

# Common problems in neonates

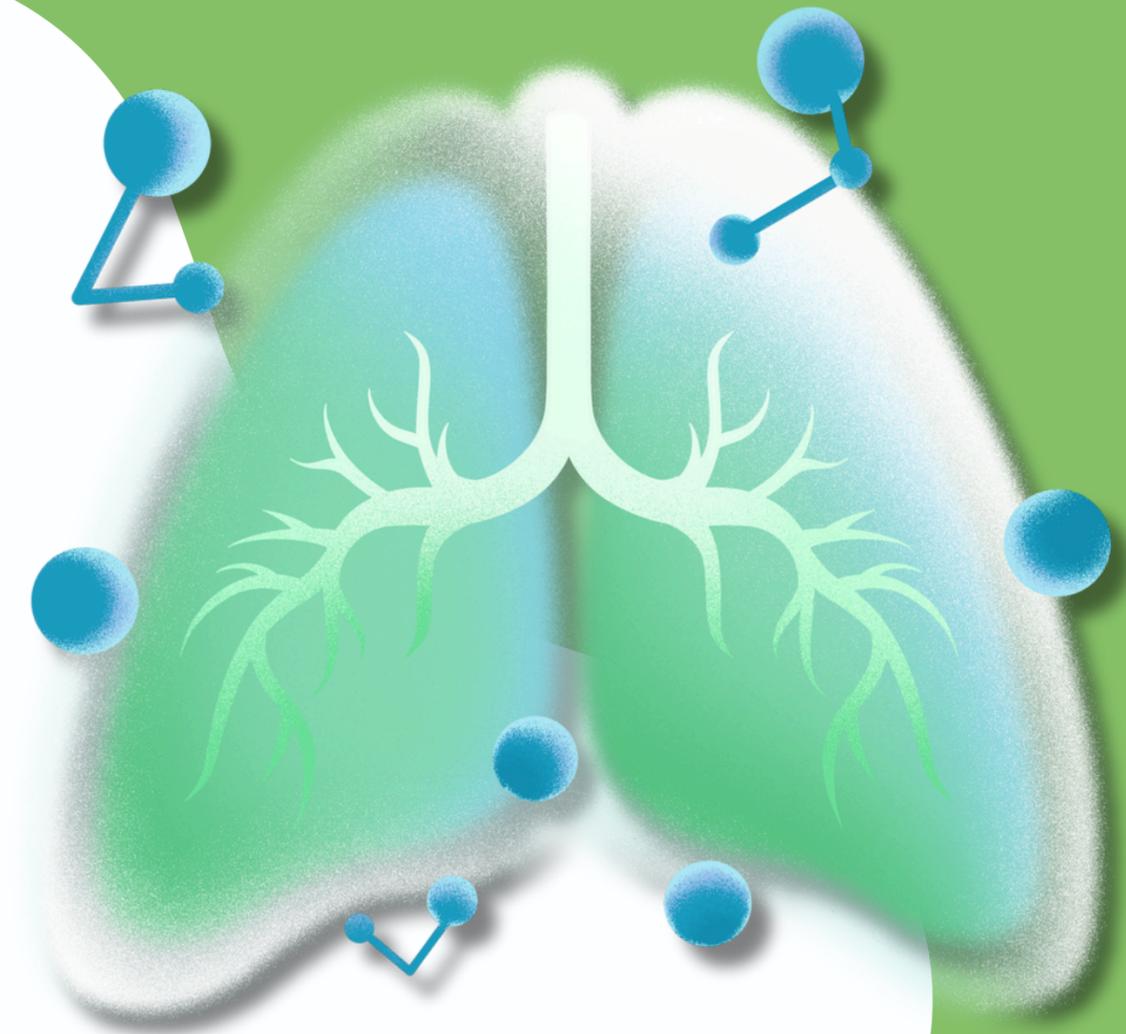
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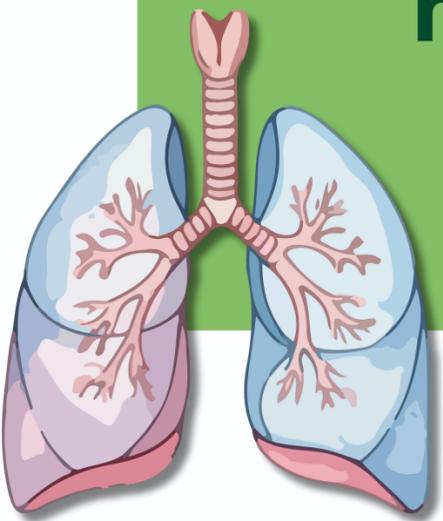
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# MECONIUM ASPIRATION

- It is the first Intestinal discharge from newborns, which is a viscous, dark green substance which accumulate within fetus colon throughout gestation composed Of;
- Water which is the major liquid constituent, comprising 85–95% of meconium.
- the remaining 5–15% of ingredients consists of solid constituents, primarily intestinal secretions(eg. Bile), mucosal cells, and solid elements of swallowed amniotic fluid, such as proteins and lipids
- Meconium is sterile and does not contain bacteria.
- ph of meconium 5.5 to 7.0



- **Meconium is normally retained in the infant's bowel until after birth it should pass after delivery within 48 hour, but sometimes it is expelled into the amniotic fluid prior to birth or during labor and delivery. The stained amniotic fluid is recognized by medical staff as a possible sign of fetal distress.**



# SEVERAL FACTORS PLAY A ROLE IN THE PASSAGE OF MECONIUM INTO THE AMNIOTIC FLUID:

**A**

fetal hypoxic  
stress

**B**

fetal  
maturity

1. Placental insufficiency

2. maternal hypertension

3. Preeclampsia

4. Oligohydramnios

5. infection

6. Acidosis

7. maternal drug abuse especially use of  
tobacco and cocaine)

THE EXACT MECHANISM OF MECONIUM PASSAGE INTO THE AMNIOTIC FLUID IS NOT COMPLETELY UNDERSTOOD AND IT MAY BE A COMBINATION OF SEVERAL FACTORS.

## EFFECTS OF MECONIUM PASSAGE INTO THE AMNIOTIC FLUID ARE:

01

**Reduction in antibacterial activity.**

02

**Irritation of the fetal skin :**  
meconium is irritating to fetal skin, thus increasing the incidence of erythema toxicum syndrome.

03

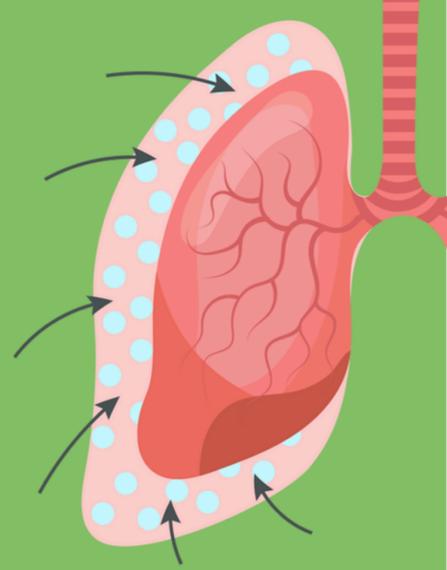
**Aspiration of meconium-stained amniotic fluid.**



