

# Common Peripartum Emergencies

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## \*\*Introduction

\*There is a group of pregnant women known as: **Risky group**.

\*By risk we mean..... hazards of death or disability.

\*High risk pregnancy is that pregnancy which carries a higher risk to the mother or perinate for morbidity or mortality.

\*Risk factors or risk markers include:

- Biological factors...age, parity, weight, special habits.
- Socioeconomic status & degree of health & ANC.
- Medical risks ...any maternal medical disease.
- Obstetric risks... past & present obst. conditions.  
(Fertility, previous pelvic operations... CS, myomectomy, low birth weight, congenital anomalies, inherited diseases... etc).

\*Peripartum emergencies usually occurs in patients with no known risk factors. From other hand, obstetric complications may occur in patients without previous risk factors.

\*This article reviews **four** types of common emergencies during delivery:

- **Non-reassuring fetal status..**
- **Maternal hemorrhage..**
- **Fetal shoulder dystocia..**
- **Eclampsia..**

## **\*Non-reassuring fetal status.\***

- \* Until the second half of the 20th century assessment of the fetal condition depended on very limited means: the growth of the uterus, the movements of the fetus perceived by the mother & listening of the fetal heart beat with stethoscope...
- \* With the introduction of electronic fetal monitoring, use of the diagnosis (fetal distress) increased from 0.6 % in 1974 to 5.8 % of all U.S. pregnancies in 1984<sup>1</sup>....
- \* The American College of Obstetricians & Gynecologists (ACOG) now recommends that: instead of the term "fetal distress", the term " non-reassuring fetal status" be used to refer to suspicious fetal heart tracings.
- \* Oxygen delivery to the fetus depends upon uteroplacental perfusion into the intervillous space & venous return in the umbilical vein. Uteroplacental perfusion of the intervillous space is:
  - Acutely reduced by uterine contractions & during maternal-hypotension...
  - Chronically reduced with placental insufficiency...
- \* The most common risk factors for fetal hypoxemia during labor are :
  - Uterine hyper-stimulation (frequency more than 3 in 10 min).
  - Prolonged labor.
  - Epidural analgesia.
  - Cord presentation.
  - Cord prolapse.
- \* Continuous FHR monitoring during labor indicated in:

<ul style="list-style-type: none"><li>- Meconium-stained liquor.</li><li>- Epidural analgesia.</li><li>- Preterm labor.</li><li>- FHR &gt;160 or &lt;120 b.p.m.</li><li>-Multiple pregnancy ,diabetes, PIH.</li><li>-Oligohydraminos, suspected IUGR..</li></ul>	<ul style="list-style-type: none"><li>-Prolonged labor.</li><li>-Augmented labor.</li><li>-Supine hypotension.</li><li>-PG&gt;=35y or multi-G &gt;=40y..</li><li>-Bad obstetric history.....</li></ul>
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- \* The normal FHR pattern is characterised by:
  - . **1)** A baseline frequency between 120 & 150 beats/m.
  - . **2)** Presence of periodic accelerations, with normal variability between 5 and 25 b/m.
  - . **3)** Absence of decelerations.
  
- SO, the FHR pattern is abnormal when one or more of this features are observed..."a baseline frequency below 120 or above 160, absence of accelerations for more than 45 minutes, decreased or absent FHR variability & presence of late decelerations".
  
- \* **Repetitive late decelerations, ( lowest point of which is past the peak of the contraction),** of the fetal heart rate may signal uteroplacental insufficiency . Fetal hypoxaemia & acidaemia occurs gradually with placental insufficiency, the fetal heart rate remains normal due to raised - catecholamines.
  
- \* **Deep prolonged decelerations or sudden bradycardia during the 2<sup>nd</sup> stage of labor suggest cord compression.**
  
- \* **Repetitive variable decelerations, ( appears at a variable time during the contraction, of irregular shape),** suggest umbilical cord compression especially in the presence of oligohydramnios or amniotomy<sup>2</sup>.
  
