OBSTETRIC ANAESTHESIA

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LABOUR ANALGESIA

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- Entonox
- Opioid analgesia
  - Morphine
  - Diamorphine
  - Pethidine
  - Meptazinol
  - Remifentanil
- Epidural

ENTONOX

ENTONOX

- 50% Nitrous Oxide 50% Oxygen
- Rapid onset/offset
- Availabitlity

- Nausea
- Light headedness
- Mixed efficacy

ENTONOX

- Large carbon footprint
- Wastage
  - Leaks
  - Scavenging
- Association of Anaesthetists
  - Nitrous Oxide Project
  - Reduce waste & occupational exposure
  - Promoting green practice
  - Catalytic cracking

REMIFENTANIL

REMIFENTANIL

- Maternal request
- Contraindication to epidural
- Platelets
- Clotting
- Anatomical
- Good maternal satisfaction
- Variable dosing
- Decreasing efficacy with time

REMIFENTANIL

- Given as PCA 40mcg/2min, variable dosage regimen
- Powerful opioid
- Rapid onset of action
- Very short elimination half life (9-10min)
- Plasma esterases
- No context sensitive half life
- Reduces epidural uptake Cf. Pethidine
- Lower incidence of instrumental delivery

REMIFENTANIL

- Indications
- Labour pain
- Contraindications

- Complications
- Respiratory depression 1%
- Sedation 1%
- Desaturation 14%
- Monitoring standards decline
- Drug mixing error 1mg/2mg/5mg

REMIFENTANIL

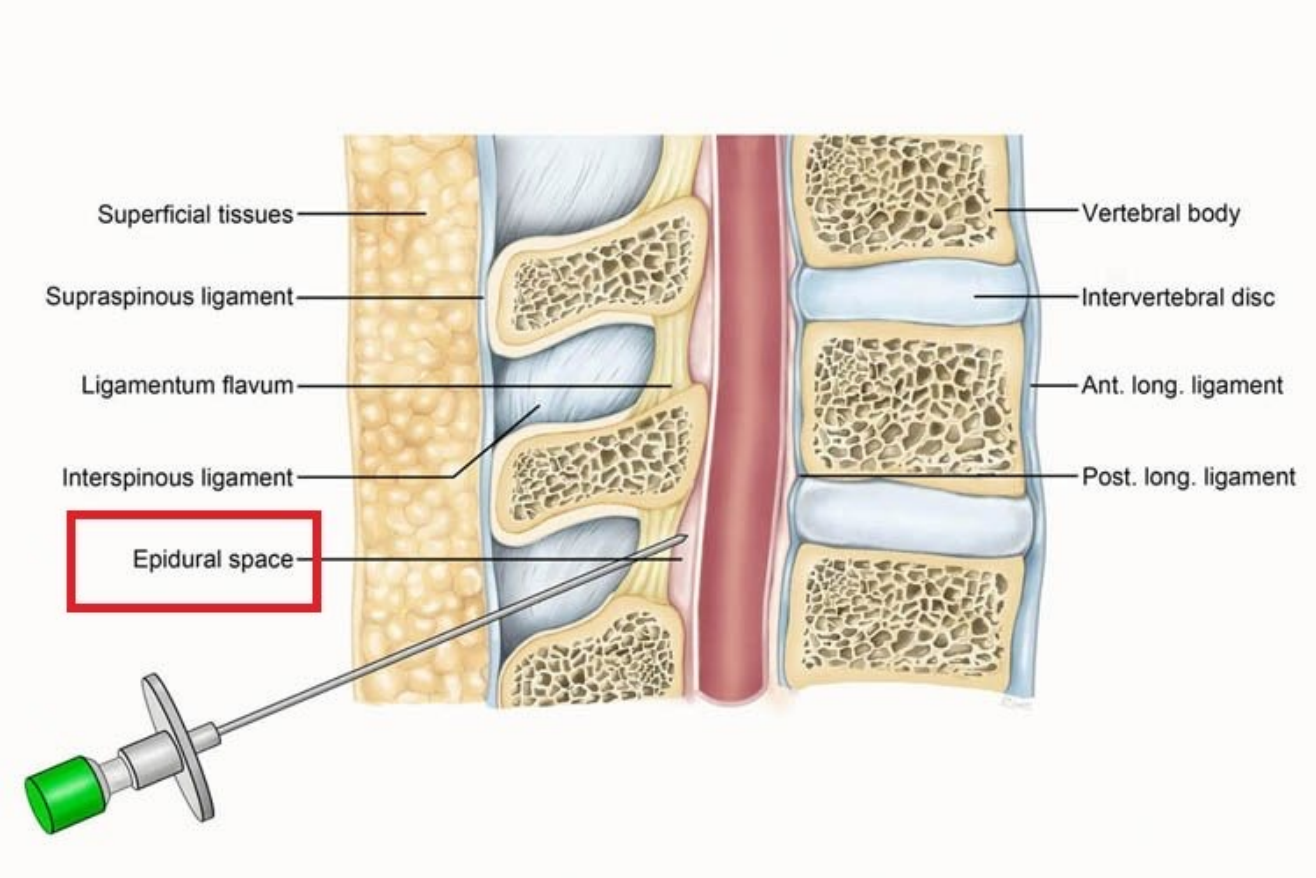
- Draft NICE guidance
- Remifentanil recommended as an alternative to epidural
  - Reduction in epidural and assisted delivery
  - No neonatal harm

