



Eclampsia



INTRODUCTION

1)Hypertension is most common medical problem encountered during pregnancy.

2)Hypertensive disorder in pregnancy may cause maternal & fetal morbidity & leading cause of maternal mortality.

3)Hypertensive disorders are:

- ~Pre-eclampsia.
- ~Eclampsia.
- ~Gestational Hypertension.
- ~Chronic Hypertension.



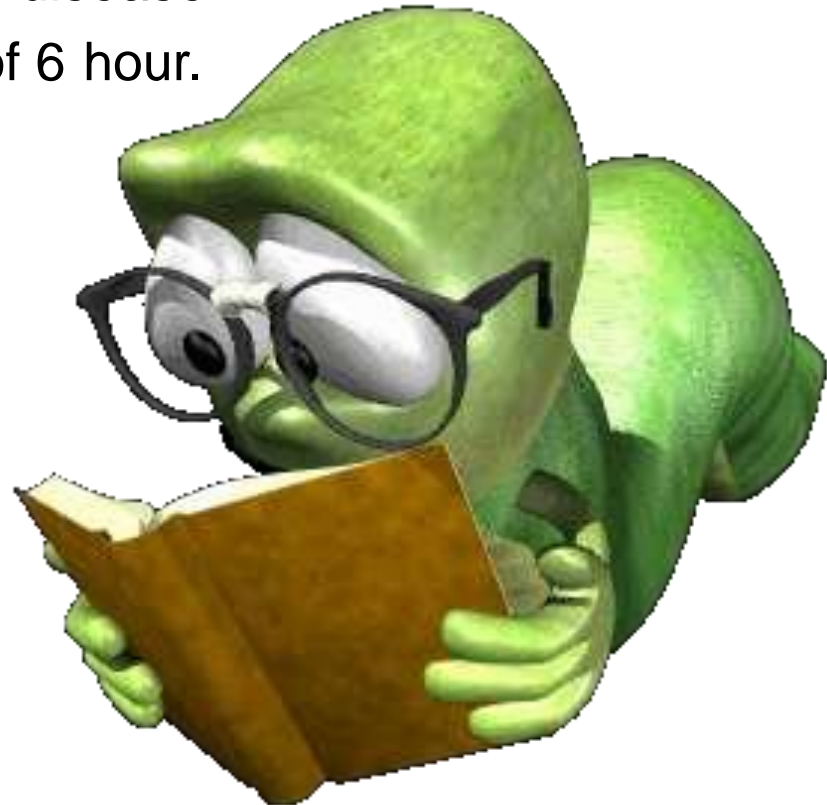
DEFINITION

- 1) Varadaeus coined the term eclampsia, is derived from a greek word, meaning is „like a flash of lightening“.
- 2) Eclampsia is defined as „Anew onset of grandmal seizure activity in pregnancy & post partum period.
- 3) Pre-eclampsia when complicated with generalized tonic-clonic seizures &/ or coma is called eclampsia.
- 4) In most of cases over 80% ,disease preceded by features of severe pre-eclampsia.

ETIOLOGY

- 1) Exact etiology is unknown.
- 2) More common in previous hypertensive disease.
- 3) Reading of B.P taken twice at interval of 6 hour.
- 4) Failure of placentation.
- 5) Abnormal lipid metabolism.
- 6) Decrease calcium in diet.
- 7) Other causes are : „ACDEPR“

