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قسم تقنيات التخدير

.Second .. Stage

.المرحلة الثانية

...محاضرة رقم 8

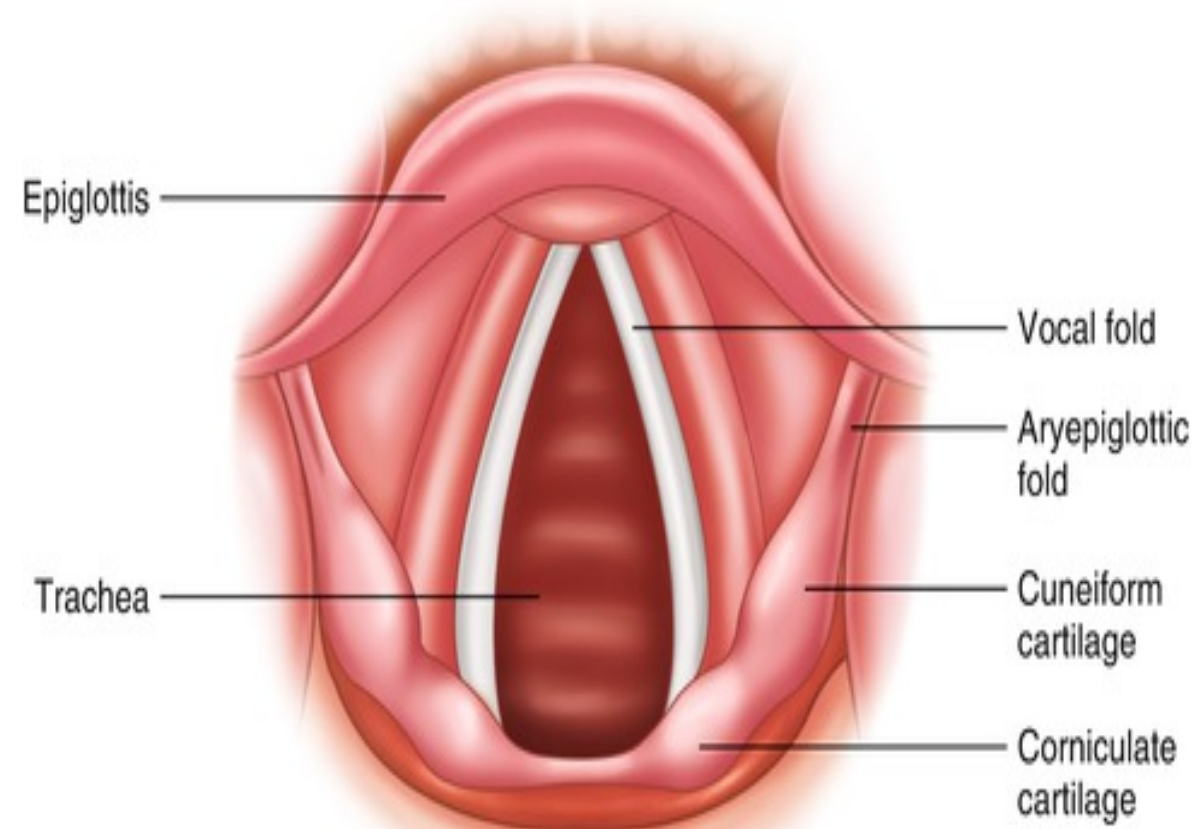
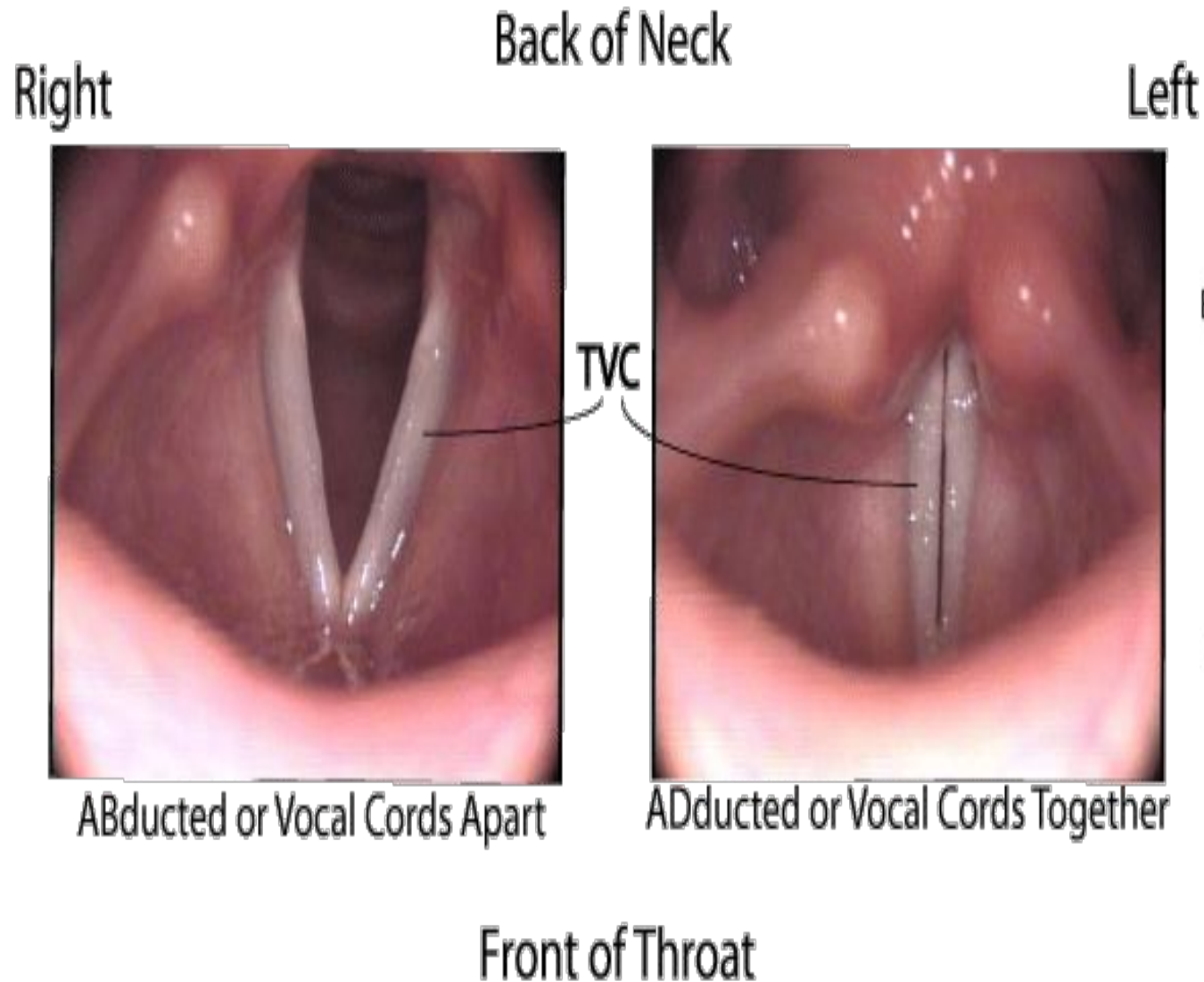
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Lecture No.8