- \* **Supine hypotension also produce late deceleration if contractions are present.**
  
- \* **Prolonged fetal heart rate deceleration have also been reported after the administration of epidural anesthesia even when maternal blood pressure is normal.**
  
- \* **Another etiology to consider is uterine rupture which may cause fetal distress before vaginal bleeding & pain begin.**

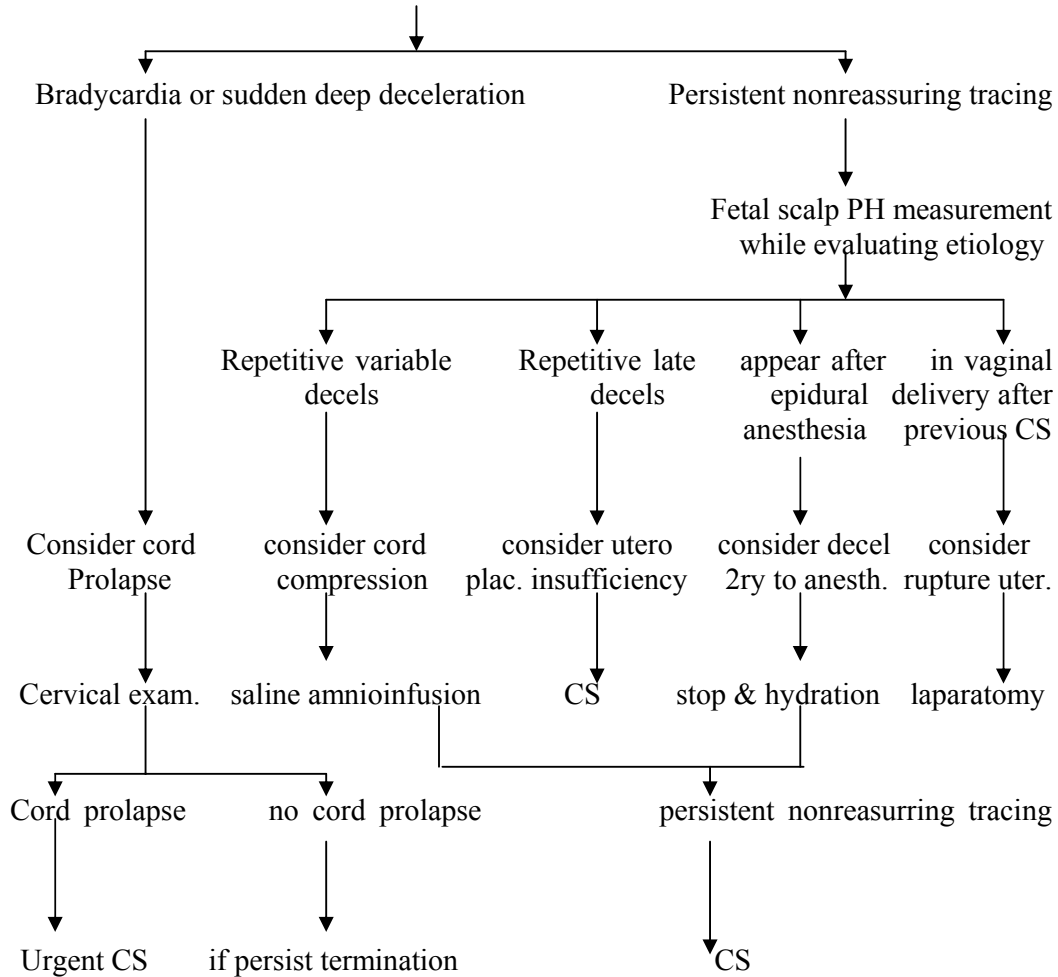
**N.B.** Common causes of fetal hypoxaemia, main effect on the FHR & clinical management..

Diagnosis	uteroplacental perfusion	intervillous space oxygen	Umbilical vein blood flow	FHR changes	Action
-Aorto-caval compression	↓	↓	normal	bradycardia/ prol. decels	left lateral & oxygen
-Epidural (fall BP)	↓	↓	normal	bradycardia/ late decels	left lat & fluids ↑BP
-Placental insufficiency	↓	↓	normal	loss accels/late decels	deliver
-Abruptio placenta	↓	↓	normal	loss variab/ late decel/bradycardia	deliver
-Uterine hyperstimulation	↓	↓	normal	late decels	tocolysis or deliver
-Cord compression	normal	normal	↓	variable/prol decels/bradyc	monitor PH or deliver.

\*Regardless of the etiology of the Non-reassuring fetal tracing, general measures to improve fetal oxygenation may help while the fetal tracing is monitored. Fetal oxygen content & saturation can be improved by placing the mother in the lateral recumbent position & administrating oxygen at 8-10 L / minute.<sup>3</sup> Oxytocin should be discontinued.

## Non-reassuring fetal heart tracing

General measures to improve fetal oxygenation:  
 -Place the patient in a lateral recumbent position.  
 -Administer oxygen at 8-10 L /minute.  
 -Discontinue oxytocin.