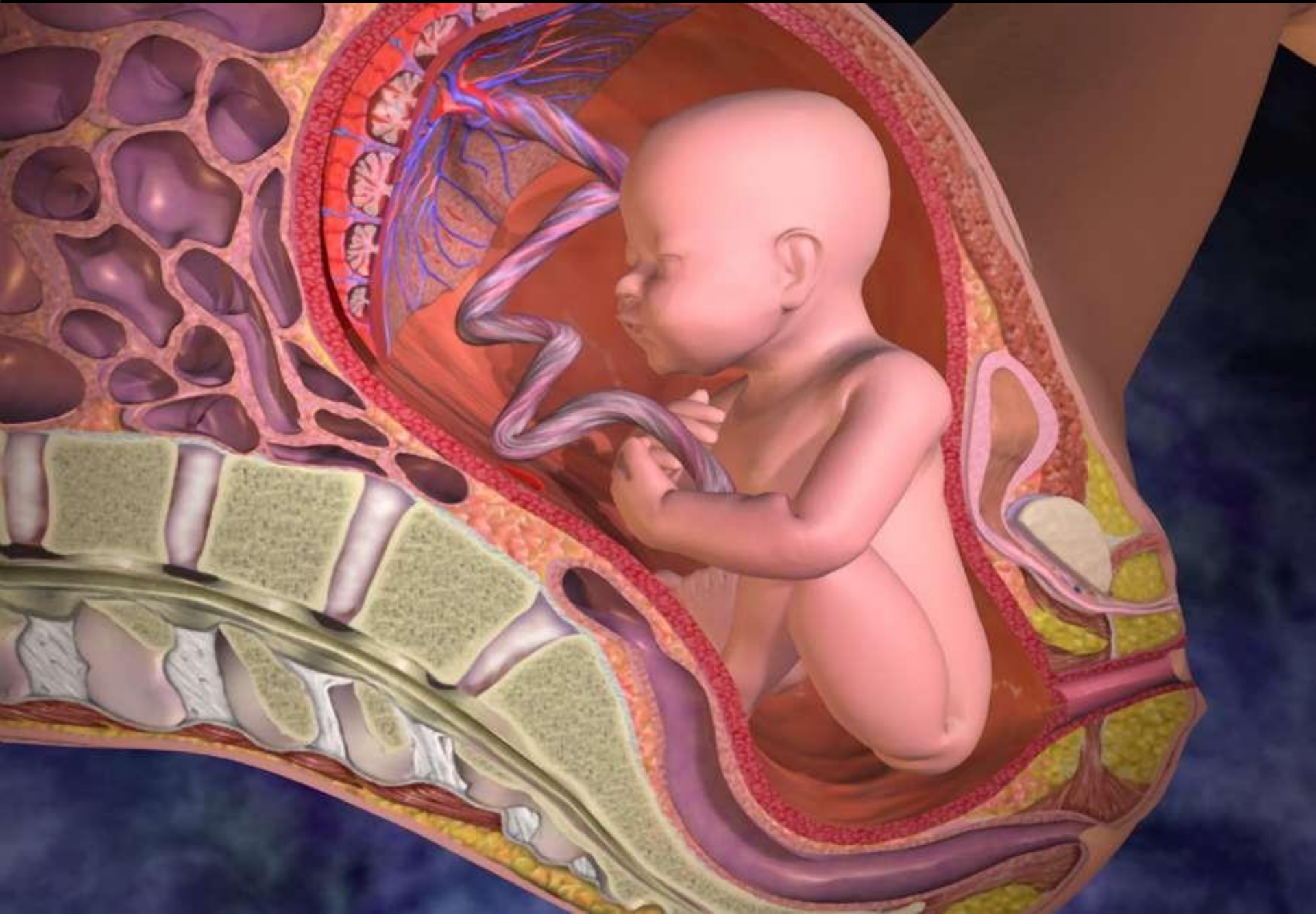
- * A ~ Alchohol.
- * C ~ Coarctaction of aorta.
- * D ~ Drugs.
- *E ~ Endocrine disease.
- *P ~ Pregnancy induced hypertension.
- *R ~ Renal disease.



RISK FACTOR

- 1) Primigravida.
- 2) Age.
- 3) Past history.
- 4) Pre existing disease.
- 5) Condition in which placenta enlarges.

NORMAL POSITION OF FETUS



INCIDENCE

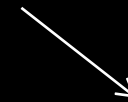
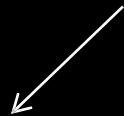
- 1) Eclampsia occurs in 10% of all pregnancy .
- 2) India accounts 20% of world maternal mortality rate , next to haemorrhage,
pre-eclampsia & eclampsia are direct cause .
- 3) More common in primigravida 75%.
- 4) Eclampsia is 3rd leading cause of maternal mortality after thrombo-embolism &
& non-obstetrical injury.
- 5) Maternal DBP > 110 are associated with increase risk of placental abruption & fetal growth retardation.
- 6) Eclampsia results in death in advance or uncontrollable stage.

PATHOGENESIS

Imbalance in prostaglandin ratio.

↓
Placental vasoconstriction.

↓
Reduced perfusion.



Thromboplastin



Renal glomerulus affected



Protein urea

Release of renin



Angiotensin I



Angiotensin II



Adrenal hormones



Aldosterone



Sod. Reabsorption

General vasoconstriction



Hypertension



Headache



Visual Disturbance



„Seizure“



Oedema

Oligourea



CAUSE OF CONVULSION

- Cerebral irritation leading to convulsion , & irritation may be provoked by :
Anoxia, cerebral oedema , cerebral dysrhythmia.

1) ANOXIA: Spasm of cerebral vessels.



Increased cerebral vascular resistance.



