

General anesthesia for obstetrics

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Content

- History
- Indication
- Preparation
- Intraoperative management
- Placental transfer of drugs
- Drugs

History



History

- The history of the caesarean section is unsure
- Legend of emperor Caesar
- The word Caesarean probably comes from the latin word Caedaere = to cut
- Lex Caesarea
- Remained an extremely dangerous procedure until late 19th century

Indications

- Labor is unsafe for the mother
- Labor is unsafe for the fetus
- Position

Preparation

- Aspiration

1:400 versus 1:2000

- Failed intubation

1:300 versus 1:2000

Aspiration and failed intubation are the major causes of maternal morbidity and mortality

Preparation

Aspiration

- Sodium citrate, other?
- Position
- Prepare for RSI

Preparation

Failed intubation

Factors that may contribute to difficulties:

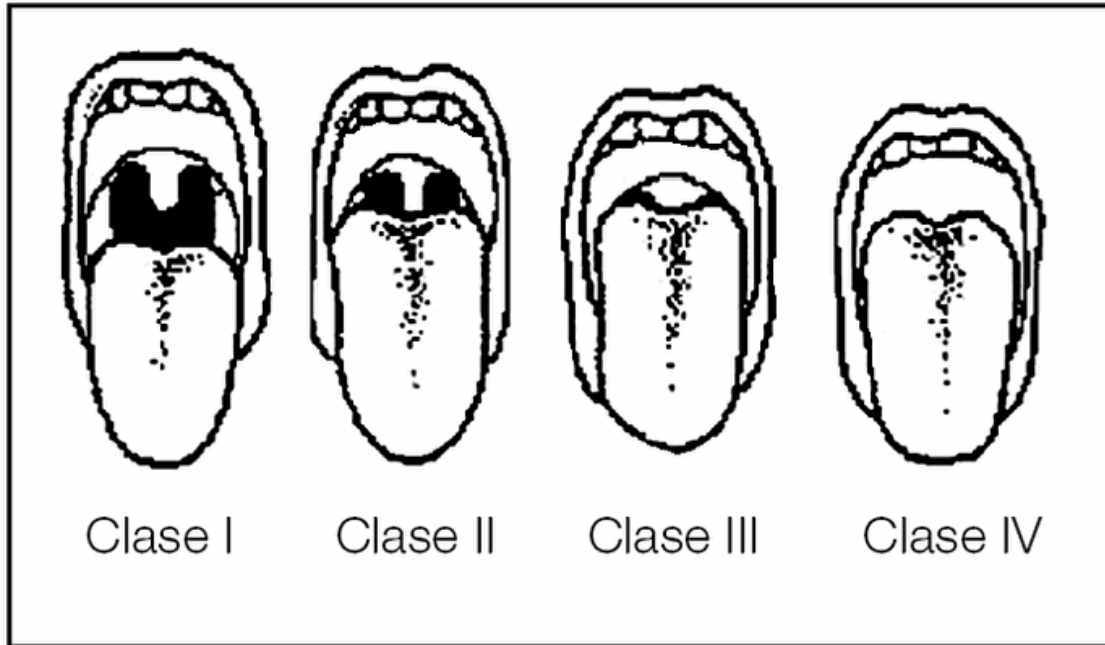
- Airway edema
- Emergency situation
- Large breasts

Preparation (airway)

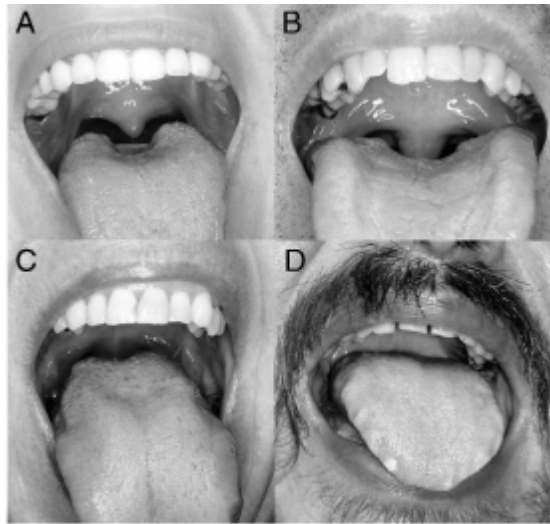
Assess airway

- Mouth opening, dentition
- Mallampati
- Temporomandibular joint mobility
- Neck mobility
- Short neck?
- Small mandible?
- Weight

Preparation Mallampati



Preparation Mallampati



Preparation

- It is not always possible to predict difficult intubation
- Algorithm for difficult intubation

Algorithm

Failed intubation

Mask ventilation adequate

Mask ventilation inadequate

No fetal distress

Fetal distress

LMA

Surgical airway

Wake up

Continue

Alternative anesthesia

Algorithm

- Call for help, early!
- Emergency – make an honest assessment about your ability to oxygenate the mother, this is your priority!!
- Mask ventilation! patient die from hypoxi not the absence of an endotracheal tube

↳ CRN's
my root

Preparation summary

- Check equipment
- Preanesthetic check, especially airway and risk for aspiration
- Dehydration?/blood loss?
- Assistant
- Position
- Iv-line
- Monitor, check vital signs.
- Preoxygenate
- RSI

Safety first!!