**THIS ASPIRATION INDUCES ITS EFFECT VIA FOUR MAJOR PULMONARY EFFECTS:**

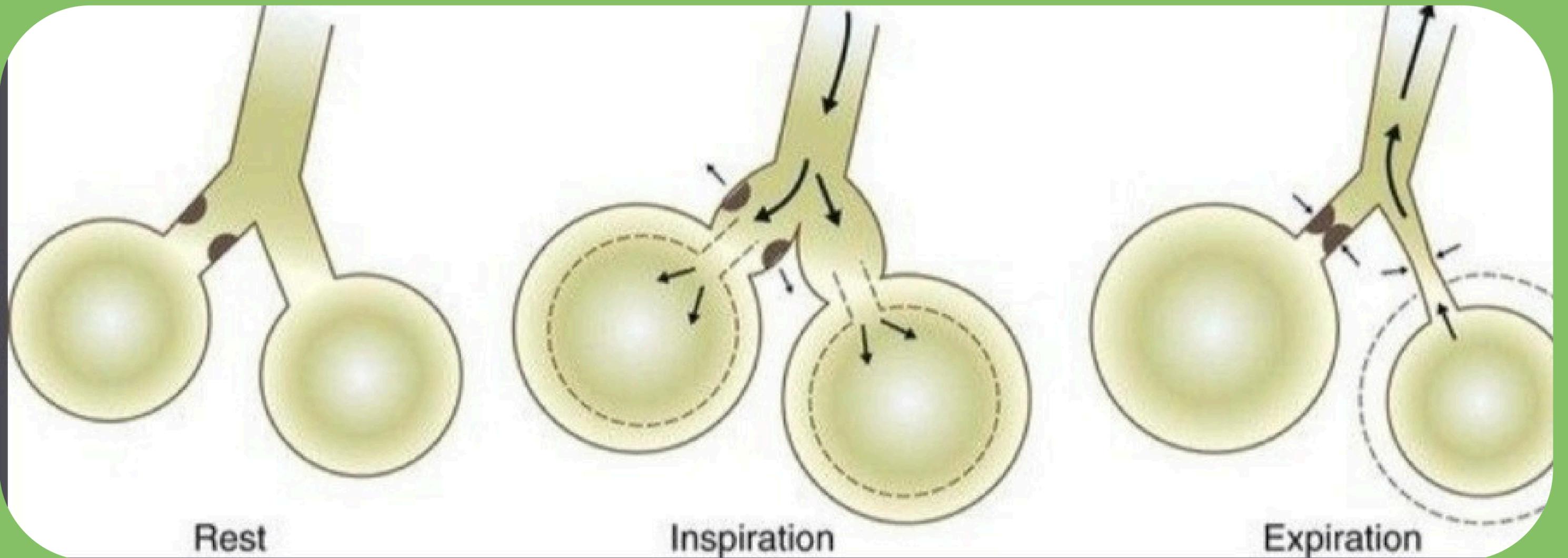
- 01 Airway obstruction**
- 02 Surfactant dysfunction,**
- 03 Chemical pneumonitis**
- 04 Pulmonary hypertension**

# AIRWAY OBSTRUCTION



- Complete obstruction of the airways by meconium results in atelectasis.
- Partial obstruction causing ball-valve effect.
- A ball valve effect (BVE) is a partial obstruction which causes an inflow of air during the inspiration phase of breathing and, on the other hand I, as expiration begins, prevents outflow.
- This results in air trapping and Hyperdistention of the alveoli, may rupture or leak into the pleura (pneumothorax), mediastinum (pneumomediastinum), or pericardium (pneumopericardium).

# Ball valve effect:



# CHEMICAL PNEUMONITIS:

**Once meconium is aspirated into the lungs, it activates the immune system, causing a release of inflammatory cytokines (TNF- $\alpha$ , IL-1 $\beta$ , IL-6, IL-8, IL-13), which initiate a diffuse pneumonitis that will cause tissue damage.**

**This may begin within a few hours of aspiration (First 72 hours after birth) All of these pulmonary effects can produce a gross ventilation- perfusion (V/Q) mismatch.**

# **SURFACTANT DYSFUNCTION:**

**~Meconium may impact surfactant mechanisms by preventing surfactant from spreading over the alveolar surface, decreasing the concentration of surfactant proteins (SP-A and SP-B), and by changing the viscosity and structure of surfactant.**

**~So interfere with the normal function of the surfactant, this will lead to respiratory distress syndromet.**

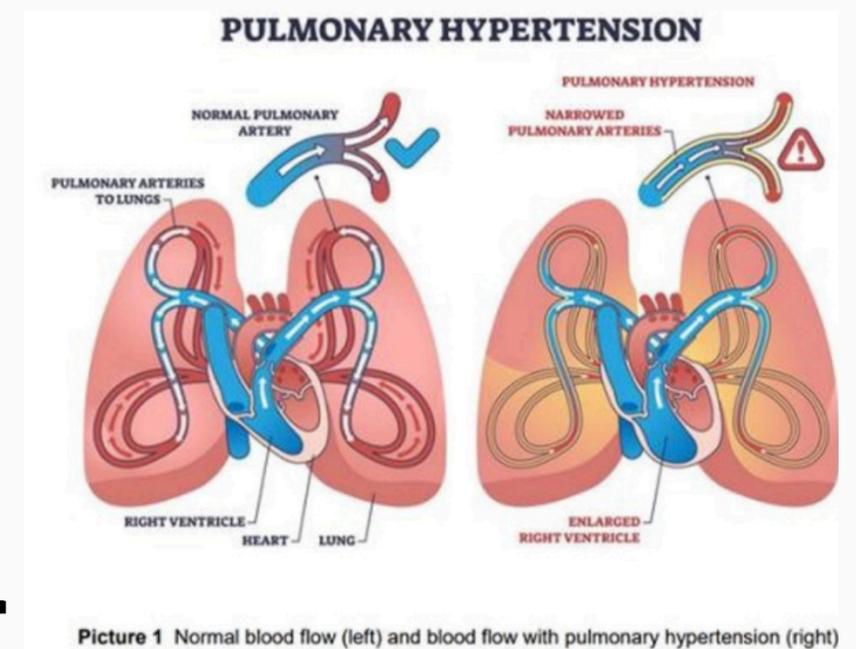
# PERSISTENT PULMONARY HYPERTENSION :

**\_ Primary or secondary PPHN frequently accompany meconium aspiration as a result of chronic in utero stress and thickening of the pulmonary vessels, with right-to-left shunting via ( PDA and foramen ovale) caused by increased pulmonary vascular resistance.**

**\_ PPHN further contributes to the hypoxemia caused by meconium aspiration syndrome.**

**\_ PPHN in newborns is the leading cause of death in MAS.**

**\_ although meconium is sterile, its presence in the air passages can predispose the infant to pulmonary infection .**



Aspect	MSAF	MAS
APGAR	Usually normal	Low (due to hypoxia\acidosis)
Infant status	Usually vigorous	Usually non-vigorous\depressed
Aspiration presence	No aspiration	Aspiration present
Pathophysiology	No lung effect	Airway obstruction\ chemical pneumonitis/ surfactant dysfunction
Management	Routine care	O2, CPAP/ventilation, surfactant and treat PPHN
Prognosis	Excellent	Variable depending on severity of PPHN and hypoxia

# Clinical presentation :

Symptoms of severe respiratory distress may be present shortly after delivery:

- Cyanosis.
- End-expiratory grunting.
- Nasal flaring.
- Intercostal retractions .
- Tachypnea.
- Barrel chest. due to the presence of air trapping.
- Auscultated rales and rhonchi.
- Yellow-green staining of fingernails, umbilical cord, and skin may be also observed .



## APGAR SCORE CHART

The Apgar score, created by Dr. Virginia Apgar in 1952, is a rapid evaluation method used by healthcare professionals to assess a newborn's physical condition right after birth and determine whether urgent medical attention is needed.

Apgar Score	Score 0	Score 1	Score 2	Total
<b>A</b> Appearance (skin color)	 Blue (cyanotic), Pale (white) all over	 Pink body, Blue extremities (acrocyanosis)	 Pink body	
<b>P</b> Pulse	 Absent, No pulse	 < 100 bpm	 > 100 bpm	
<b>G</b> Grimace (Reflex Irritability)	 Floppy, no response	 Minimal response When stimulation	 Prompt response (sneezing, Crying or pulling away)	
<b>A</b> Activity (Muscle tone)	 No movement, flaccid	 Flexed arms and legs	 Active motion	
<b>R</b> Respiration	 Absent, no breathing	 Weak or slow, irregular	 Vigorous, strong cry	

The Apgar test is a quick assessment performed on newborns at 1 and 5 minutes after birth to evaluate their overall physical condition. It helps healthcare providers quickly determine if a baby needs immediate medical support by scoring skin colour, heart rate, reflexes, muscle tone, and breathing.

**Score Interpretation**  
 0 - 3: Severely depressed  
 4 - 6: Moderately depressed  
 7 - 10: Excellent condition

# We have 2 scenarios

## 1St

If the baby is vigorous (defined as normal respiratory effort, normal muscle tone, and heart rate  $>100$  bpm). Do not electively intubate. Clear secretions and meconium from the mouth and nose with a bulb syringe or a large-bore suction catheter

## 2Nd

If the baby is not vigorous (defined as depressed respiratory effort, poor muscle tone, and heart rate  $<100$  bpm) Use direct laryngoscopy, intubate, and suction the trachea. It should be done immediately after delivery.