Fall in cerebral oxygen consumption.



„Anoxia“

2) CEREBRAL OEDEMA:

~ It may contribute to irritation.

3) CEREBRAL DYSRHYTHMIA:

~ It increases following anoxia & oedema.

COURSE OF CONVULSION

1. Seizure last for 60-70sec tonic-clonic type , later goes into coma.
2. Throughout seizure , diaphragm is fixed , breathing doesn't occur.
3. First convulsion is forerunner of other. May be 1 or 2 in mild case to continuous result in status epilepticus.

ONSET OF FITS

Fits occur more commonly in 3rd trimester (more than 50%) ,on rare condition fits may occur in early months as in hydatiform mole.

1. ANTIPARTUM (50%) :

*Fits occur before onset of labour . more often , labour starts soon after & at times it is impossible to differentiate it from intrapartum ones.

2. INTRAPARTUM (30%) :

*Fits occur for first time during labour

3. POSTPARTUM (20%) :

*Fits occur for the first time in puerperium,usually within 48 hours of delivery.

*Fits occur beyond 48 hr but less than 4 weeks after delivery is accepted as „Late Postpartum Eclampsia“.

CLINICAL FEATURE

The eclamptic fits are epileptiform & consist of four stages , that are :

1).PREMONITORY STAGE :

- *The patient becomes unconscious.
- *There is twitching of muscles of face,tongue & limbs.
- *Eye balls or are turned to one side & become fixed.
- *This stage lasts for about 30 second.

2)TONIC STAGE :

- *The whole body goes into a spam called trunk opisthotonus.
- *Limbs are flexed & hands clenched.
- *Respiration ceases & tongue protrudes between the teeth.
- *Cyanosis appears.
- *Eyes balls become fixed.
- *This stage lasts for about 30 seconds.

3) CLONIC STAGE :

- * All the voluntary muscles undergo alternate contraction & relaxation.
- *The twitching starts in face then involve one side of extremities & ultimately the whole body is involved in the convulsion.
- *Biting of tongue occurs.
- *Breathing is stertorous & blood stained frothy secretions fill the mouth.
- *Cyanosis gradually disappears.
- *This stage lasts for 1-4 minutes.

4) STAGE OF COMA :

- *Following the fit , the patient passes on the stage of coma.
- *It may last for a brief period or in others deep coma persists till another convulsion.
- *On occasion, the patient appears to be in a confused state following the fit & fails to remember the happenings.
- *Rarely, the coma occurs without prior convulsion.

####

- *The fits are usually multiple , recurring at varying intervals.
- *When it occurs continuously it is called status eclampticus.
- *Following the convulsion ,temperature rises , pulse & respiration rates are increased & blood pressure also increases.
- *The urinary output is markedly diminished , proteinuria is is pronounced & blood uric acid is raised.

OTHER CLINICAL FEATURE

- OTHER SYMPTOMS :
may be :
 - ~Asymptomatic.
 - ~Headache.
 - ~Visual disturbance.
 - ~Epigastric pain.
 - ~Oedema.
 - ~High B.P.
 - ~Fluid retention.
 - ~Brisk reflex.
 - ~Fundal level less than approximate date.



COMPLICATION

1.MATERNAL COMPLICATION : Are as follows,

- *Tongue biting.
- *Head trauma.
- *Aspiration.
- *Broken bones.
- *Permanent CNS damage.
- *Intra cranial hemorrhage.
- *Renal failure.
- *Death.
- *Injuries due to falling from bed.
- *Disturbed vision.
- *Psychosis.
- *Shock.



CONTI.....

- *Acute left ventricular failure.
- *Pneumonia.
- *Adult respiratory distress syndrome (ARDS)
- *Pulmonary oedema.
- *Hepatic necrosis.