Theoretical

استاذ المادة : د. حسن جساب البركي

Laryngospasm



Laryngospasm:

Laryngospasm is :

- A form of airway obstruction that is so common and different that most anesthesiologists consider it to be a separate entity.
- The risk is greater in certain subgroups such as children with asthma or airway infections or those undergoing oesophagoscopy or hypospadias repair, and adults undergoing anal surgery.
- In recognition of the fact that laryngospasm is a distinct entity, other forms of airway obstruction have been considered.
- While laryngospasm occurs relatively frequently and is nearly always easily recognized and handled

Laryngospasm

- It has the potential to cause morbidity and mortality, especially if managed poorly.
- Laryngospasm occasionally presents atypically and may be precipitated by factors which are not immediately recognized, increasing the potential for patient harm and further complications such as pulmonary aspiration and post obstructive pulmonary oedema.
- This latter complication is especially significant as it may cause serious morbidity and mortality, especially if managed poorly, and the patient may require intubation, ventilation and management in an intensive care setting.

Risk factors include:

- Difficult intubation
- Nasal, oral or pharyngeal surgical site
- Obesity with obstructive sleep apnea
- It may occur unexpectedly in any patient

Signs of laryngospasm :

- Inspiratory stridor (airway obstruction).
- Increased inspiratory efforts (tracheal tug).
- Paradoxical chest (abdominal movements).
- Desaturation, bradycardia, central cyanosis.

Precipitating causes of laryngospasm:

- 1. Airway manipulation**
- 2. Blood/secretions in the pharynx**
- 3. Regurgitation/vomiting**
- 4. Surgical stimulus**
- 5. Moving patient**
- 6. Irritant volatile agent**
- 7. Failure of anesthetic delivery system**
- 8. Unable to determine**

Management of laryngospasm :

1. Cease stimulation (surgery)
2. 100% Oxygen
3. Try gentle chin lift/jaw thrust
4. Request immediate assistance
5. Deepen anesthesia with an IV agent
6. Visualize and clear the pharynx (airway)
 - a. Suspect aspiration
 - b. Suspect airway obstruction

7. Try mask CPAP/IPPV

If the previous measures unsuccessful ☐

Give :

8. Suxamethonium unless contraindicated

9. Atropine unless contraindicated.

10. Again, try mask CPAP/IPPV

11. Intubate and ventilate

*Continuous positive airway pressure (CPAP)

*intermittent positive-pressure ventilation (IPPV)

Notes:

1.About

77% of cases were clinically obvious.

14% presented as airway obstruction.

5% as regurgitation.

4% as desaturation.

2.The cricothyroid muscle is the only tensor of the vocal cords. gentle stretching of this muscle may overcome moderate laryngospasm .

In applying jaw thrust, gentle pressure should be exerted on the angle of the mandible, and not on soft tissues.

3. Try 20% of the induction dose; this may be all that is needed

4. Suxamethonium:

Delay in relieving severe laryngospasm was associated with post-obstructive pulmonary oedema and were managed with suxamethonium without intubation.

- 0.5mg/kg IV to relieve laryngospasm

- 1.0–1.5mg/kg IV for intubation.

- 4 mg/kg IM for intubation (if no IV access).

5. Atropine: 0.01mg/kg. as bradycardia may occur

LARYNGOSPASM

- 1 100% oxygen.
- 2 Cease all stimulation.
- 3 Remove airway devices and suction*.
- 4 Apply gentle CPAP with jaw thrust.
If spasm persists and desaturation continues,
- 5 **Call** for help, **communicate** the problem and **delegate**.
- 6 Deepen anaesthesia^.
- 7 Give **suxamethonium** and continue CPAP.
- 8 Intubate if SpO₂ does not improve
- 9 Consider atropine 10–20mcg/kg for the treatment of associated bradycardia.

**This is a sequence to be rehearsed.
Time will not permit a checklist management approach.**

Although stimulating airway devices contributing to spasm should be removed, the **Guedel (oral) airway** may be helpful in providing CPAP.

Call for assistance early. The situation deteriorates rapidly in children.

Delegate responsibilities clearly including ETT preparation and suxamethonium administration.

Some paediatric anaesthetists will carry **pre-drawn suxamethonium** in their pocket to reduce drug error and save time during desaturation.

^Deepening anaesthesia is an option in adult anaesthesia.
Rapid development of **hypoxia** in children usually precludes this.

Spasm will 'break' with sufficient hypoxia and time, but predisposes to bradycardia, cardiac arrest, regurgitation and pulmonary oedema. These can be prevented with early intervention.

Dosage: suxamethonium 0.1 to 1mg/kg IV.
2 to 4mg/kg IMI/IO/IL.

In complete obstruction, forced inflation attempts will add to obstruction (Fink ball/valve effect) and inflate the stomach.

Consider stomach deflation before emergence.

In a rapidly desaturating child, immediate intubation without relaxation may be the appropriate treatment.

IO = Intraosseous.

IL = Intralingual.

Any questions?

*Thank
You*