\* Amnioinfusion (250-500ml bolus of normal saline at room temperature may infused through a standard intrauterine pressure catheter ) reduce deceleration &the rate of CS by nearly one half.

## \*Obstetric Hemorrhage..

\*Although much less common than in the past, obstetric hemorrhage is still responsible for 13.4 % of all maternal deaths in the USA<sup>4</sup>.

### 1) Antepartum hemorrhage:

\* Bleeding from the genital tract from **24 (20)** completed weeks to the birth of the baby, including the 1<sup>st</sup> & 2<sup>nd</sup> stage of labor.

\*Incidence **2-5(3)%** of all pregnancies progressing beyond **24(20)** weeks.

\*This article workup bleeding in the 1<sup>st</sup> & 2<sup>nd</sup> stages of labor... (intrapartum-hemorrhage)...

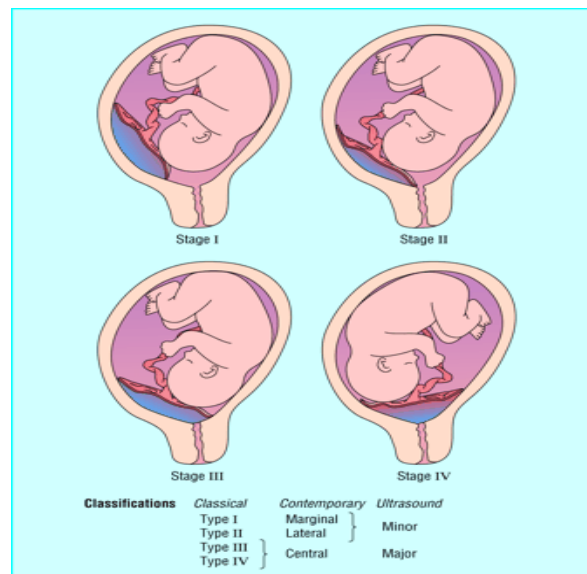
\* When a patient in labor presents with vaginal bleeding, several possible causes must be considered.

### **1-Placenta praevia..**

\* Placenta lies partially or wholly within the lower uterine segment.

1- Minor degree...placenta encroaches on lower segment but does not cover internal os.

2 -Major degree...placenta cover internal os.



\* **Placenta praevia** should be ruled out when a patient has copious vaginal bleeding.

\* The classic presentation of placenta previa is painless vaginal bleeding & a soft, non-tender uterus.

Vaginal bleeding... slight, moderate or heavy, most commonly occurring between 32 & 37 weeks gestation.

\* In addition 9 to 10% of cases of placenta previa are associated with placenta accreta (**an abnormally firm attachment of the placenta to the wall of the uterus**)..

\* Ultrasonography should be performed immediately & if not available gentle speculum examination should be performed with a double set-up in case immediate CS is required.

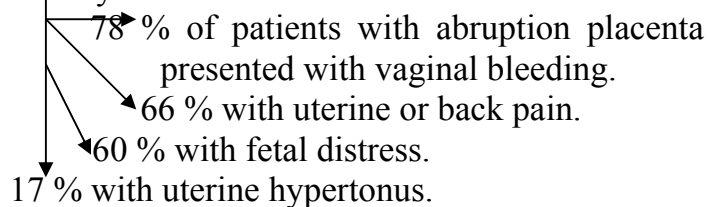
## **2-Abruptio placenta...**

\* **Haemorrhage** arising from a normally situated placenta. It may be: **Revealed**, **Concealed** or **Mixed**.

\* **Abruptio** is more common if high parity, poor nutrition, hypertension, or toxemia. Patient complains of.. abdominal pain between uterine contractions. Pain is intense and constant, and the uterus large and rigid.

\* Since USS examination has a **high false-negative rate** in diagnosing abruptio<sup>6</sup>, this obstetric complication is diagnosed clinically.

\* In one prospective study:



\* **Treatment:** Aggressive hydration, monitoring of maternal & fetal-well being, coagulation studies should be performed, fibrinogen & D dimmers or FDP should be measured to screen for DIC. Packed RBCs should be typed & held. Urgent CS is considered.

### 3-Utrine rupture...

\* Approximately 15% of all deliveries in the US occur in women with previous cesarean sections . Trial of labor with a previous LSCS , the risk of uterine rupture is less than 1% (0.2 - 0.8 %)<sup>5</sup>.