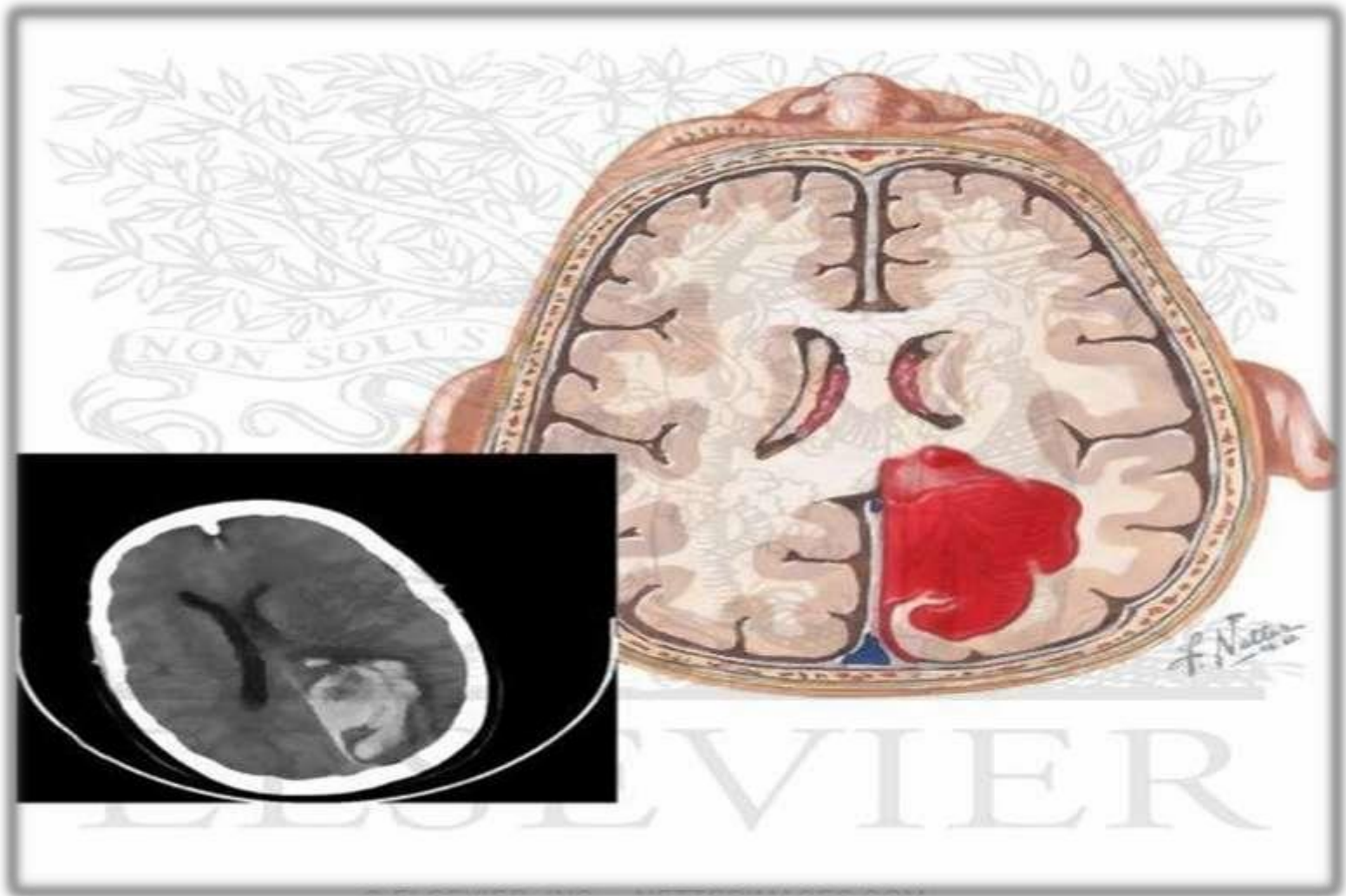
2.NEONATAL & FETAL COMPLICATION :

- *Death.
- *Prematurity.
- *Placental infraction.
- *Abruptio placentae.
- *Fetal hypoxia, aspiraton, ect.
- *IUGR (Intra uterine growth retardation).
- *Sepsis.