- Big issue in units not using
  - Pumps
  - Training

EPIDURAL

EPIDURAL ANATOMY

- Loss of resistance technique
- Ligamentum flavum
- Epidural space



EPIDURAL

- Gold standard labour analgesia

- Continuous infusion/intermittent bolus/PCEA/combination
- Low concentration local anaesthetic and fentanyl
  - Bupivacaine
  - Ropivacaine

- Ability to convert to anaesthesia for operative intervention
- Minimal fetal effects

EPIDURAL

Indications

- Maternal request
- Hypertensive disorders
- Epilepsy
- Tachyarrhythmias
- Obesity
- Suspected or known difficult airway
- Cardiac or respiratory disease

Contraindications

- Maternal refusal
- Local or systemic infection
- Platelets <70
- INR >1.4
- Anticoagulants
- Hypovolaemia
- Spinal anomalies
- Lack of staff

ANTICOAGULANT & ANTIPLATELET THERAPY

- LMWH
  - 12h for prophylactic doses
  - 24h for treatment doses
- Unfractionated heparin 4h
- Warfarin - INR
  - Vitamin K
- Apixaban 48h
- Aspirin 0h

COMPLICATIONS OF REGIONAL TECHNIQUES

COMPLICATIONS

- Post Dural Puncture Headache
  - 1:100 epidural
  - 1:200 spinal
- Unintentional Vs. Intentional
- Guage of needle

COMPLICATIONS

- PDPH
  - Onset within 72h
  - Occipitofrontal
  - Positional
  - Neck pain
  - Tinnitus
  - Photophobia
  - VI CN Palsy - rare

COMPLICATIONS

- Blood Patch
  - Severity/duration/maternal function
  - Timing
  - 60-70% success
  - Repeat
  - Complications

COMPLICATIONS

Severe headache	One in every 100 women (epidural) One in every 100-200 women (spinal)*	Uncommon
Nerve damage (numb patch on a leg or foot, or having a weak leg)	Temporary - one in every 1,000 women	Rare
Effects lasting for more than 6 months	Permanent - one in every 13,000 women	Rare
Epidural abscess (infection)	One in every 50,000 women	Very rare
Meningitis	One in every 100,000 women	Very rare
Epidural haematoma (blood clot)	One in every 170,000 women	Very rare
Severe injury, including being paralysed	One in every 250,000 women	Extremely rare