- Suction for no longer than 5 seconds. Suction before the first breath
- Suction should be under direct vision

**If no meconium is retrieved, do not repeat intubation and suction.**

**If meconium is retrieved and no bradycardia, HR >100 is present, reintubate and suction.**

**If the heart rate is low, administer positive pressure ventilation and consider suctioning again later.**

# Continued care in the NICU

- Minimal handling is essential because these infants are easily agitated, Agitation can increase pulmonary hypertension and right-to-left shunting, leading to additional hypoxia and acidosis. Sedation may be necessary to decrease agitation.
- Continue respiratory care.
- Oxygen therapy via positive pressure is crucial in maintaining adequate arterial oxygenation.
- Mechanical ventilation in 30% of cases (hyperventilation)
- Surfactant when needed
- prophylactic antibiotic is not indicated if there is no pneumonia
- Inhaled NO for PPHN (Persistent pulmonary hypertension of the newborn) (causes vasodilatation so decrease the hypertension)
-

# Investigation

- **Pulse oximetry and ABGs** – Metabolic acidosis from perinatal stress is complicated by respiratory acidosis \_ Hypoxia. – Hypercapnia. \_continuous measurement of oxygenation by pulse oximetry are necessary for appropriate management.
- **Serum electrolytes** \_ Obtain sodium, potassium, and calcium concentrations at 24 hours of life in infants with meconium aspiration syndrome because the (SIADH) and acute renal failure are frequent complications of perinatal stress

- **CBC count**

- \_ Polycythemia

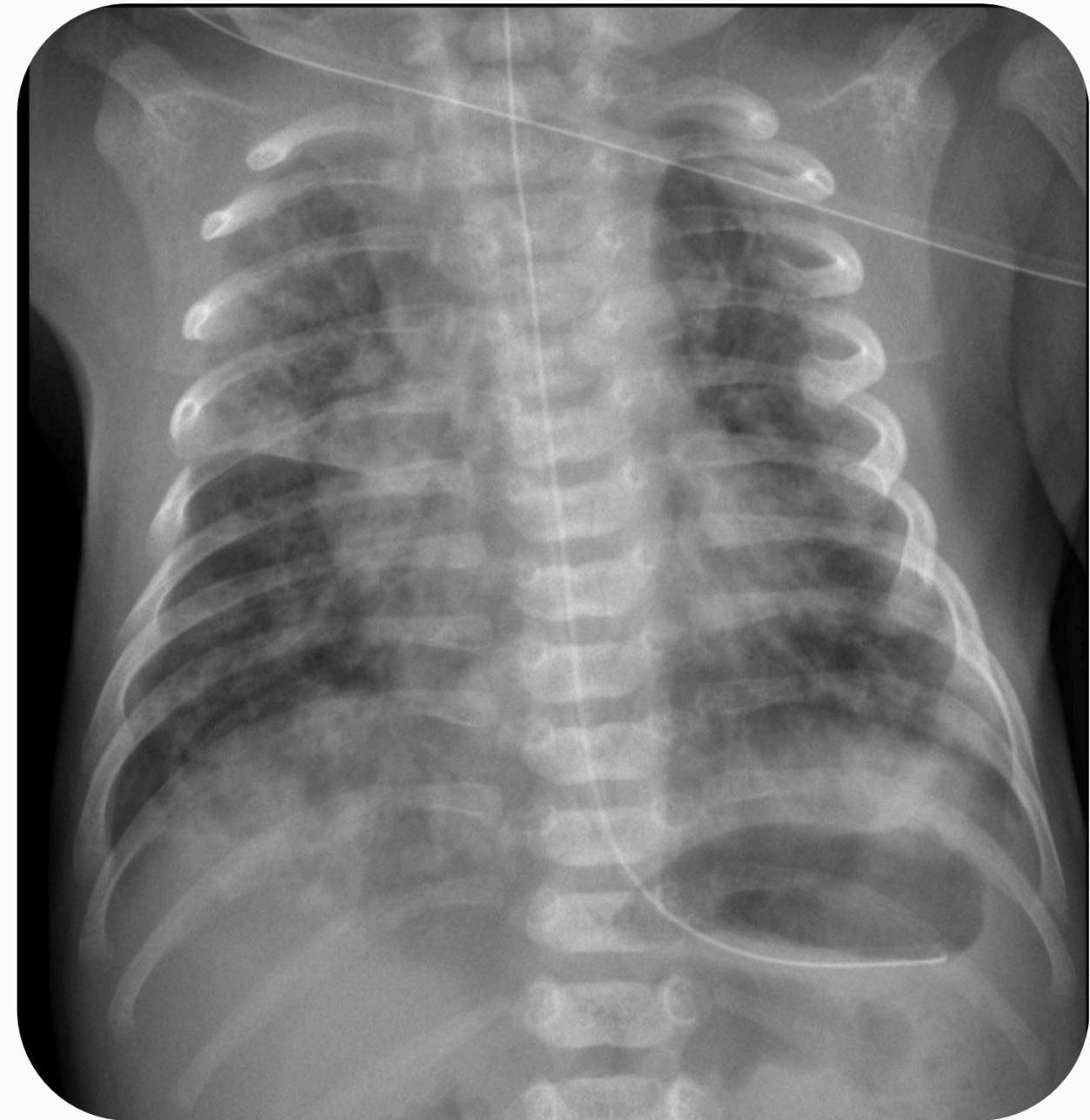
- **Echo**

- To ensure normal cardiac structure -  
Severity of PPHN and right to left shunting

- **Chest X-ray**

- The typical chest radiograph is characterized by patchy infiltrates, coarse streaking of both lung fields, increased anteroposterior diameter, and flattening of the diaphragm

- **Bilateral, asymmetric, diffuse, patchy pulmonary opacities are in keeping with severe meconium aspiration pneumonitis.**



# Prognosis

- the mortality rate of MAS 4-5%. The decline in neonatal
- deaths due to MAS during the last decades are related to improvements in obstetric and neonatal care.
- Residual lung problems are rare but include symptomatic cough, wheezing, and persistent hyperinflation for up to 5-10yr.

**The ultimate prognosis depends on the extent of CNS injury from asphyxia and the presence of associated problems such as pulmonary hypertension**

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**The risk of meconium aspiration may be decreased by rapid identification of fetal distress and suction before his first breath if non vigorous (first 5sec)**

# Complications

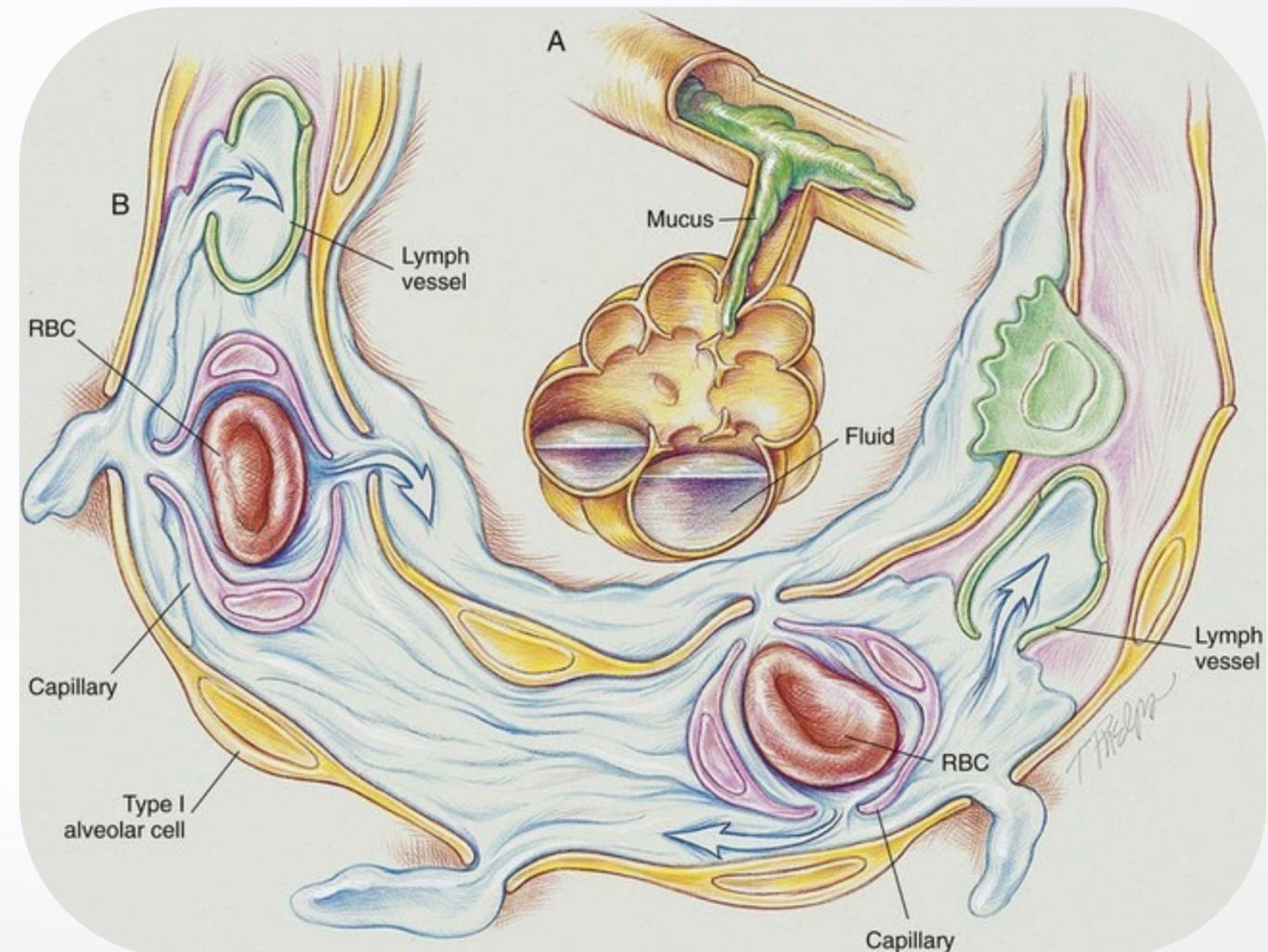
- 1. PPHN. (Persistent pulmonary hypertension of the newborn)**
- 2. chronic lung disease from intense pulmonary intervention.**
- 3. Infants with MAS have a slightly increased incidence of respiratory infections in the first year of life because the lungs are still in recovery**