TONGUE BITE



INTRA CRANIAL HAEMORRHAGE



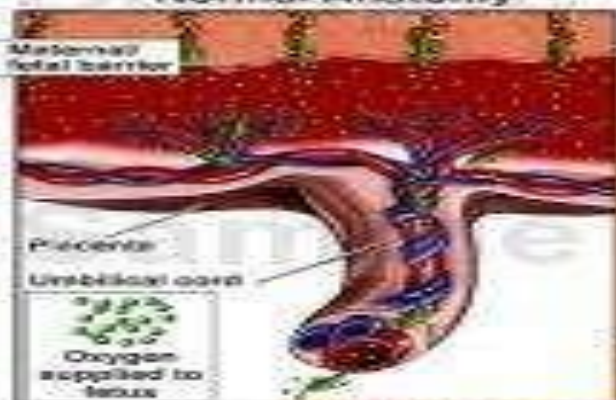
PREMATURE INFANT



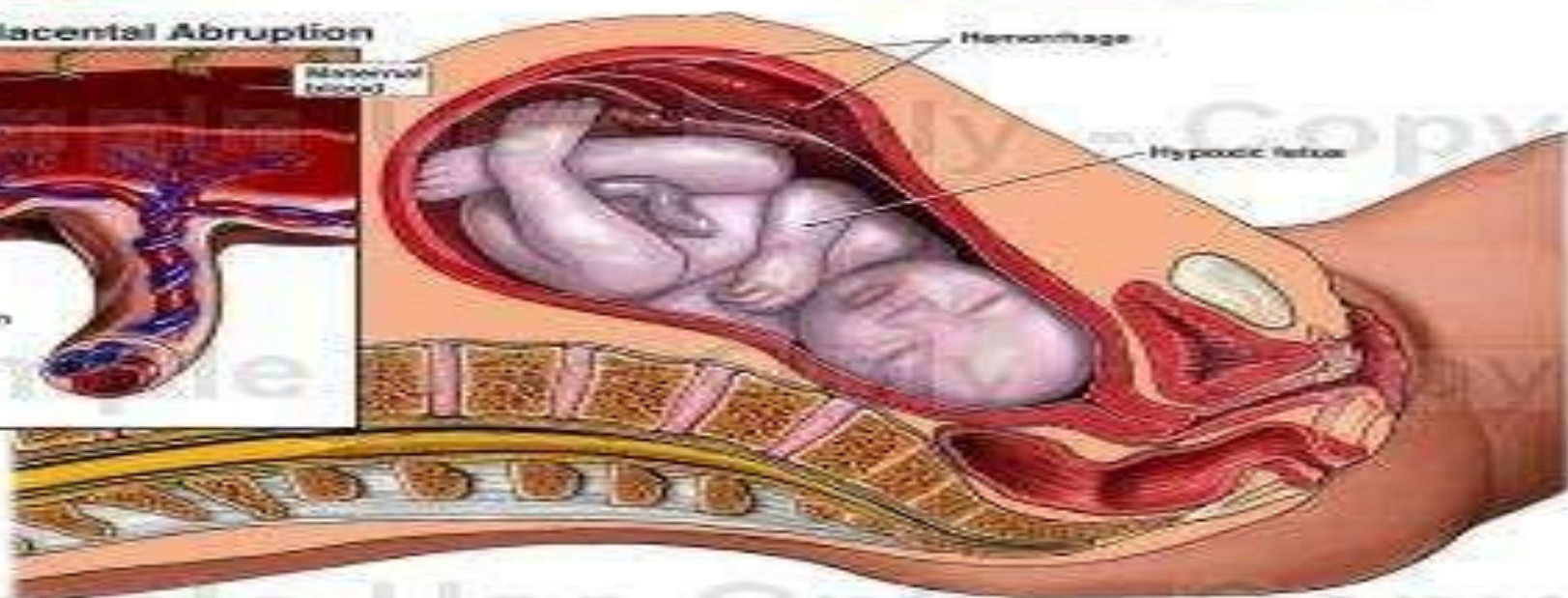
FETAL HYPOXIA

Placental Abruption with Fetal Hypoxia

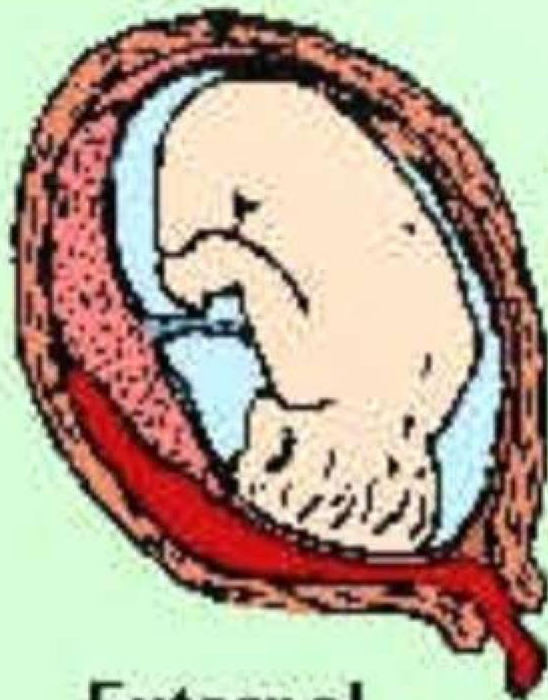
Normal Anatomy



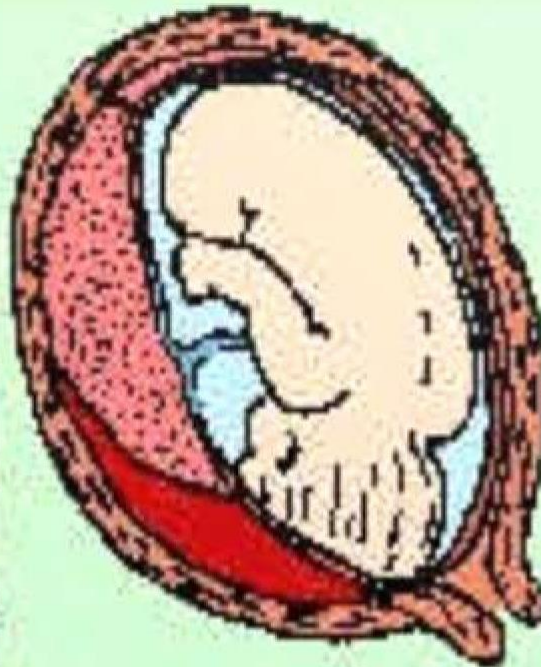
Complete Placental Abruption



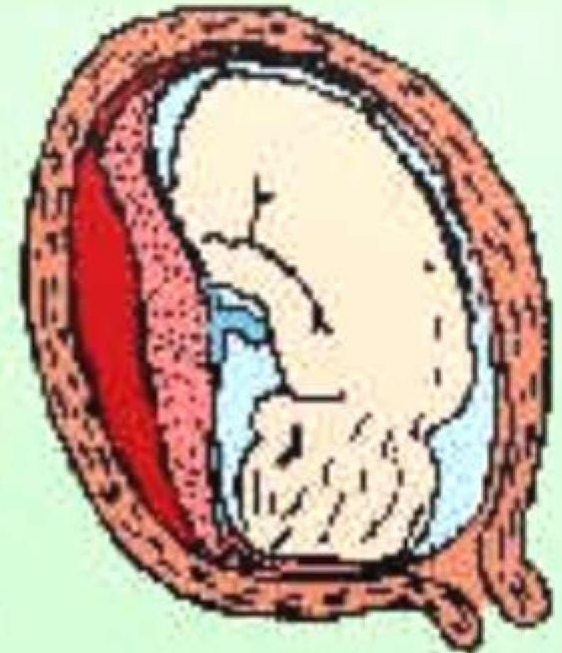
ABRUPTIO PLACENTAE



**External
Abruptio**



**Relatively Concealed
Abruptio**



**Concealed
Abruptio**

Classification of Abruptio Placentae

INNTRA UTERINE GROWTH RETARDATION

IUGR



Note relationship between large cranium and small abdomen and thorax

PROGNOSIS

1.MATERNAL PROGNOSIS :

Once convulsion occur prognosis become uncertain , prognosis depends on many factors & features , that are :

- 1.Long interval between onset & commencement of treatment (late referral).
- 2.Antepartum eclampsia specially with long delivery interval.
- 3.NO. of fits more then 10.
- 4.Coma in between fits.
- 5.Temperature over 102 F with pulse rate above 120/min.
- 6.Systolic Blood pressure above 200mm hg.
- 7.Oligouria with protein urea.
- 8.Non response to treatment.
- 9.Jaundice .
- 10.Respiration rate 40/min.
- 11.Coma taken 6 hour or more.

Maternal mortality in eclampsia is very high in India because of :

- 1.Cardiac failure