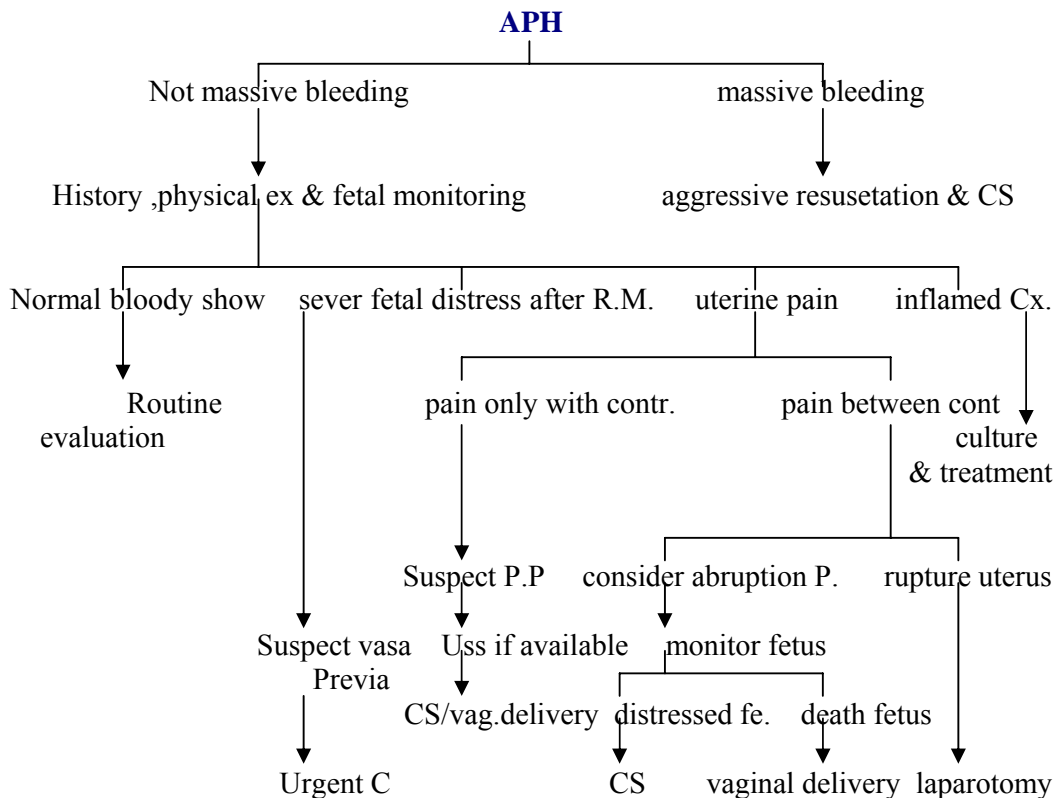
\*Also occurs commonly in cocaine abusers or patients who have been high doses of oxytocin or prostaglandins.

\* Treatment includes aggressive resuscitation & urgent surgical delivery.

**4-A history...** of abrupt onset of vaginal bleeding that began with rupture of membranes suggests vasa previa, especially when bleeding is accompanied by decreased fetal movements & a nonreassuring fetal tracing. Urgent CS is considered.

**\*The D.D of IPH also includes:**

- Normal bloody show..
- Cervical conditions as polyp, infection, carcinoma.
- Vaginal conditions as vaginitis.



## 2) Post partum hemorrhage:

\* After a normal delivery a woman commonly loses up to 300 ml of blood, 1ry PPH is the loss of 500 ml or more of blood within 24 h of delivery. In UK blood loss above 1000 ml has been reported following 1.3 % of deliveries.

\* Active management of 3<sup>rd</sup> stage of labor is associated with reduction in clinically important outcomes including PPH, PP anemia & reduction in the use of therapeutic oxytocic drugs.

\* The main causes of PPH includes:

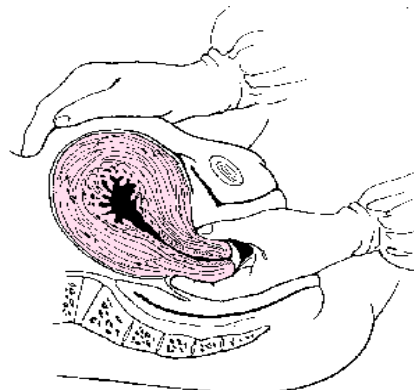
- Retained placenta (in part or whole).
- Uterine atony.
- Soft tissue lacerations.

**\*Management..** PPH is an acute life threatening event.

\* Essential elements of management of PPH includes:

- Treating shock & correction of hypovolaemia.
- Ascertaining the origin of the bleeding.
- Controlling lower genital tract bleeding.
- Ensuring uterine contraction.
- Removing the placenta.