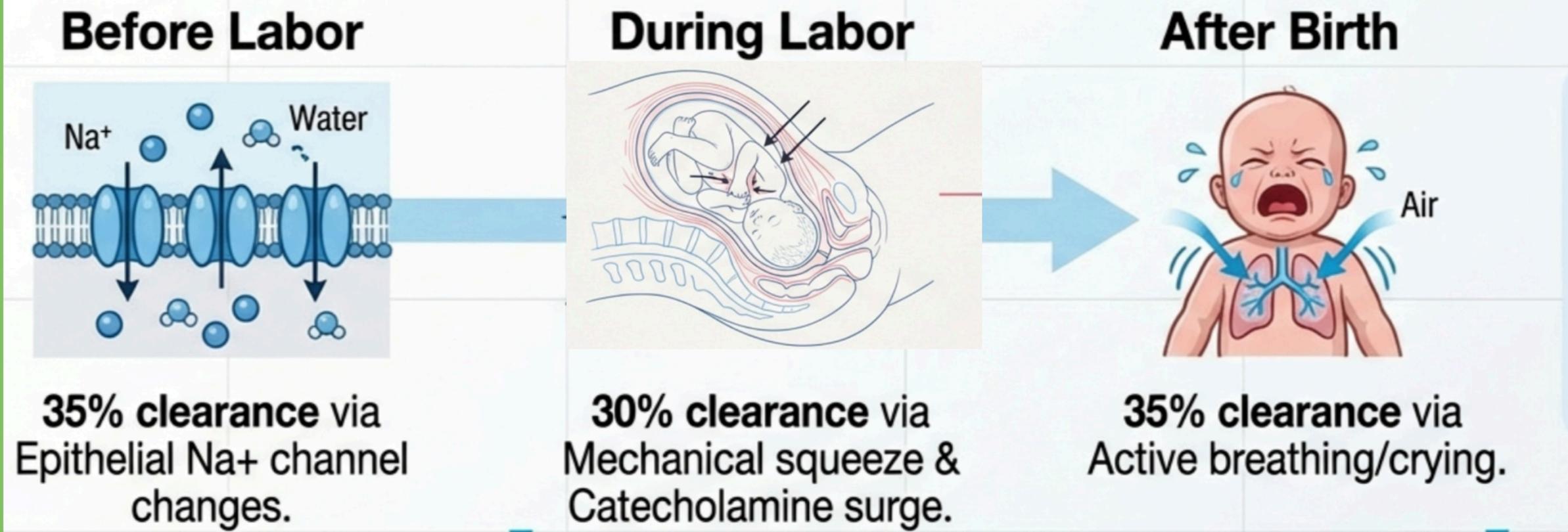
**TRANSIENT TACHYPNEA OF THE  
NEWBORN  
(TTN)**

# DEFINITION

It is a self-limited disease commonly seen in term or slightly preterm neonates, develops in approximately 1% all newborn infants and results in admission to NICU.



# FETAL LUNG FLUID CLEARANCE



01

Before labor (35%) is cleared due to changes in the ENaC (epithelial Na channel).

02

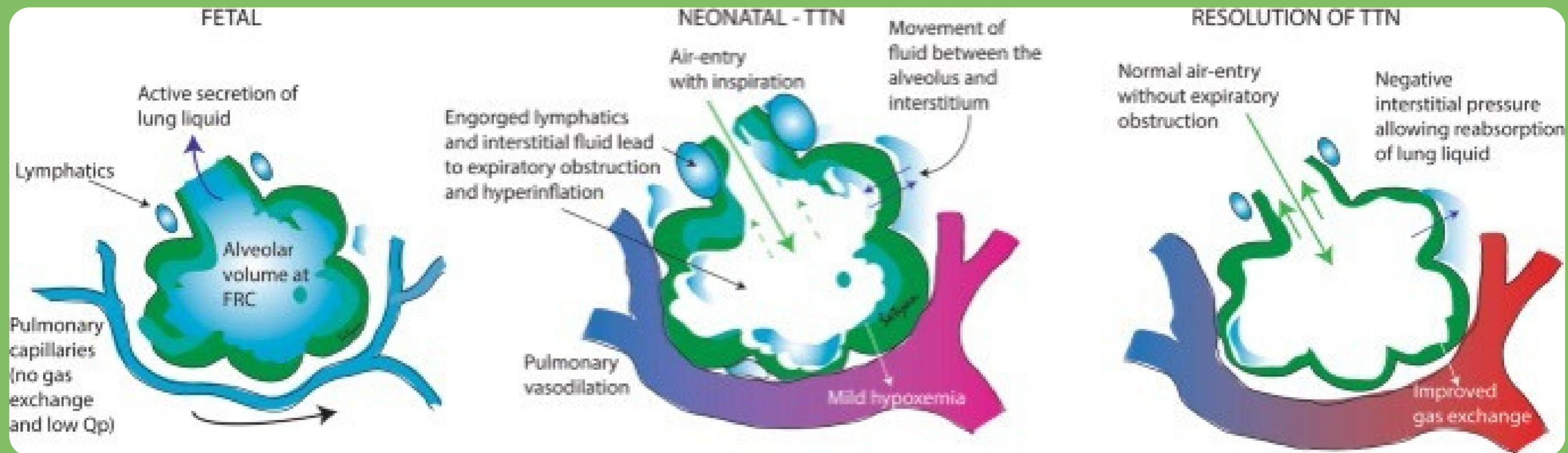
During labor (30%) is cleared due to mechanical transpulmonary forces and catecholamine surge.

03

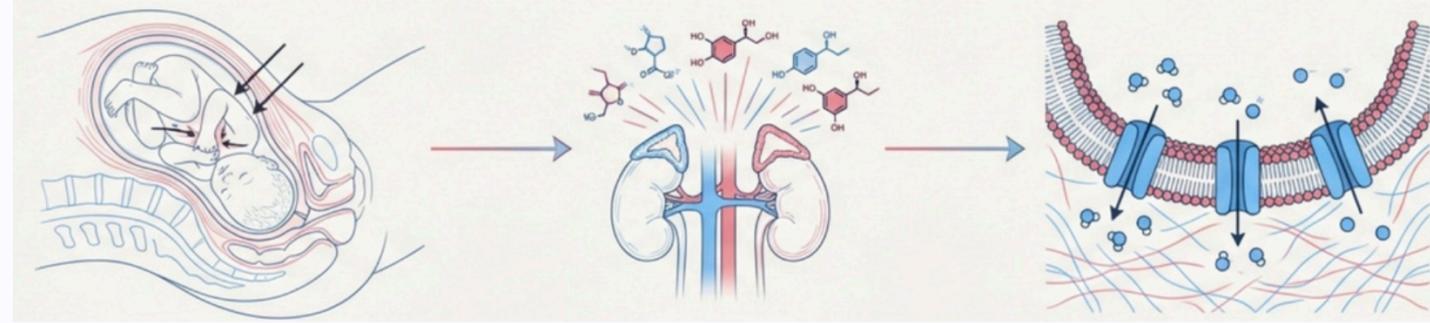
After birth (35%) is cleared due to active crying and breathing.