- 2.Pulmonary oedema.
- 3.Aspiration & septic pneumonia.
- 4.Cerebral haemorrhage.
- 5.Acute renal failure.
- 6.Cardio-pulmonary arrest.
- 7.ARDS
- 8.Pulmonary embolism.
- 9.Postpartum shock.
- 10.Puerperal sepsis.

If the patient recovers from acute illness she is likely to recover rapidly in 2-3 weeks ,recurence of eclampsia is uncommon , although chance of pre-eclampsia is about 30%.

CONTI

2.FETAL PROGNOSIS :

#Mortality rate is high about 30-50 % , causes are :

- 1.Prematurity –Spontaneous or induced.
- 2.Intra uterine asphyxia – Due to placental insufficiency arising out of infraction ,spasm of utero-placental vasculature & retro-placental haemorrhage.
- 3.Effect of drugs –Used to control convulsion & hypertension.
- 4.Trauma –During operative delivery.

MANAGEMENT



Aim of management.



Prediction & prevention.



First aid treatment outside the hospital.



General management (Medical & Nursing)



Specific Management.



Obstetric Management.

CONT.....

1.AIM OF MANAGEMENT :

- Arrest convulsion.
- Maintenance of patent airway , breathing & circulation.
- Oxygen administration at the rate 8-10 L/Min.
- Terminate pregnancy.
- Ventilatory support.
- Prevention of complication.
- Hemodynamical stable.
- Prevention of life threatening situation.
- Postpartum care.
- Medicine & regular follow up.

