OBSTETRICAL EMERGENCIES DURING LABOUR

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Specific objectives:

- At the end of class, the student will be able to:
  - Describe obstetrical emergencies.
  - Define obstetrical emergencies.
  - List out conditions of obstetrical emergencies.
  - Identify the signs and symptoms of obstetrical emergencies.
  - Manage mother with obstetrical emergencies.
Definition

Obstetrical emergencies are life-threatening medical conditions that occur in pregnancy or during or after labour and delivery.
Obstetrical emergencies may occur during active labour are:

- Obstetrical shock,
- Amniotic fluid embolism,
- Presentation and prolapsed of cord,
- Rupture of uterus,
- Vasa previa,
- Shoulder dystocia.
Shock in Obstetrics

Definition

• Shock is a condition resulting from inability of the circulatory system to provide the tissues requirements from oxygen and nutrients and to remove metabolites.
Types and Causes

1. Haemorrhagic shock
2. Neurogenic shock
3. Cardiogenic shock
4. Endotoxic shock
5. Anaphylactic shock
7. Other causes:
   - Embolism: amniotic fluid, air or thrombus.
   - Anaesthetic complications
   - Incomplete abortion: leads to haemorrhagic and endotoxic shock.
   - Eectopic and rupture uterus
Classic Clinical Picture of Shock

- Low blood pressure.
- Rapid weak (thready) pulse.
- Pallor.
- Cold clammy sweat.
- Cyanosis of the fingers.
- Air hunger.
- Dimness of vision.
- Restlessness.
- Oliguria or anuria.
Phases of Haemorrhagic Shock

1. Phase of compensation

2. Phase of decompensation

3. Phase of cellular damage and danger of death
Management
a. Urgent interference is indicated as follow:

✓ Detect the cause and arrest haemorrhage.
✓ Establish an airway and give oxygen by mask or endotracheal tube.
✓ Elevate the legs.
✓ Two or more intravenous ways are established for blood, fluids and drugs infusion
✓ Restoration of blood volume by:
  ✓ Whole blood
  ✓ Crystalloid solutions
  ✓ Colloid solutions
b. Drug therapy:

- Analgesics: 10-15 mg morphine IV
- Corticosteroids: Hydrocortisone 1gm or dexamethasone 20 mg slowly IV.
- Sodium bicarbonate: 100 mEq IV
- Vasopressors: to
  - Dopamine: 2.5m g/ kg/ minute IV is the drug of choice.
  - β -adrenergic stimulant: isoprenaline 1mg in 500 ml 5% glucose slowly IV infusion.
c. Monitoring:

- Central venous pressure (CVP): normal 10-12 cm water.
- Pulse rate.
- Blood pressure.
- Urine output: normal 60 ml/hour.
- Pulmonary capillary wedge pressure: Normal 6-18 Torr.
- Clinical improvement in the signs and symptoms: pallor, cyanosis, air hunger, sweating and consciousness.
d. Restoration of circulatory function and oxygenation
B. Eradication of infection
C. Other treatment

- Correction of fluid and electrolyte deficits
- Disseminated intravascular coagulation - Heparin therapy
Complications

- Acute renal failure.
- Disseminated intravascular coagulation.
- Maternal complications
- Fetal complications
AMNIOTIC FLUID EMBOLISM

Definition

- Passage of amniotic fluid into the maternal circulation leads to sudden collapse during labour but can only be confirmed at necropsy.
Risk factors of AFE

- Advanced maternal age
- Multiparity
- Intrauterine foetal death
- Placenta accreta
- Polyhydramnios
- Uterine rupture
- Maternal history of allergy or atopy
- Chorioamnionitis
- Macrosomia
Amniotic fluid and fetal cells enter the maternal biochemical mediators pulmonary artery vasospasm pulmonary hypertension acute respiratory distress syndrome Phase 1:

hypoxia elevated right ventricular pressure left heart failure myocardial and pulmonary capillary damage,
Pathology

Phase 2: biochemical mediators

DIC

Hemorrhagic phase characterized by massive hemorrhage and uterine atony.
Clinical Picture

- onset is acute
- sudden collapse,
- cyanosis and severe dyspnoea.