# Pathophysiology

It is believed to be secondary to slow resorption of fetal lung fluid, resulting in decreased pulmonary compliance (because of increased surface tension) and tidal volume and increased dead space. So, accumulation of fluid will cause inhibition in gas exchange or V/Q mismatch.



# Risk factors



**01** infant born via C-section.

**02** infant of diabetic mother.

**03** macrosomia baby.

**04** neonatal asphyxia.

**05** prolong rupture of membrane.

**06** used excessive sedation material

# Risk factors during delivery

**01** Maternal asthma

**02** smoking

**03** low APGAR score

**04** male patient

**05** age <39 weeks



# SIGNS & SYMPTOMS:

- 01** tachypnea RR>60.
- 02** grunting and flaring
- 03** retractions.
- 04** cyanosis
- 05** clear lung fluids or crackles.

**The resolution of these respiratory distress symptoms occurs within 72 hrs.**

## **BY EXAMINATION**

- **Immediately or within first 6 hrs of delivery the baby will develop early onset tachypnea**
- **with grunting, retractions, flaring, on extreme cases severe hypoxia and cyanosis (but rarely) the Chest in general is clear without added sounds except rarely you can find crackles , with normal air entry**

# Investigation

## CXR:

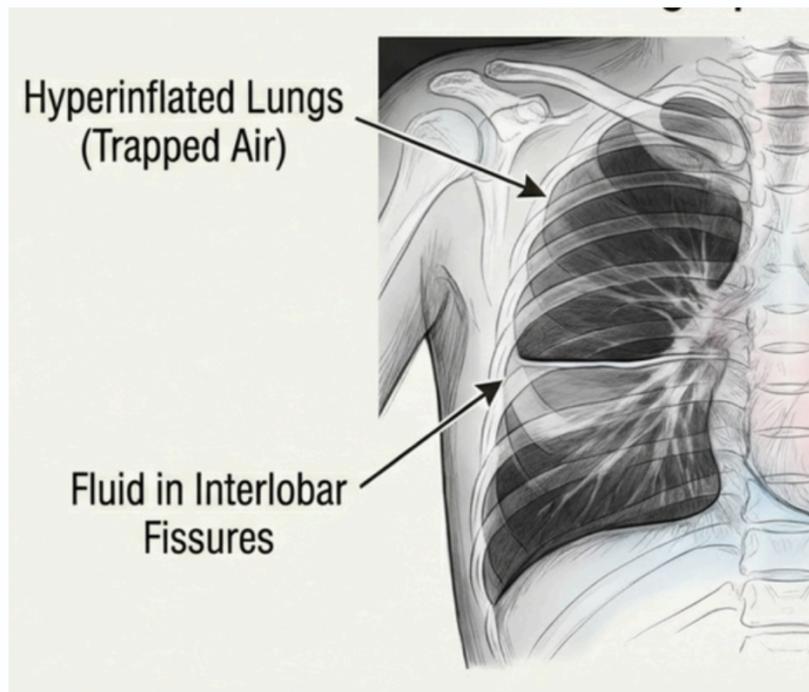
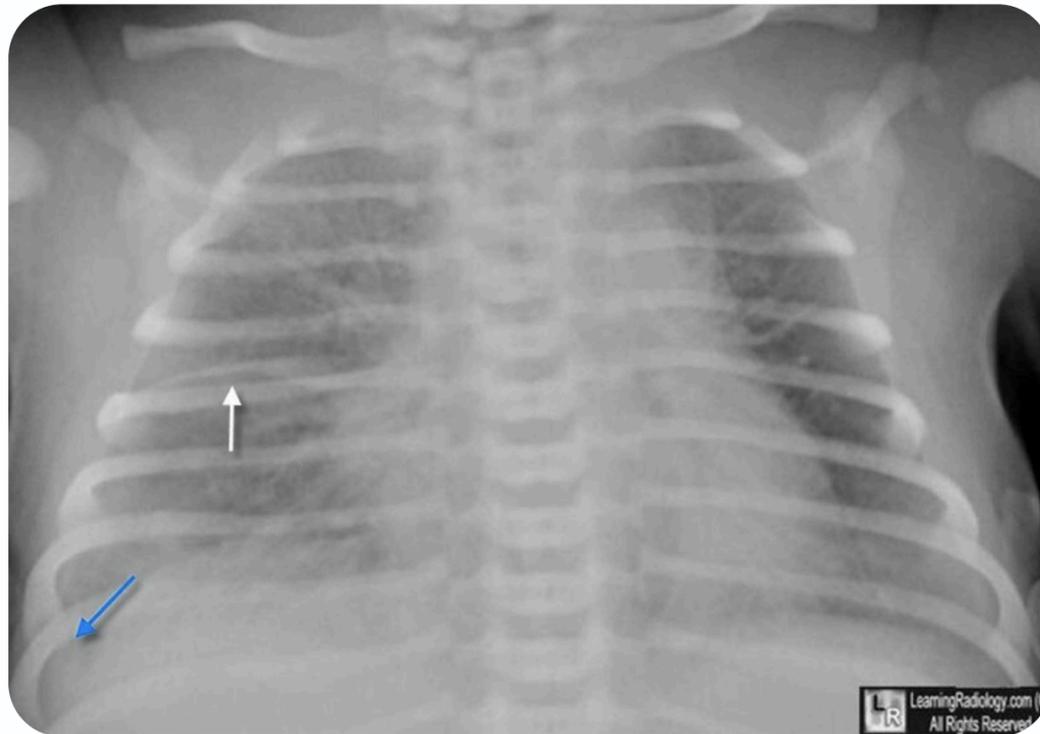
Chest radiography is the diagnostic standard for TTN. The main findings: fluid/edema in the fissure, and maybe found small pleural effusion or hyperinflation.

## ABG - Pulse oximetry

ABGs don't reflect CO<sub>2</sub> retention

## ECHO

rule out cardiac cause or pulmonary HTN



# Management

1

SUPPORTIVE TX.

2

O<sub>2</sub>  
SUPPLEMENT

3

CORRECT ANY  
METABOLIC  
DISORDER

4

REGULATE  
TEMPERATURE

5

I-V FLUID

# DDX



**RDS**



**meconium aspiration syndrome**



**congenital lung defect**



**pneumothorax**



**diaphragmatic hernia**



**congenital HD**



**PPHN (Persistent Pulmonary Hypertension of the Newborn)**



**neonatal pneumonia**



A close-up photograph of a newborn baby's head being held by several pairs of hands wearing white surgical gloves. The baby's head is the central focus, showing its dark hair and a visible forehead. The background is a soft, out-of-focus blue, suggesting a hospital or clinical environment. Two solid green rectangular shapes are positioned on the left and right sides of the image, framing the central text.

# **BIRTH INJURIES**

# BIRTH INJURIES

## DEFINITIONS:

**Birth injury :** Is defined as the structural destruction or functional deterioration of the neonate's body due to a traumatic event at birth.

-Is used to denote avoidable and unavoidable mechanical and hypoxic- ischemic injury incurred by an infant during labor and delivery.

-Birth injuries are a significant cause of neonatal morbidity and mortality

**Birth trauma :** Injuries to the infant that result from mechanical forces during the birth process. **Birth defect:** A congenital disorder present at birth regardless of its cause, may result in disabilities that may be physical , intellectual or developmental.

## EPIDEMIOLOGY

- Significant birth injury accounts for fewer than 2% of neonatal deaths and stillbirths in the United States. It still occurs occasionally and
- unavoidably, with an average of 6–8 injuries per 1000 live births. In general, **larger** infants are more susceptible to birth trauma. Higher rates
- are reported for infants who **weigh more than 4500g**.
-

# RISK FACTORS

## Maternal

1- primigravida 2- small maternal stature 3- pelvic abnormality 4- oligohydramnious 5- cephalopelvic disproportion

**Fetal** 1- very low BW 2- Extreme prematurity 3- fetal anomalies 4- fetal macrosomia 5- breech presentation Delivery

## Delivery

1- prolonged or rapid labor 2- instrument use 3- version + extraction 4- deep, transverse, arrested descend