CONTI...

2.PREDITION & PREVENTION :

- *In majority of cases , eclampsia is preceded by pre-eclampsia.
- *Thus prevention of eclampsia rest on early detection & effective institutional treatment with judicious treatment of pregnancy during eclampsia.
- *Eclampsia may present in atypical ways , hence it is at times difficult to predict.
- *Use of anti-hypertensive drugs , anti-convulsant therapy & timely delivery are important steps.
- *Close monitoring during labour & 24 hour of postpartum , are also important in prevention of eclampsia.
- *Unfortunately 30-85% of cases of eclampsia remained unpreventable.
- *Use of magnesium sulphate lowers the risk of eclampsia.

CONTI....

3.FIRST AID TREATMENT OUTSIDE THE HOSPITAL :

*The patient , either at home or in the health center should be shifted urgently to the tertiary referral care hospitals , because there is no place of continuing the treatment in such place.

*Transport of an eclamptic patient to a tertiary care center is very important.

*Such patient needs neonatal & obstetric intensive care management.

*Important steps in transport are :

1.All maternal records & detailed summery should be sent with patient.

2.B.P should be established & colvulsions should be arrested.

3.Drugs should be give like : magnesium sulphate ,labetalol,diuretics, diazepam.

4.One medical personnel & a trained midwife accompany the patient in equipped ambulance to prevent injury & complication.

CONTI...

4.GENERAL MANAGEMENT (MEDICAL & NURSING) :

i) SUPPORTIVE CARE :

- *Aim to prevent serious maternal injury from fall , to prevent aspiration , to maintain airway & to ensure oxygenation.
- *Patient is kept in railed cot & a tongue depressor is inserted between teeth.
- *She is kept in the lateral position to avoid aspiration.
- *Vomitus & oral secretion are removed by frequent suctioning , oxygenation is maintained through face mask to prevent respiratory acidosis.
- *Oxygenation is monitored using a transcutaneous pulse oximetry .
- *ABG analysis is needed when oxygen saturation falls below 92%.
- *Sodium bicarbonate is given when pH is below 7.10 .
- *The patient should have a doctor or at least a trained midwife for constant supervision.

CONTI...

ii) HISTORY ;

- Detailed history is to be taken from relatives , relevant to diagnosis of eclampsia , duration of pregnancy , number of fits,& nature of medications administered outside.

iii) EXAMINATION ;

Once the patient is stabilised , a thorough out quick general , abdominal & vaginal examination are made. A self retaining catheter is introduced & urine is tested for protein.

iv) MONITORING :

- *Half hourly pulse , respiration rate are recorded
- *Hourly urine output is to be noted.
- *If undelivered the uterus should be palpated at regular intervals to detect the progress of labour & fetal heart rate is to be monitored.
- *Immediately after convulsion fetal bradycardia is common.

CONTI.....

v) FLUID BALANCE :

*Ringer's solution started as first choice.

*A excess of dextrose or crystalline solutions should not be used as it will aggravate the tissue are overload leading to pulmonary oedema , circulatory overload & ARDS.

vi)ANTIBIOTIC :

*To prevent infection, ceftriaxone 1gm IV bd.

CONTI...

5.SPECIFIC MANAGEMENT :

i) ANTICONVULSANT & SEDATIVE THERAPY :

*The aim to control the fits & to prevent its recurrence.

Magnesium sulphate is drug of choice , it acts as a membrane stabilizer & neuroprotector .

~It reduces motor end plate sensitivity to acetylcholine , it induce cerebral vasodilatation , dilates uterine arteries , inhibit platelet activation . It has no adverse effects on neonate within therapeutic level, it has got excellent result with maternal mortality of 3%, it doesn't control hypertension.

~Repeat injection are given only if knee jerk are present , respiration rate more than 12/min , urine out put exceed 30ml/hour.

~The therapeutic level of magnesium is 4-7mEQ/L . For recurrence of fit 2gm IV bolus is given over 5 min.

CONTI...

BENEFITS OF MAGNESIUM SULPHATE USE :

- i) It control fits effectively without any depression effect to the mother or infant.
- ii) It reduce risk of recurrent fits.
- iii) It reduce maternal death rate at 3% .
- iv) It reduce perinatal mortality rate.