- followed by convulsions and right side heart failure, with tachycardia, pulmonary oedema and blood stained frothy sputum.
A. Arterial blood gas (ABG) levels: Expect changes consistent with hypoxia/hypoxemia.

- Decreased pH levels
- Decreased PO$_2$ levels
- Increased PCO$_2$ levels
Laboratory Test conti..

- CBC with platelets
- Imaging Studies- Chest radiograph
- Procedures
  - Arterial line to accurately measure blood pressure and to obtain ABG readings
  - Pulmonary artery catheter to monitor wedge pressure, cardiac output, oxygenation, and systemic pressures.
  - ECG: evidence of right side heart failure.

- scan: shows perfusion defect.
Treatment

• intubation and CPR
• experienced help, and a resuscitation tray with intubation equipment, DC shock, and emergency medications.

• IMMEDIATE MEASURES :
  - Set up IV Infusion, O$_2$ administration.
  - Airway control $\Rightarrow$ endotracheal intubation
    $\Rightarrow$ maximal ventilation and oxygenation.
Urgent treatment includes:

- **Oxygen**: endotracheal intubation
- **Aminophylline**: 0.5 gm slowly IV to reduce bronchospasm.
- **Isoprenaline**: 0.1 gm IV to improve pulmonary blood flow and cardiac activity.
- **Digoxin and atropine**: if central venous pressure is raised and pulmonary secretions are excessive.
- **Hydrocortisone**: 1 gm IV followed by slow IV infusion.
Complications

- Pulmonary oedema
- Left heart failure
- DIC
Cord Presentation and Prolapse
Definitions

• Cord prolapse occurs when the umbilical cord descends below the presenting part in the presence of ruptured membranes (usually during labour)

• incidence-1:200
The Risk with cord presentation and prolapse
Aetiology

• Foetal causes:
  – Malpresentations
  – Prematurity.
  – Anencephaly.
  – Polyhydramnios.
  – Multiple pregnancy.

• Increased umbilical cord length & Marginal cord insertion
Maternal causes:

- Contracted pelvis.
- Pelvic tumours.
- Cephalopelvic disproportion.
- Multiple gestations.
- Congenital uterine anomalies
Types of Prolapsed Cord

- Overt cord prolapse
- Occult cord prolapse
- Funic presentation
Diagnosis

- It is diagnosed by vaginal examination.
- Ultrasound: occasionally can diagnose cord presentation.
Management - Cord presentation

- Caesarean section: for contracted pelvis.
- In other conditions the treatment depends upon the degree of cervical dilatation.
- Partially dilated cervix: prevent rupture of membranes as long as possible by:
  - putting the patient in Trendelenburg position,
  - avoiding high enema,
  - avoiding repeated vaginal examination.
- When the cervix is fully dilated manage as mentioned later.
Management - Cord presentation conti...

• Fully dilated cervix: the foetus should be delivered immediately by:
  – Rupture of the membranes and forceps delivery
  – Rupture of the membranes and breech extraction
  – Rupture of the membranes + internal podalic version + breech extraction
  – Caesarean section
General management - Cord pulsating

- Determine stage of labour by vaginal examination
- Arrange immediate delivery by caesarean section
- Ensure intravenous access in place
- Administer oxygen
- Ensure continuous fetal monitoring
- The priority is to relieve pressure on the cord while preparations are made for emergency caesarean section.
General management- Cord not pulsating

• Confirm fetal death with ultrasound scan
• Allow labour to proceed as for vaginal birth of fresh stillbirth
Shoulder Dystocia

“Making the Best of a Bad Situation”

DANGERS INCLUDE:
- Entrapment of cord
- Inability of child’s chest to expand properly
- Severe brain damage or death if child is not delivered within minutes
Definition and Diagnosis