# TYPES:

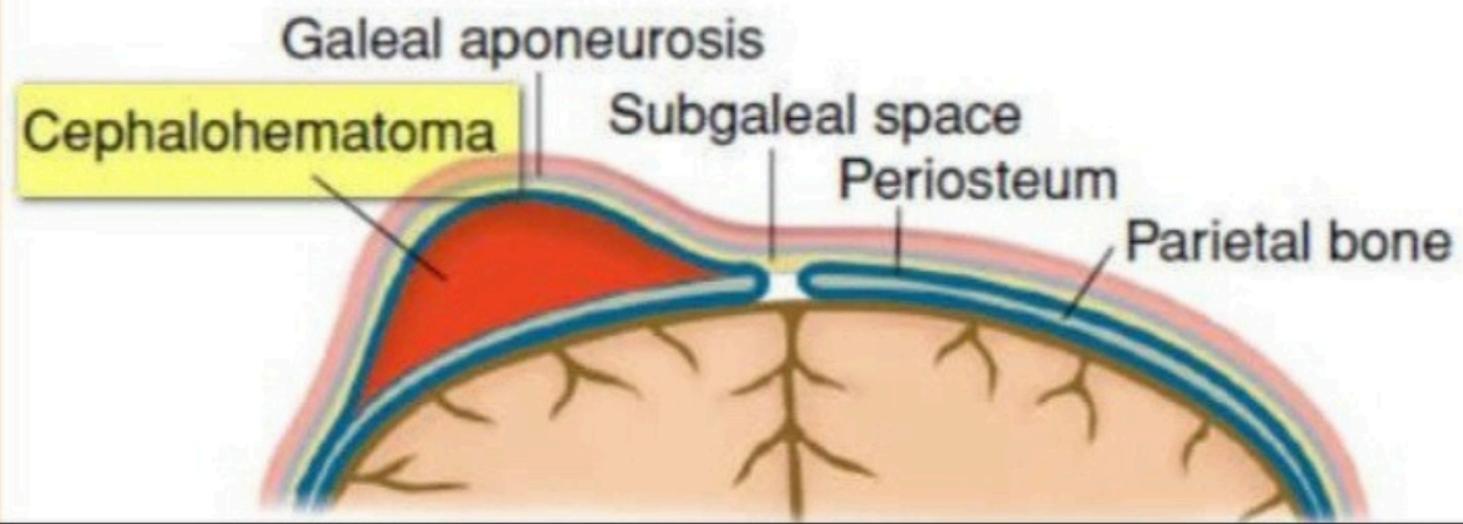
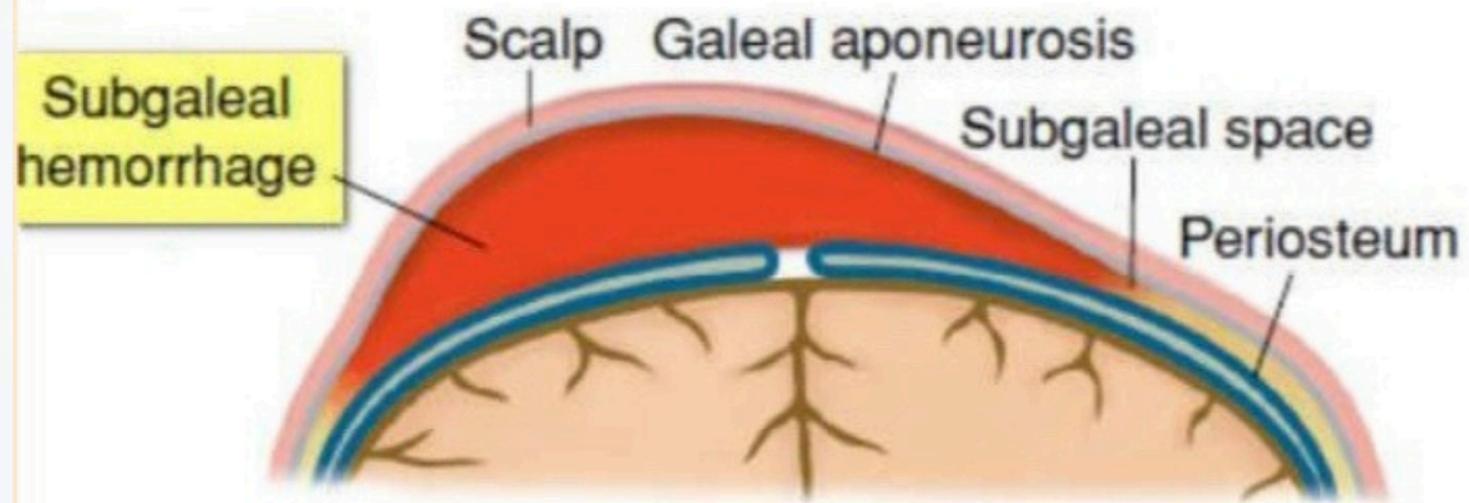
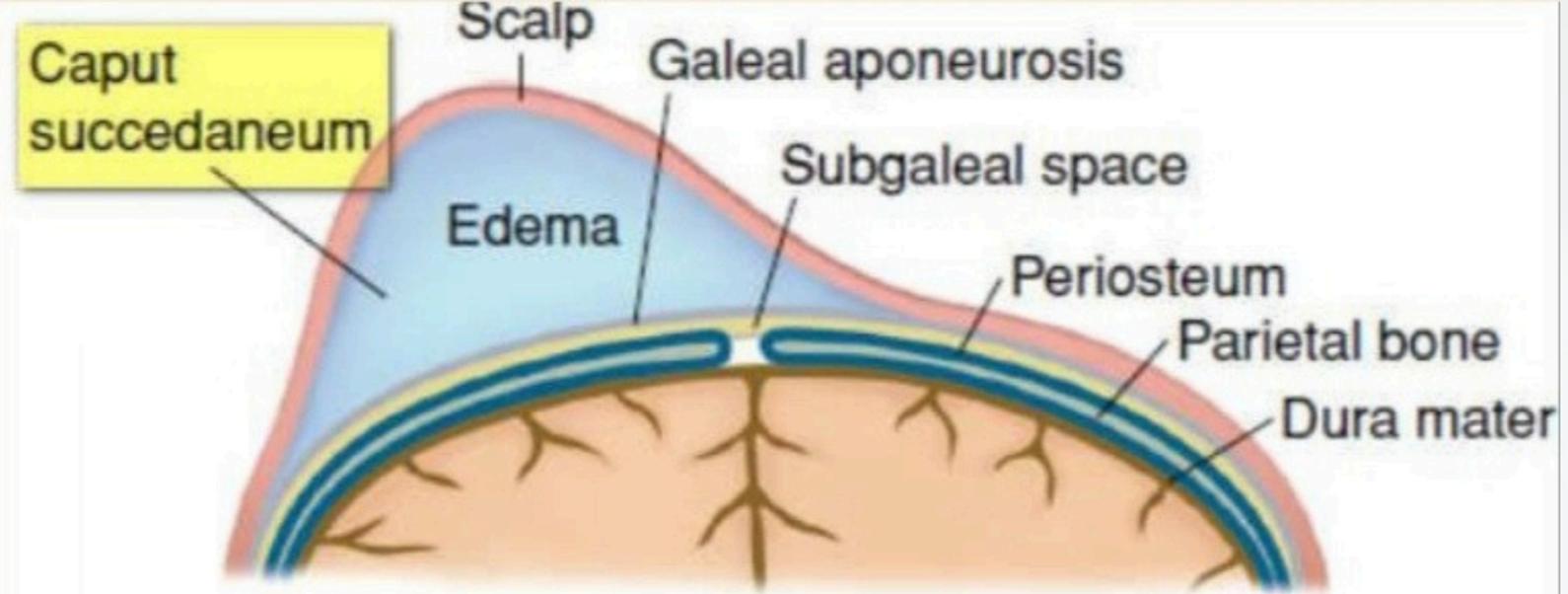
1) Soft Tissue Injury

2) Nerve Injury:

- Brachial Plexus Injury Cranial
- Nerve Injury Laryngeal Nerve
- Injury Spinal Cord Injury Bone
- Injury