\* Immediate emergency measures include compression of the aorta against the sacral promontory & bimanual uterine compression .



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\* Uterine contraction is usually stimulated by uterine massage, injection of oxytocin with or without ergometrine & when failed prostaglandin administration is used. Rectal administration of a large dose of misoprostol has recently been used. The iv tranexamic acid has also been reported.

\* Methylergonovine may cause cramping, headache & dizziness. It is contraindication with hypertensive patients.

\* Carboprost (Hemabate), 15-methyl prostaglandin F<sub>2α</sub> may be administered im or iv in a dosage of 250 ug every 15-90 min up to a maximum dosage of 2mg.

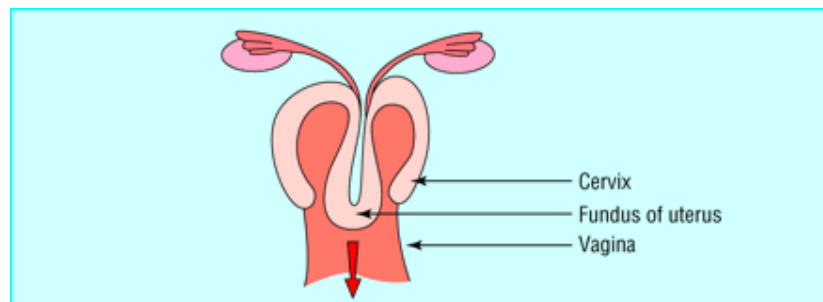
\* Misoprostol (Mesotac), a prostaglandin E<sub>1</sub> analogue, used orally for the prevention of peptic ulcer disease, has also been reported for prevention of PPH.

- Misoprostol stimulates the myometrium of the pregnant uterus by selectively binding to EP-2/EP-3 prostanoid receptors & is clinically proven to be a uterotonic agent when administered orally & vaginally.

- A major problem associated with the use of oral misoprostol in the 3<sup>rd</sup> stage of labor has been the occurrence of shivering & pyrexia. This problems dissolved when used rectally.

\* Continuing hemorrhage in a patient with a firm uterine fundus indicate a hidden vaginal or cervical laceration.

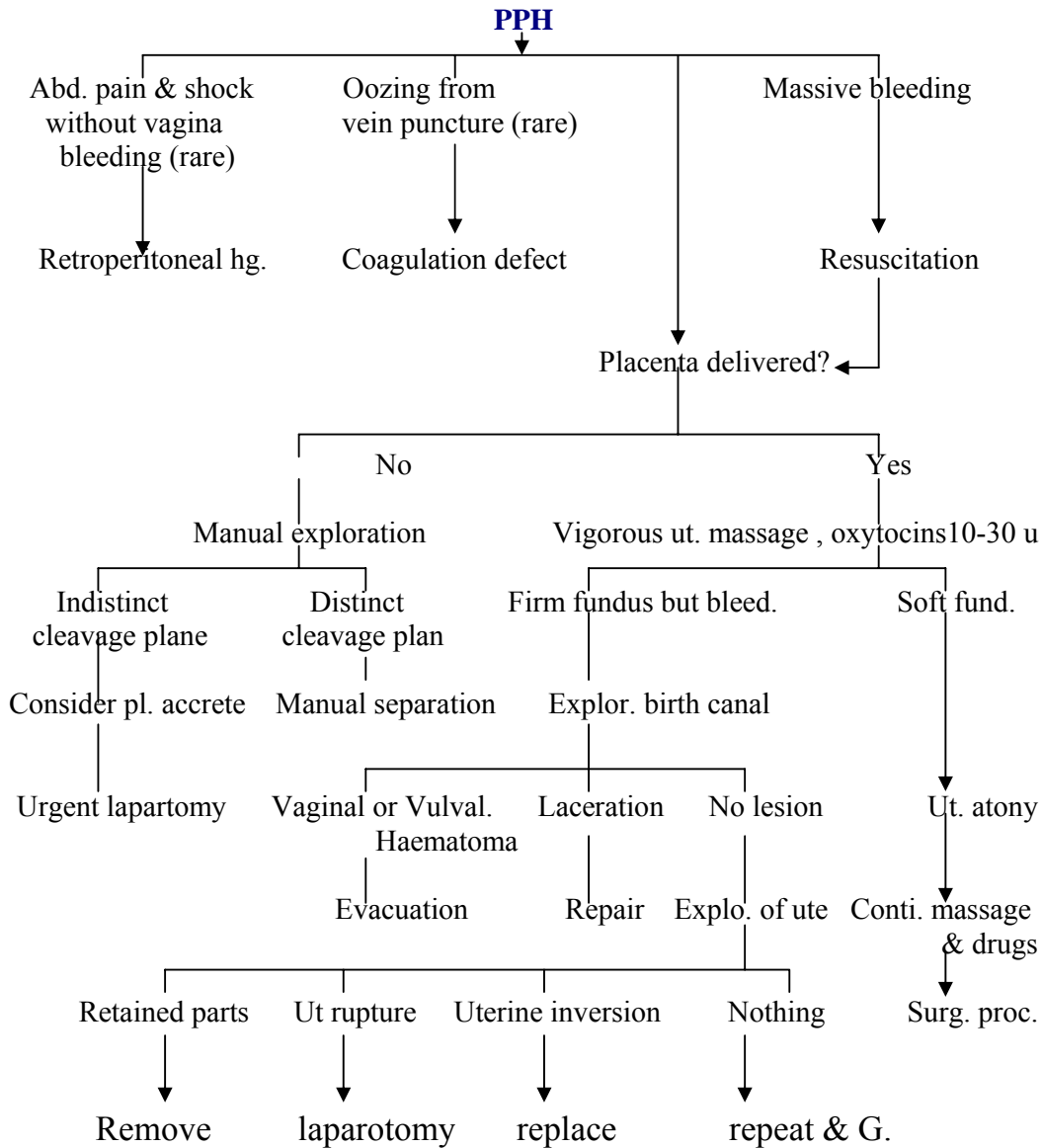
\* An occult uterine inversion may also be discovered on vaginal examination or it may present frankly.