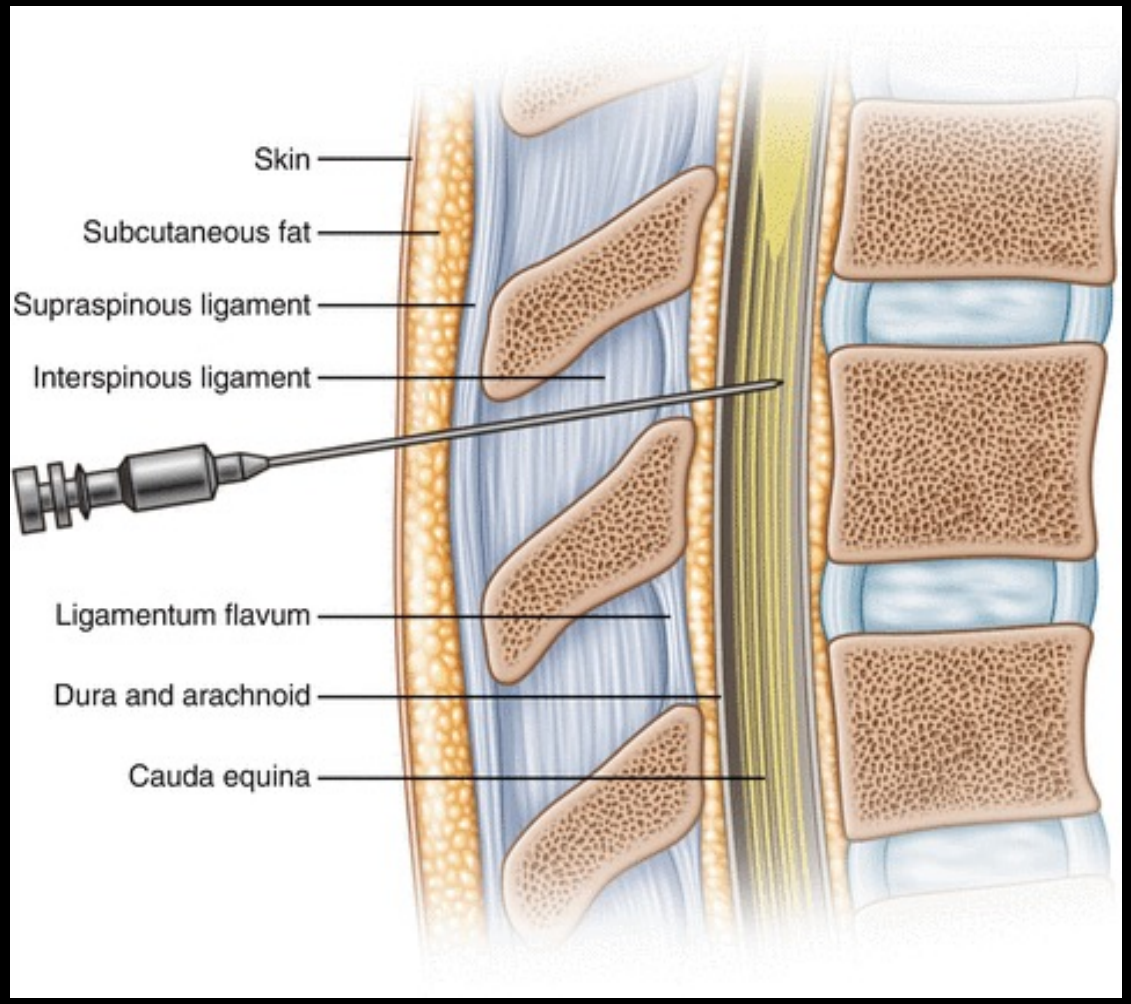
ANAESTHESIA FOR OPERATIVE INTERVENTIONS

ANAESTHESIA

- Spinal
- Epidural top-up
- Combined Spinal Epidural (CSE)
- De novo epidural
- General anaesthesia
- Combination in complex cases

SPINAL

- "Heavy" local anaesthetic
- Opioid analgesics
- Rapid onset
- Reliable
- Duration
- Failure rate is low
  - Operator dependent
  - 1-2%



SPINAL

- Hypotension
  - Mechanism
  - Caution in obstetric haemorrhage and cardiac disease
- Nausea
- Vomiting
- Doesn’t cover small bowel
- Neurological
- PDPH

EPIDURAL TOP UP

- Labour epidural -> anaesthesia
- Needs to be well selected
  - Higher failure rate than spinal
  - Operator dependent

- Generally
  - Local anaesthetic
  - Adrenaline
  - $NaHCO_3$

EPIDURAL TOP UP

- Slow onset
  - 11-20min
- Cardiovascular stability
  - Onset of sympathetic block
- More sensation
  - Starting before dense enough

CSE

- Indications
- Prolonged surgery
  - Obesity
  - Previous abdominal/pelvic surgery
- Cardiovascular stability
  - Low dose spinal
  - Epidural top up
- Need for extended analgesia post operatively