Intraoperative management

- Check vital signs
- Check for awareness
- Drugs: Efedrine, Long acting relaxant, opioids, oxytocin, (Metyl)-ergometrin, Reversal
- Aspirate gastric content
- Extubate when patient is awake

Intraoperative management

- Awareness – fetal depression
- Gas – uterine relaxation
- Reduced anesthetic requirement
- O₂ 50% + Nitrous oxide and:
 - Halothane 0,5%
 - Isoflurane 0,75%
 - Sevoflurane 1,0%

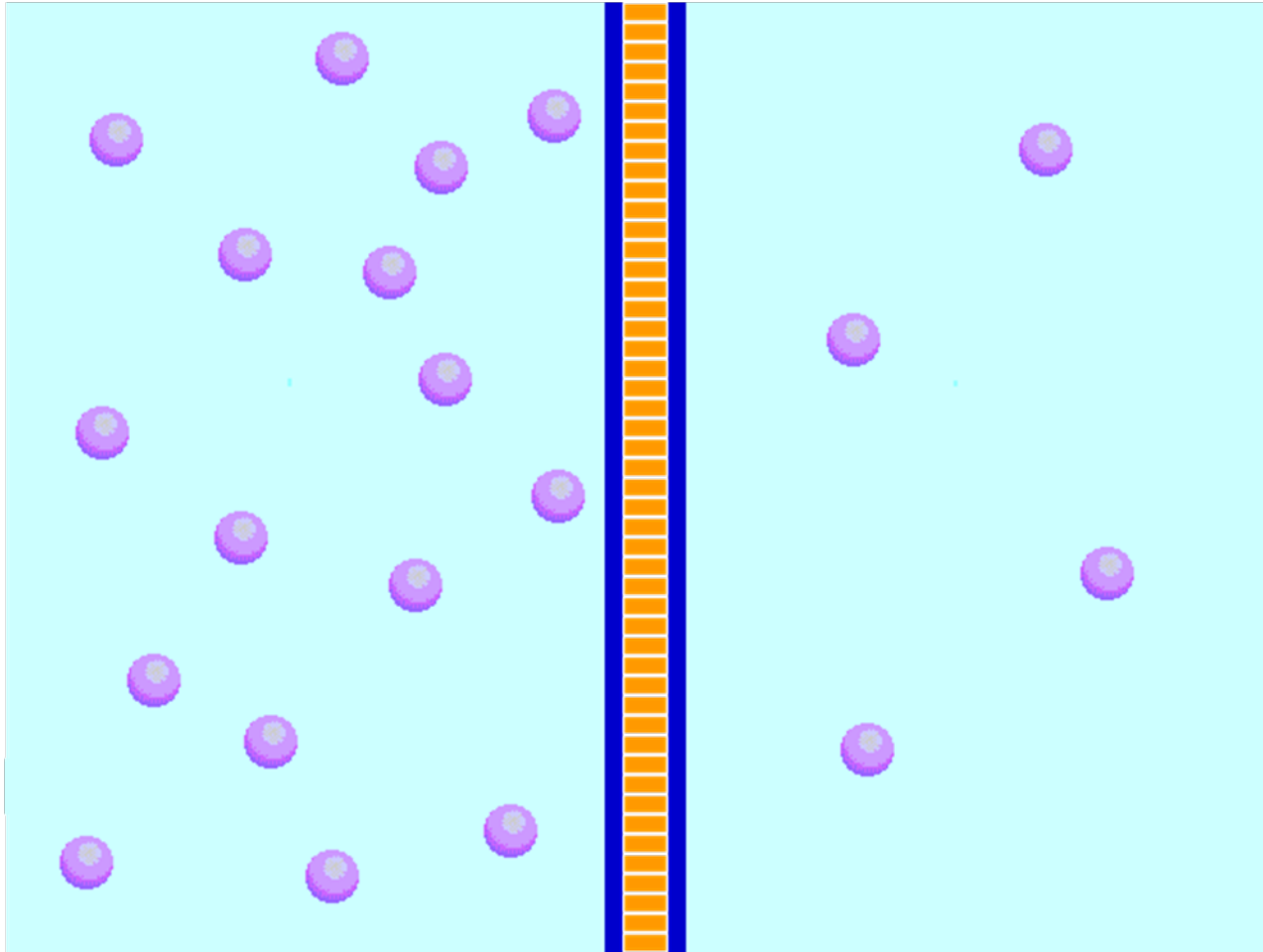
Placenta transfer of drugs

- Maternally administered anesthetics enter the fetus by **diffusion**

Diffusion depends on:

- **Diffusion constant**
- Membrane surface area
- Maternal drug concentration
- Fetal drug concentration
- Membrane thickness

Diffusion



Diffusion constant

Depends on:

- Molecular weight
- Protein binding
- Lipid solubility
- Degree of ionization

Placental transfer of drugs

Anesthetic drugs characteristics:

- Small molecules
- Not ionized
- High lipid solubility
- Incompletely protein bound

Placental transfer of drugs

- Anesthetic drug rapidly cross the placenta!
- Nb! Neuromuscular blocking drugs

Drugs

- Tiopenthal
- Cross the placenta rapidly
- 4-7mg/kg – no depression on the neonate

Drugs

- Ketamine
- Cross placenta rapidly
- 1-1,5mg/kg – no depression on the neonate

Drugs

- Propofol
- Cross placenta rapidly
- 2,0-2,5mg/kg – no depression on the neonate

Drugs

- Muscle Relaxants
- Do not cross placenta in clinically significant amounts

The end