\* If uterine exploration is non diagnostic & the fundus is firm rarer causes of PPH should be considered .

\*Surgical procedures.. Indicated when non-surgical methods fail. Sometimes Sengstaken tube or a Foleys catheter can be used intrauterine.

- Surgical ligation of uterine arteries, internal iliac arteries, or even hysterectomy may done.



## **\*Shoulder dystocia..**

\* Shoulder dystocia occurs in 0.23 % to 1.6 % of deliveries <sup>7,8</sup>.

\* In one recent retrospective analysis, the only independent risk factors were a fetal weight greater than 4 kg & a previous macrosomic infant. In another recent large retrospective study, it was found that assisted delivery often leads to shoulder dystocia when the fetus is macrosomic or the mother is diabetic<sup>9</sup>.

### **Risk Factors for Shoulder Dystocia**

#### **Maternal**

Abnormal pelvic anatomy  
Gestational diabetes  
Post-dates pregnancy  
Previous shoulder dystocia  
Short stature

#### **Fetal**

Suspected macrosomia

#### **Labor related**

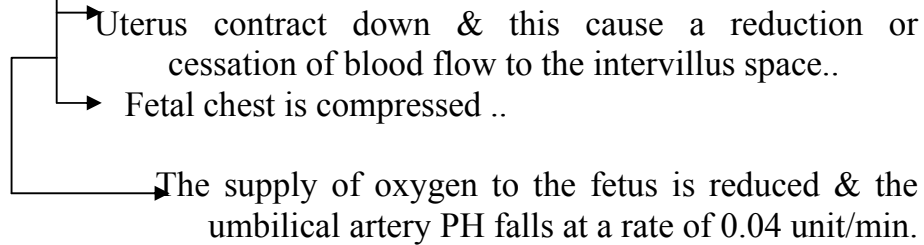
Assisted vaginal delivery (forceps or vacuum)  
Protracted active phase of first-stage labor  
Protracted second-stage labor

\* At term, the biacromial diameter of the fetus is larger than the biparietal diameter. Normally, as the head passes through the pelvic outlet, the shoulder enter the pelvic brim in the oblique diameter.

\* If the biacromial diameter is large &/or the pelvic brim is more flat than gynaecoid, the anterior shoulder may become impacted behind the pubic symphysis.

\* Usually the posterior shoulder will descend below the sacral promontory. Sometimes the posterior shoulder may be arrested above the pelvic brim - bilateral shoulder dystocia.

\* Once the head delivered:



\* There are 4-6 min to deliver the fetus without hypoxic brain damage.