3) Intra-Abdominal Injury





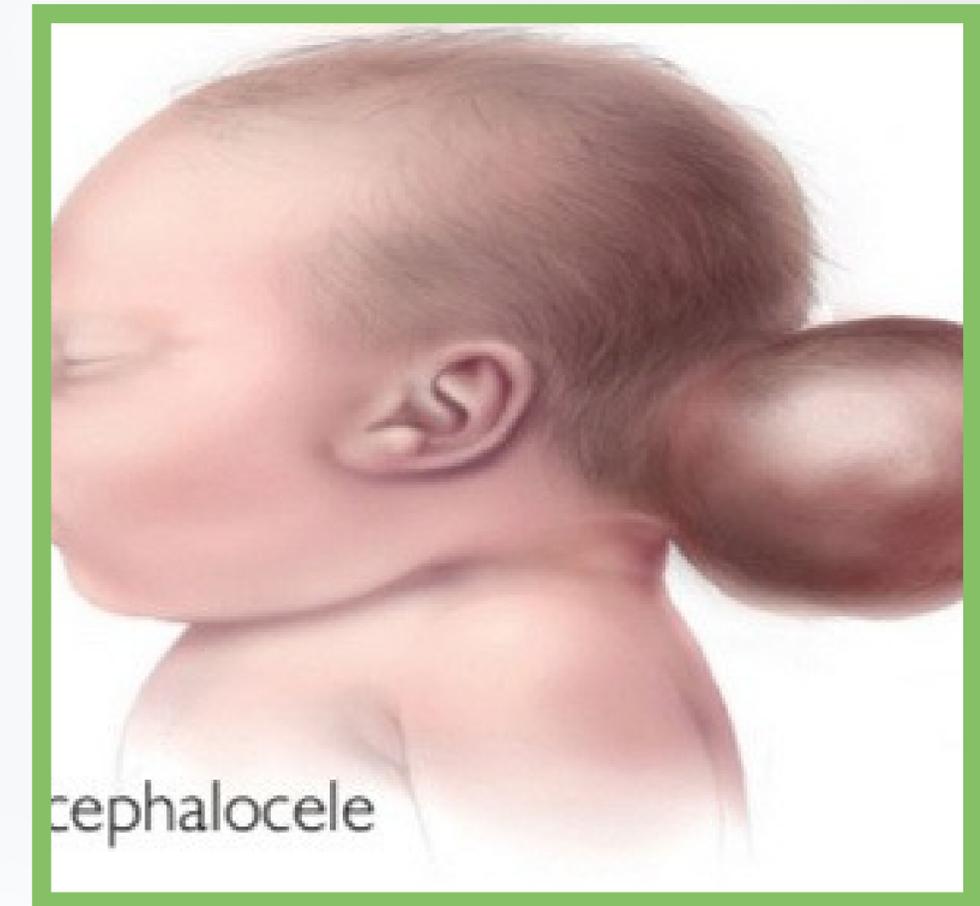
# 1. CEPHALOHEMATOMA

- Is a **localized** subperiosteal hemorrhage that does **not** cross the suture lines. It maybe
- unilateral or bilateral. Most commonly over the
- **parietal bones**. A linear skull fracture rarely may
- be seen underlying a CH . And it doesn't require specific interventions unless associated with abnormal neurologic findings. With time, it may calcify, and form a central depression. Between
- **1-2 %** of all babies born will develop CH during or after birth, so it's not a rare
- condition .



It's also **not dangerous**. The blood is sitting on top of the skull, not under the skull. That means the brain isn't affected. The most obvious CH symptom will be a soft, unusual bulge on the back of a baby's skull. You likely **won't see a cut or bruise** on the surface of the skin over the bulge. Over the course of a few weeks, the bulge may feel harder as the blood calcifies. After a few weeks, the blood will start to disappear, and the bulge will shrink.

Occipital CHs are uncommon and may be confused as **encephalocele**.



# DIAGNOSIS

- A full-body physical examination. Often, the appearance of the bulge alone is enough to make a diagnosis “**clinical Dx**” .

By examination → palpable edge at the margin of the lesion.

- For added precaution , additional tests, including :

X-ray CT

scan MRI

scan

Ultrasound

# MANAGEMENT

- In almost all cases, an infant **won't need treatment** for CH. That's because most of these injuries will heal on their own. You can expect the bump to go away in several weeks to a few months. Some injuries may take up to three months to heal completely. Management
- consist mainly of **observation**, if **anemia** or **hypovolemia** is present resuscitation including transfusion may be needed, aspiration is not required .

## 2. Caput succedaneum



## 2. Caput succedaneum

- Localized swelling, or edema, of the soft tissue of scalp that appears as a lump or bump on their head shortly after delivery. This condition is
- harmless. It doesn't indicate damage to the brain or the bones of the cranium.

### **Causes :**

- Prolonged pressure from the dilated cervix or vaginal walls on the baby's head causes swelling, puffiness, and bruising. The use of vacuum suction or
- forceps also can increase the risk of this type of swelling. Scalp swelling may be more likely if the amniotic sac membranes rupture early in labor.
-

## 2. Caput succedaneum

- A physical exam of the newborn infant is all that's necessary for a diagnosis "clinical Dx" It has ill-defined margin, no need for X-ray and will resolve in days.
- Not associated with fractures but may have skin ecchymosis.
- Significant bleeding is rare ; but jaundice can worsen if blood is reabsorbed.
- No Management needed



## Caput Succedaneum

1. Present at birth on normal vaginal delivery

2. May lie on sutures , not well defined

3. Soft , pits on pressure

4. Skin ecchymosis

5. Size largest at birth , gradually subsides within a day

6. No underlying skull bone fracture

7. No treatment required

## Cephalhaematoma

1. Appears within a few days after birth on normal or forceps delivery

2. Well defines by suture , gradually developing , hard edge

3. Soft , elastic but does not pit on pressure

4. No skin change

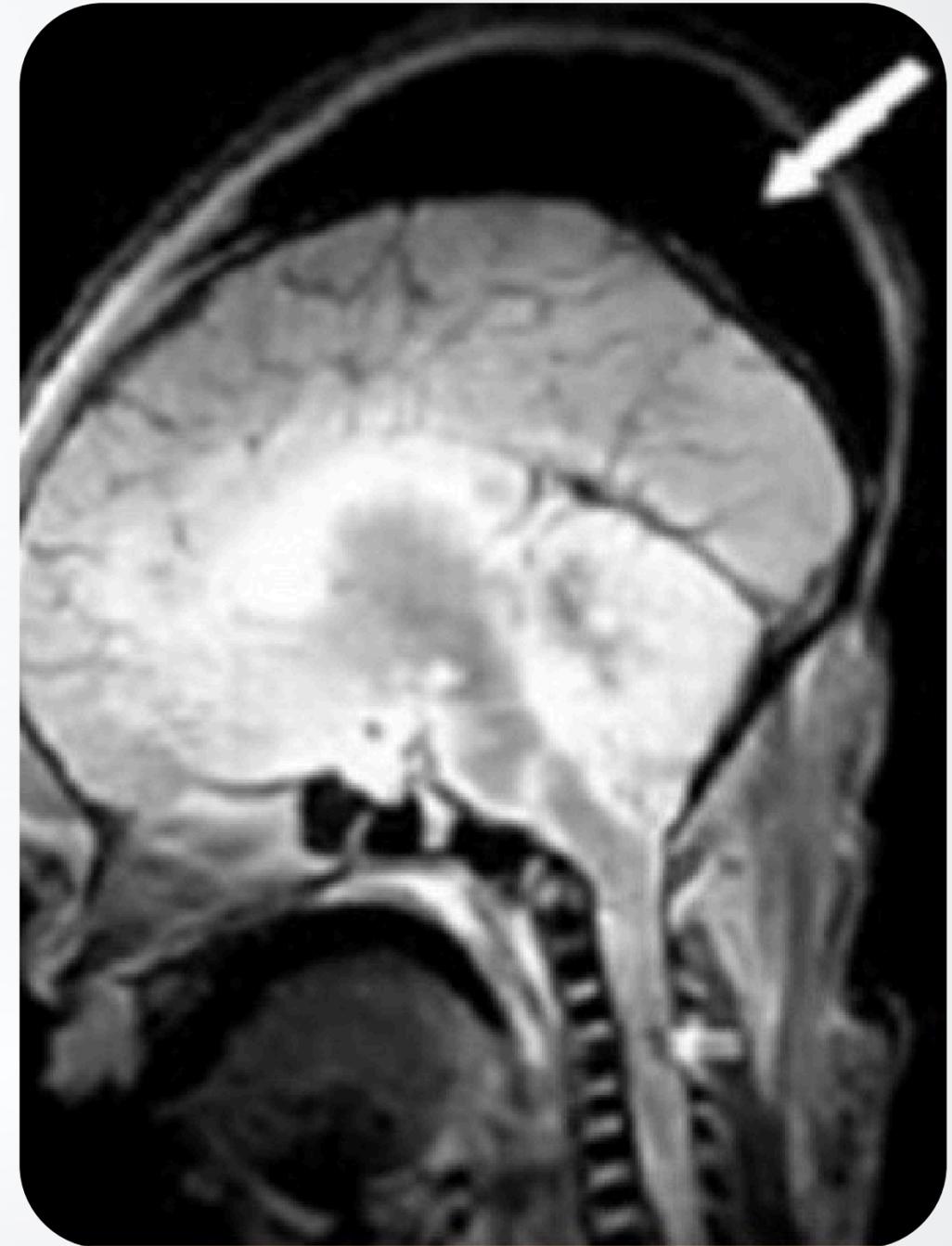
5. Become largest after birth and then disappears within 6-8 weeks to few months

6. There maybe an underlying skull bone fracture

7. No treatment required

### 3. Subgaleal hematoma

- It is a life threatening bleeding in the potential space between the periosteum and the scalp aponeurosis
- Cross suture lines.
- 90% of cases result from a vacuum applied to the head at delivery.
- It's highly associated with head trauma → fractures or ICH or it may be the 1<sup>st</sup> presentation of hemophilia.
- May cause significant bleeding → hypotension, shock, coagulopathy, jaundice



### 3. Subgaleal hematoma

**DIAGNOSIS:** Is generally clinical

- Fluctuant boggy mass “pitting edema” developing over the scalp (especially over the occiput). Develops gradually 12–72 hour after delivery.
- Usually insidious and may not be recognized for hours.
- Swelling may obscure the fontanelle and cross suture lines “distinguishing it from cephalohematoma”.