GENERAL ANAESTHESIA

GENERAL ANAESTHESIA

- Rates of GA for CS have steadily fallen (>70% in the 1980's)
- Rates of direct maternal death associated with general anaesthesia have also fallen
- Well conducted GA is safe for both mother and baby

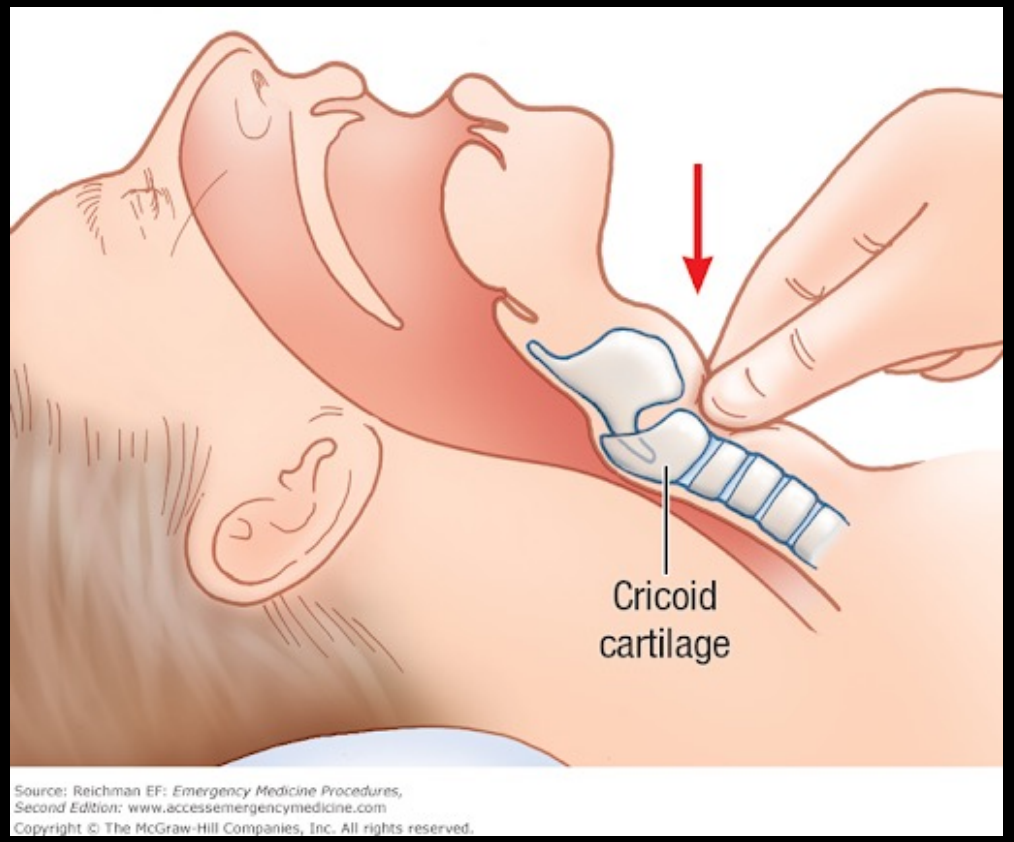
INDICATIONS FOR GENERAL ANAESTHESIA

- Urgency
  - DDI
- Maternal refusal of regional anaesthesia
- Failed regional anaesthesia
- Spinal anatomy

- Uncorrected maternal haemorrhage
- Sepsis
- Coagulopathy
- Low platelets <70
- LMWH, warfarin or antiplatelet drugs

GENERAL ANAESTHESIA

- Rapid sequence induction
  - Pre-oxygenation
  - Induction agent
  - Muscle relaxant
  - Intubate
  - Maintenance of cricoid pressure
- Modifications
  - Opioids



GENERAL ANAESTHESIA

- Failed intubation
  - 1 in 200-300
  - Much higher than in general surgical population

- Less GA in obstetrics
- Less experience

- The tube isn't the issue
- Oxygen is the issue
  - Maternal and fetal compromise