**\* Complication:**

**-Fetal..**

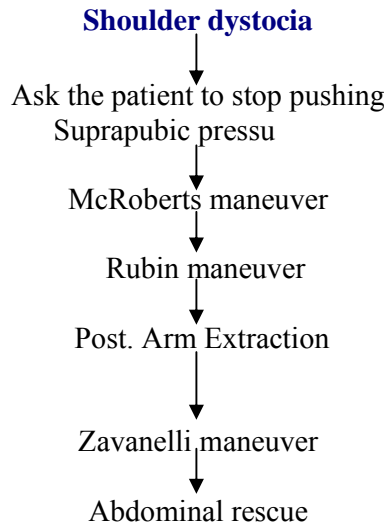
- Brachial plexus injury..5-15 % .. Erbs palsy...C5,6 Klumpkes palsy...C8-T1
- Fracture of clavicle..15 %, fracture of humerus.. rare.
- Permanent hypoxic damage of the brain.

**N.B.**: Sandmire (1988), calculated an 11.8 % of brachial plexus palsy , 7.9 % of stillbirth, 4.3 % of severe asphyxia & 2.9%of meconium aspiration.

**-Maternal..**

- Genital tract laceration are more common, generous episiotomy needed.
- Uterine rupture...rare.
- PPH..due to uterine atony, prolonged labor, large infant, increased blood loss.

**\* Management:**



## 1) Suprapubic pressure

\*Can be applied by the heel of hand to try dislodge the shoulder from behind the symphysis. The adducted diameter is narrower than the abducted diameter of the fetal shoulder. This can be helped by gentle traction on the head. Torsion, flexion & jerking of the neck should be avoided.

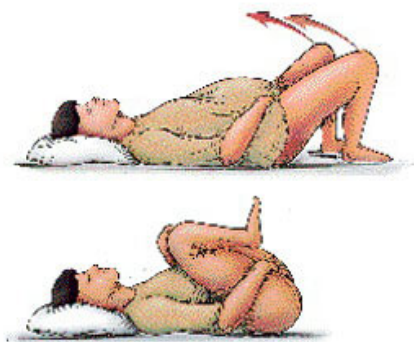


## 2) McRobert Maneuver

\* Maternal hips are hyper-flexed:

- 1-Symphysis rotates superiorly.
- 2-Flexes the fetal spine toward the ant. shoulder.
- 3-Straightens the maternal lumbar lordosis → reducing the obstructive effect of the sacral promontory.
- 4-The angle of inclination of the pelvis is reduced from  $25^{\circ}$  to  $10^{\circ}$  bringing the plane of the pelvic inlet perpendicular to the maternal expulsion forces.

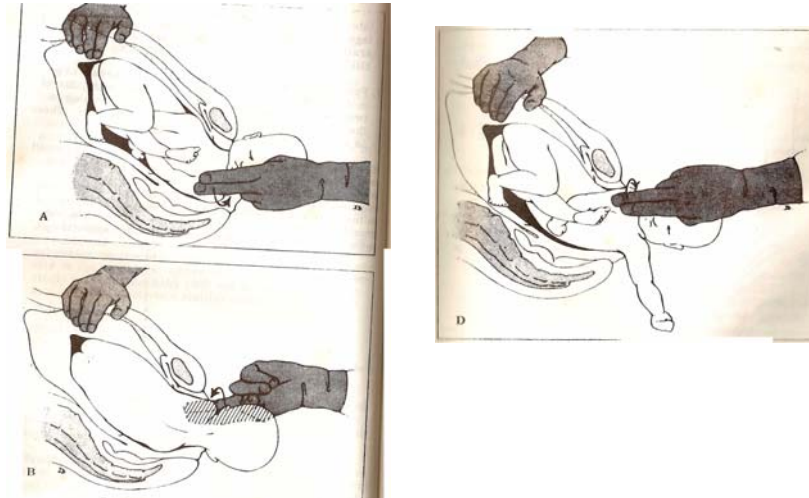
\*Recent retrospective study found this maneuver to be the safest & most successful technique for relieving shoulder dystocia.



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### 3) Reverse Woods Screw ,Rubin, Maneuver

\*Press on the post. aspect of the post shoulder, rotating the shoulder girdle 180° ...Rotating the shoulder girdle into the oblique angle, at which delivery is often possible.



### 4) Post. Arm Extraction

\*Identify the humerus & follow it to the elbow, press on cubital fossa to flex the arm & delivered across the fetal chest, then rotate the post. shoulder 180° to deliver the ant. arm posteriorly.

### 5) All Four Maneuver

\*This method observed by staff member working in Guatemala, the patient is guided to the all fours position on her hands & knees. This position made the flexibility of sacro iliac joints may allow a 1-2 cm increase in the sagittal diameter of the pelvic inlet. The gravity tend to push the post shoulder anteriorly.