OTHER REGIMEN ARE :

1. Phenytoin.
2. Diazepam.
3. Lytic cocktail , MENON 1961 (chlorpromazine , pethidine , promethazine)

CONTI...

ii) ANTIHYPERTENSIVE & DIURETICS :

- In spite of anticonvulsant & sedative regimen, if the blood pressure remains more than 160/110 mm hg , antihypertensive drugs should be administered.
- Drugs commonly used are : Hydralazine , labetalol , calcium channel blocker , or nitroglycerine.
- Presence of pulmonary oedema require diuretics, in such case “ Frusemide ” should be administered in doses of 20-40 mg IV & repeated at interval.

iii) MANAGEMENT DURING FITS :

- In premonitory stage : a mouth gag is placed in between teeth to prevent tongue bite & removed after clonic stage or phase is over.
- The air passage is to be clear off the mucus with mucus sucker , the patient's head is to be turned to the one side , raising the foot end of bed facilitates postural drainage of the upper respiratory tract.
- Oxygen is given until cyanosis disappears.

CONTL..

iv) STATUS ECLAMPTICUS :

- Thiopentone sodium 0.5 gm dissolved in 20 ml of 5% dextrose is given IV very slowly.
- In unresponsive cases, caesarean section in ideal surroundings may be a life saving attempt.

v) TREATMENT OF COMPLICATION :

- Prophylactic use of antibiotics markedly reduces the complications like pulmonary & puerperal infection.
- For pulmonary oedema & ARDS : Frusemide 40 mg I.V followed by 20gm of mannitol I.V ,pulse oxymeter is very useful in such patient . Aspiration of mucus from tracheo-bronchial tree by a suction apparatus is done.
- For heart failure : Oxygen inhalation , parenteral lasix & digitalis are used.
- For anuria : The dopamine infusion is given .
- For hyperpyrexia : Cold sponging, & antipyretics are given.
- For psychosis : Chlorpromazine or Trifluoperazine is quite effective.

CONTI...

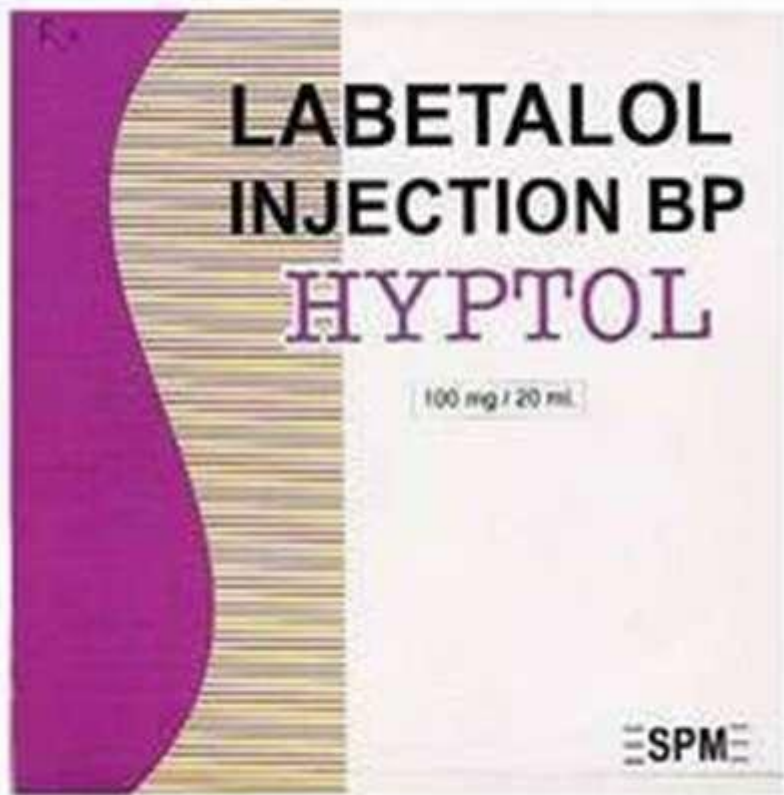
INTENSIVE CARE MONITORING :

- *The patient with multiple medical problems needs to be admitted in intensive care unit where she is looked after by a team consisting of obstetrician , a physician & an expert anaesthetist .
- *Cardiac, renal & pulmonary complication are managed effectively.
- *Use of blood gas analyzer to detect hypoxia & acidosis , pulse oxymetry & central venous pressure monitor should be done depending on individual case or need.
- *A deeply unconscious patient with raised ICP needs steroids & diuretic therapy.
- * CT-SCAN & MRI may be needed for the diagnosis.

MAGNESIUM SULPHATE



ANTI HYPERTENSIVE DRUG



THIOPENTONE SODIUM