FAILED INTUBATION

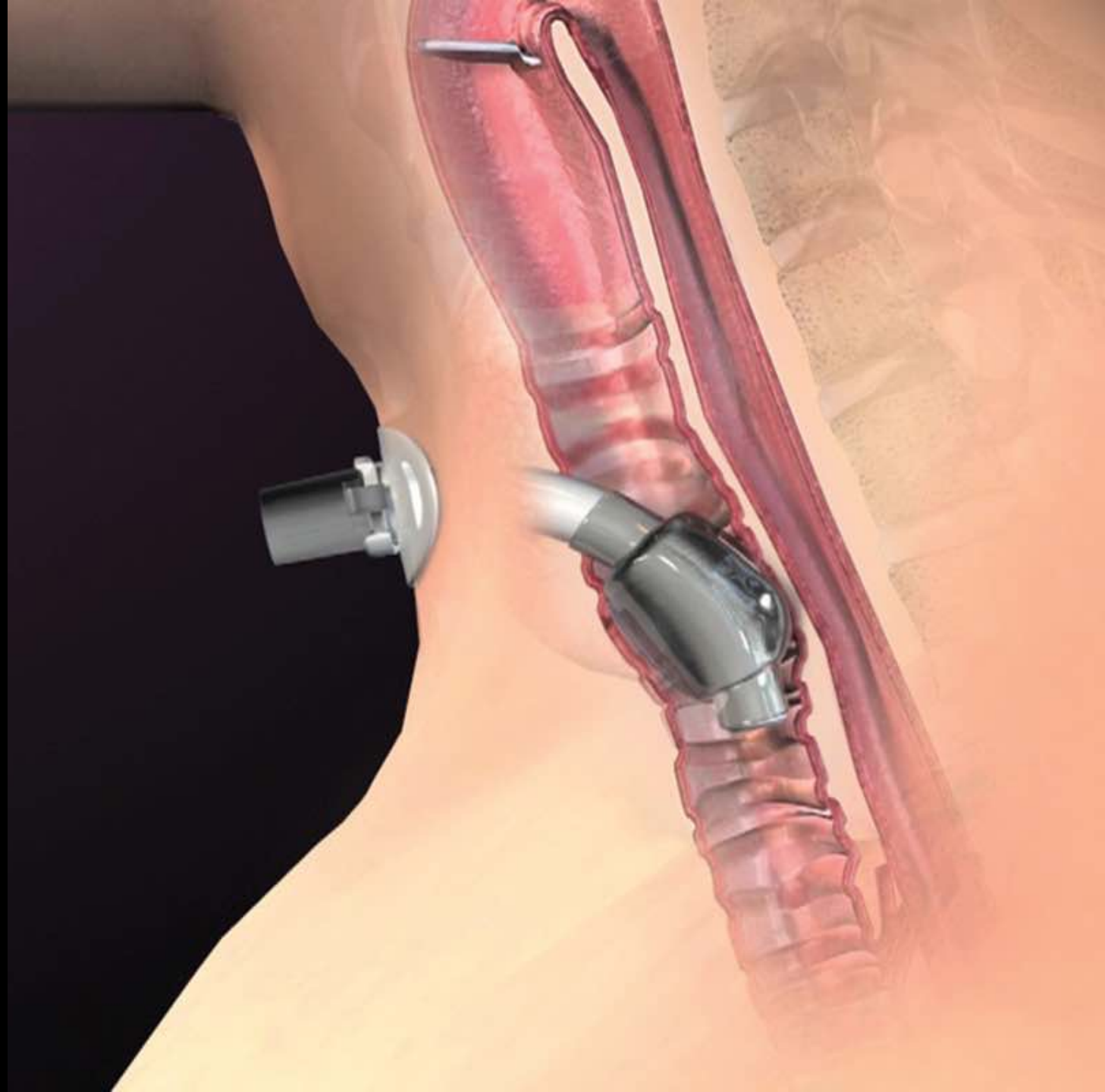
- Manual ventilation
  - Guedel
  - NP airway
- Supraglottic airway
- CICO
  - Front of neck access
- Wake patient

- In this situation be prepared to do whatever is asked of you!