• “Difficulty encountered in the delivery of the fetal shoulders after delivery of the head.”
• Due to impaction of the fetal shoulder behind the symphysis pubis.
Categories of risk factors

Preconceptual -- before pregnancy

Antepartum -- during pregnancy

Intrapartum -- during labor and delivery

Shoulder Dystocia
Fetal Complications

- Fetal Fractures
- Erb’s Palsy
- Perinatal Asphyxia
- Neonatal Death
Maternal Complications

- Postpartum Hemorrhage
- Vaginal Lacerations
- Cervical Lacerations
- Puerperal Infections
Management of Shoulder Dystocia

- Individuals who MUST be present in the room if shoulder dystocia is anticipated or encountered
  - Attending physician
  - Anesthesiologist
  - Pediatrician
  - Nursing Staff
  - “Extra Hands”
Management:

- A common treatment mnemonic is **ALARMER**
  - Ask for help.
  - Leg hyperflexion (McRoberts' maneuver)
  - Anterior shoulder disimpaction (suprapubic pressure)
  - Rubin maneuver
  - Manual delivery of posterior arm
  - Episiotomy
  - Roll over on all situations.
Preliminary Steps

- Call for help and have the team assembled
- Drain the bladder
- Perform a generous episiotomy
- TAKE YOUR TIME, THIS IN AN EMERGENCY, BUT IT IS NOT A RACE!!!
Bilateral Shoulder Dystocia
Unilateral Shoulder Dystocia
Preliminary Measures:

- **Gentle** pressure on the fetal vertex in a dorsal direction will move the posterior fetal shoulder deeper into the maternal pelvic hollow, usually resulting in easy delivery of the anterior shoulder.

- Excession angulation (>45 degrees) is to be avoided.
McRobert’s Maneuver

- Marked flexion of the maternal thighs unto the abdomen
- Decreases the angle of pelvic inclination
- Cephalic rotation of the pelvis frees the anterior shoulder
Suprapubic Pressure

• Moderate suprapubic pressure is often the only additional maneuver necessary to disimpact the anterior fetal shoulder. Stronger pressure can only be exerted by an assistant.
Woods’ Corkscrew Maneuver

• Woods' corkscrew maneuver. The shoulders must be rotated utilizing pressure on the scapula and clavicle.

• The head is never rotated.
Delivery of the Posterior Arm

- To bring the fetal wrist within reach, exert pressure with the index finger at the antecubital junction.
Delivery of the Posterior Arm

- Sweep the fetal forearm down over the front of the chest.
The Rubin's Maneuver

- Step 1: The fetal shoulders are rocked from side to side by applying force to the maternal abdomen.
- Step 2: If step one is not successful, push the presenting fetal shoulder toward the chest. This will often cause abduction of both shoulders and create a smaller shoulder to shoulder diameter.
Fracture of the Clavicle

• The anterior clavicle is pressed against the ramous of the pubis.
• Care should be taken to avoid puncturing the lung by angling the fracture anteriorly.
• Theoretically, a fracture of the clavicle is less serious than a brachial nerve injury and often heals rapidly.
The Zavanelli Maneuver

• First described in 1988
• Consists of cephalic replacement and then cesarean delivery.
• Mixed reviews in the literature.
... Don’t Even Think About It...

• Symphysiotomy is a dangerous procedure with substantial risk to maternal health and well being.
• It is difficult to justify this procedure for shoulder dystocia in modern medicine.
Complications Associated with Symphysiostomy

- Vesicovaginal Fistula
- Osteitis Pubis
- Retropubic Abscess
- Stress Incontinence
- Long Term Walking Disability / Pain
Conclusions
Bibliography


• Abrams B, Carmichael S, Selvin S. Factors associated with the pattern of maternal weight gain during pregnancy. Obstet Gynecol 1995 (2); 86; 170-176.
Thank You