### 6) Parallel Forceps

\* To grasp the fetal chest... not used.

### **7) Cleidotomy**

\*Trauma to the underlying subclavian vessels made these methods applied to dead fetus.

### **8) Zavanelli Maneuver**

\* Rotate the fetal head to the DOA position, flex the head & replace it in the vagina, supported till urgent CS done.

\* On a retrospective study 53 cases success to treated by these methods: perinatal death.. **3**, neonatal seizers..**4**, permanent Erbs palsy..**5**.

### **9)Abdominal Rescue**

\*Low transverse hysterotomy performed & the fetal shoulder is assisted below the symphysis pubis, followed by vaginal delivery .

### **10)Symphysiotomy**

\*Some authors have suggested its use for overcoming shoulder dystocia ..not used nowadays.

## Eclampsia

\* **In** developed countries, Eclampsia has been reported to occur in 0.05-0.32 % of pregnancies<sup>10</sup>. Although several recent reports indicate that the mortality rate for eclampsia is now less than 2%, serious complications still occur in up to 35% of affected women. Perinatal mortality rates range from 2.0-8.6%<sup>11</sup>.

\***The** clinical course of eclampsia is usually gradual (Typical eclampsia), but in 20 % of patients, either did not have the classic pre-eclamptic triad (hypertension, proteinuria & edema), or had only mild signs... (Atypical eclampsia).

**N.B.:** Atypical eclampsia : eclamptic fits occur in the absence of a high blood pressure or after day 7 post partum.

\***Symptoms** & Signs of impending eclampsia includes:

Severe frontal headache Epigastric pain / tenderness Nausea /vomiting Visual blurring Hyper-reflexia /sustained clonus
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\***Eclamptic** fit has 4 stages:

1- Preliminary stage (0.5 min.-0.5h).. Consciousness disturbed with twitches of small ms. → Rolling eye movements & twitches of hands & facial ms.

2- Tonic spasm (0.5min).. Contraction without relaxation of all voluntary ms. → Swallowing ms. → tongue falls backward & may be bitten with accumulation of saliva.  
→ Respiratory ms → stop respiration → cyanosis  
→ Back ms → opisthotonus position.

3- Clonic spasm.. Titanic contraction (intermittent contractions with relaxation) of all voluntary ms. → Tongue or lips may be bitten . Contraction may be so severe up to → fracture of bones & even ribs. Patient may pass urine or stool involuntary & may fall from bed.

4- Coma stage... deep coma due to brain edema & metabolic & respiratory acidosis, its duration variable & followed by recovery or new

fit after recovery or while patient in coma. Coma deepens to death (I.C. He. during fit) or recurrent fits (status).

**\*Principles** of management of eclampsia:

- 1- Immediate care...  
→ Maintain airway.  
→ Left lateral position.  
→ Oxygen administration.

- 2- Abort convulsions..Diazepam 10 mg i.v.  
or Clonazepam 1mg i.v.

3-Seizure prophylaxis..... Magnesium sulphate (often given according to Zuspan's regimen: an initial 4-g i.v. bolus, then 1 to 2 g / h as a continuous infusion). If serum magnesium levels exceed 10 mEq /L respiratory depression may occur,(antidote 10 ml of 10% calcium gluconate).

4-Maintain diastolic blood pressure of 95-105 mmHg, drug usually used is hydralazine 5-10 mg every 20 minutes or labetalol 50-100 mg every 20 to 30 m up to a total dosage of 300mg.

5- Coagulation screen / renal function / platelet count.

6- Haemodynamic stabilization followed by delivery within 6-8h (as soon as the mother is stable).

C.S.. is recommended in the following situations:

- \_\_\_\_\_ All deeply unconscious patients.
- \_\_\_\_\_ All unco-operative patients due to restlessness.
- \_\_\_\_\_ If vaginal delivery is unlikely to occur within 6-8h from the onset of the first fit.
- \_\_\_\_\_ There is an obstetric indication for a C.S.
- \_\_\_\_\_ Fetal distress.

7- Post partum 24-48 h of intensive care, (blood pressure usually fluctuating & patient is still at risk for developing complications , major fluid shifts occur during this period).

8-Ventilatory support for at least 24 h if :

- \_\_\_\_\_ Poor arterial blood gases.
- \_\_\_\_\_ Unconsciousness .
- \_\_\_\_\_ Extreme restlessness.
- \_\_\_\_\_ Laryngeal edema.

**\*\* Referances..**

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