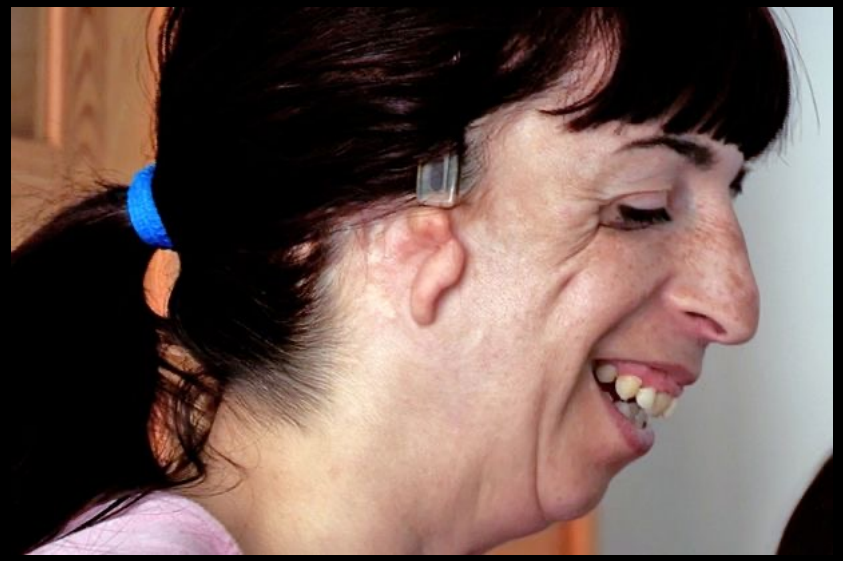
CICO – CAN'T INTUBATE, CAN'T OXYGENATE

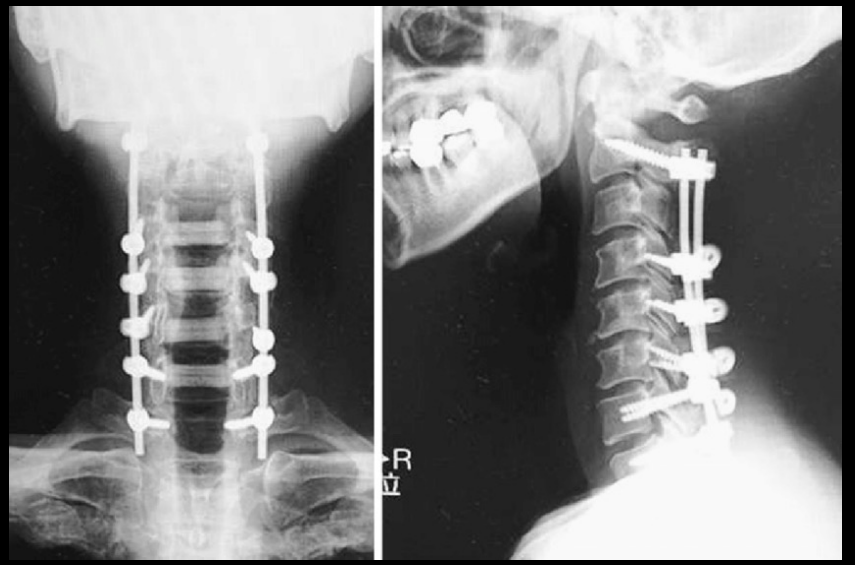
- Front of neck access
- Same function as normal intubation
- Operation can go ahead

- Bleeding
- Stressful
- ENT



FAILED INTUBATION





FAILED INTUBATION

- More oedema in upper airway
  - Exacerbated by PET and labour
- Reduced FRC and increased oxygen requirement
  - Desaturation accelerated
- Breasts

- Higher chance of regurgitation

COMPLICATIONS OF GA

- Awareness
  - 1:670 for caesarean section
  - 1:1200 for all surgeries
- Physiology of pregnancy
- Obesity
- Multiple attempts at intubation
- Junior anaesthetist

- Aspiration (1:1500)
  - Hormonal
  - Physical

- Delayed gastric emptying in labour
- Oral intake in labour
- Acid
- Particulate matter
- Bacteria

COMMUNICATION

Anaesthetists should always be informed of the degree of urgency of delivery. As an aid to communication, the classification of urgency of caesarean section should be used for all operative deliveries, vaginal as well as abdominal.	
A decision about the purpose of transfer to theatre and urgency of any delivery should be made together with the anaesthetist before transfer to theatre. The degree of urgency should be reviewed on entering theatre prior to the WHO check, and the obstetrician should confirm the degree of urgency directly to the anaesthetist.	
Anaesthetists should use a structured and validated anaesthetic handover tool between shifts and, if possible, participate in the routine labour ward handover/review of the delivery suite board. This will help maintain situational awareness and enable early anticipation of anaesthetic difficulties.	

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