### **3.Subgaleal hematoma**

- **Laboratory evaluation may consist of hematocrite evaluation, and coagulation studies may be required.**
- **Management consists of strict observation and providing treatment when needed.**
- **In the absence of shock or intracranial injury, the long-term prognosis is generally good**

## 4. Abrasions and lacerations

- **Abrasion** : is a partial thickness wound caused by damage to the skin by friction and can be superficial involving only the epidermis to deep involving the deep dermis.
  - usually involve minimal bleeding.
- **laceration**: a deep cut or tear in skin or flesh.
- **Abrasions and lacerations** sometimes may occur as scalpel cuts during cesarean delivery or during instrumental delivery (ie, vacuum, forceps). Infection remains a risk, but most of these lesions uneventfully heal



## **4. Abrasions and Lacerations**

- **Management consists of :**
  - 1. careful cleaning**
  - 2. application of antibiotic ointment**
  - 3. observation.**
  
- **Lacerations occasionally require suturing**

## 5. Subcutaneous fat necrosis

- **Irregular, hard, subcutaneous plaques with overlying dusky, red-purple discoloration on the extremities, face, trunk, or buttocks may be caused by pressure during delivery.**
- **It occurs in the first weeks after birth.**
- **it is a form of panniculitis.**



## 5. Subcutaneous fat necrosis

### **Risk factors:**

- 1. Fetal distress during labor**
- 2. Large birth weight**
- 3. CS**
- 4. Low O<sub>2</sub> level**
- 5. Cold temperature**
- 6. Infection**



## 5. Subcutaneous fat necrosis

- The most common complication of subcutaneous fat necrosis is **HYPERCALCAEMIA** causing : irritability, constipation, poor weight gain and, rarely heart rhythm disturbance.

- Thrombocytopenia and hyperlipidaemia have also been observed.

### **Treatment:**

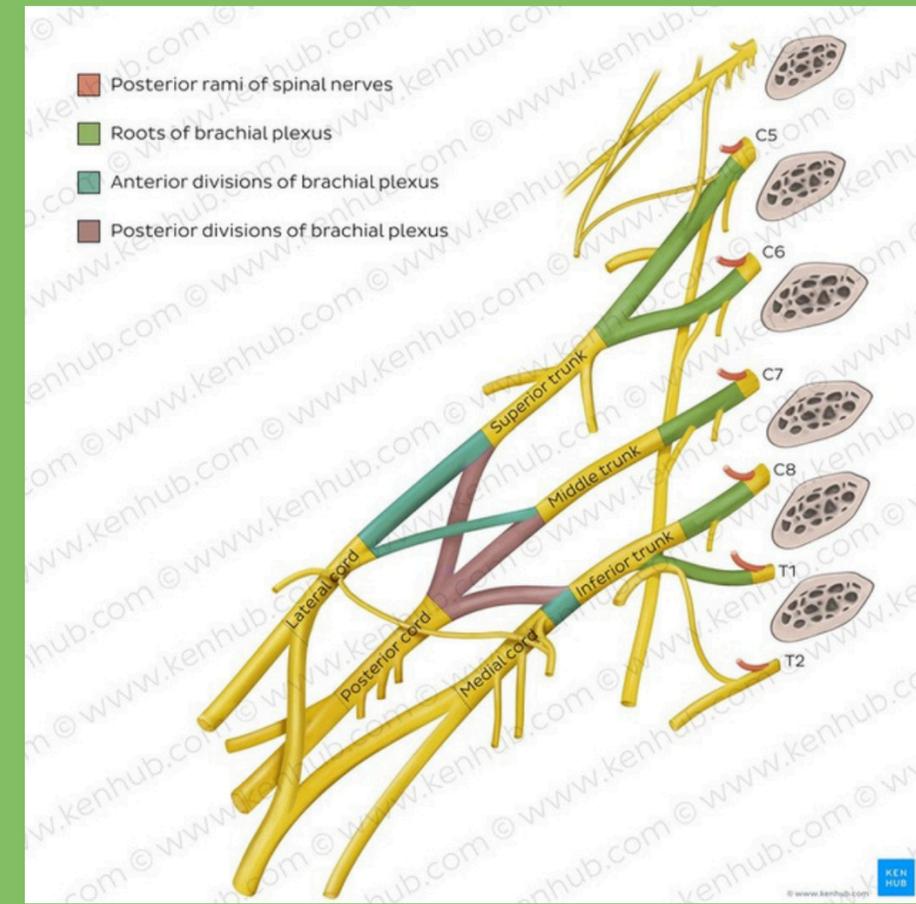
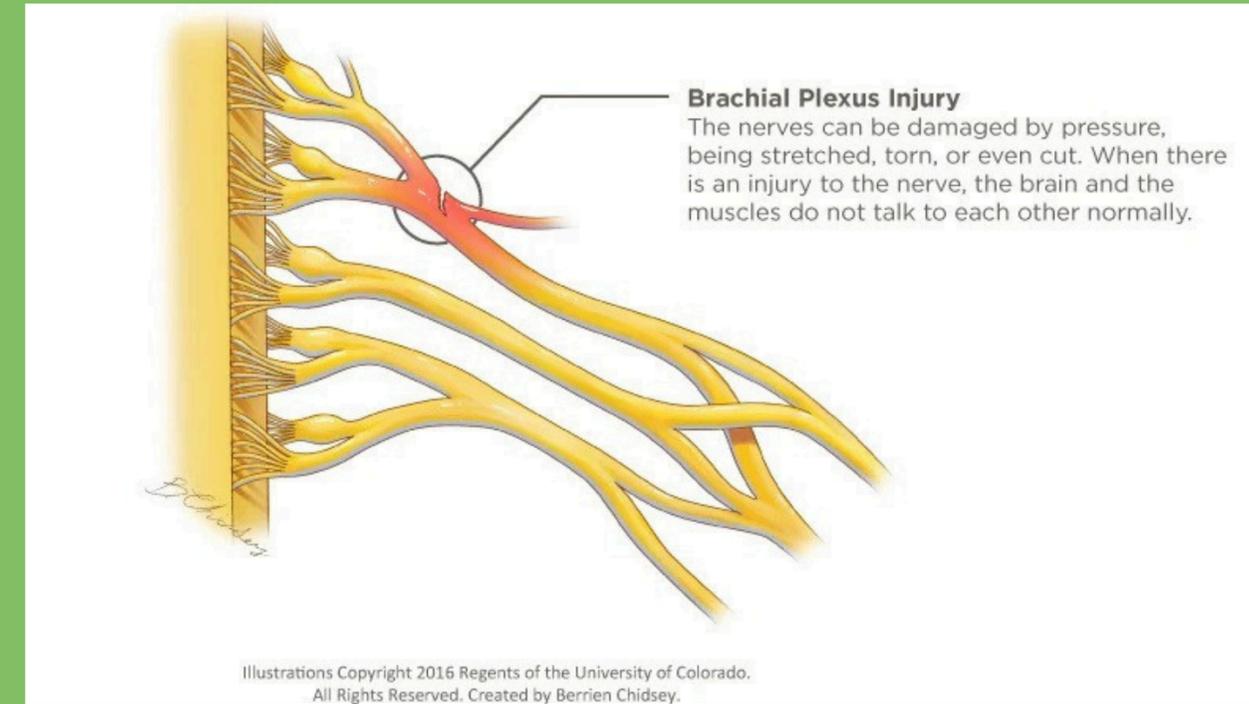
- Focusses on management of hypercalcaemia, if it occurs.
- Hypercalcaemia may be treated by increased fluid intake, low calcium milk feeds, frusemide. The inflammation of the fat
- often settles without specific treatment



# THE BRACHIAL PLEXUS

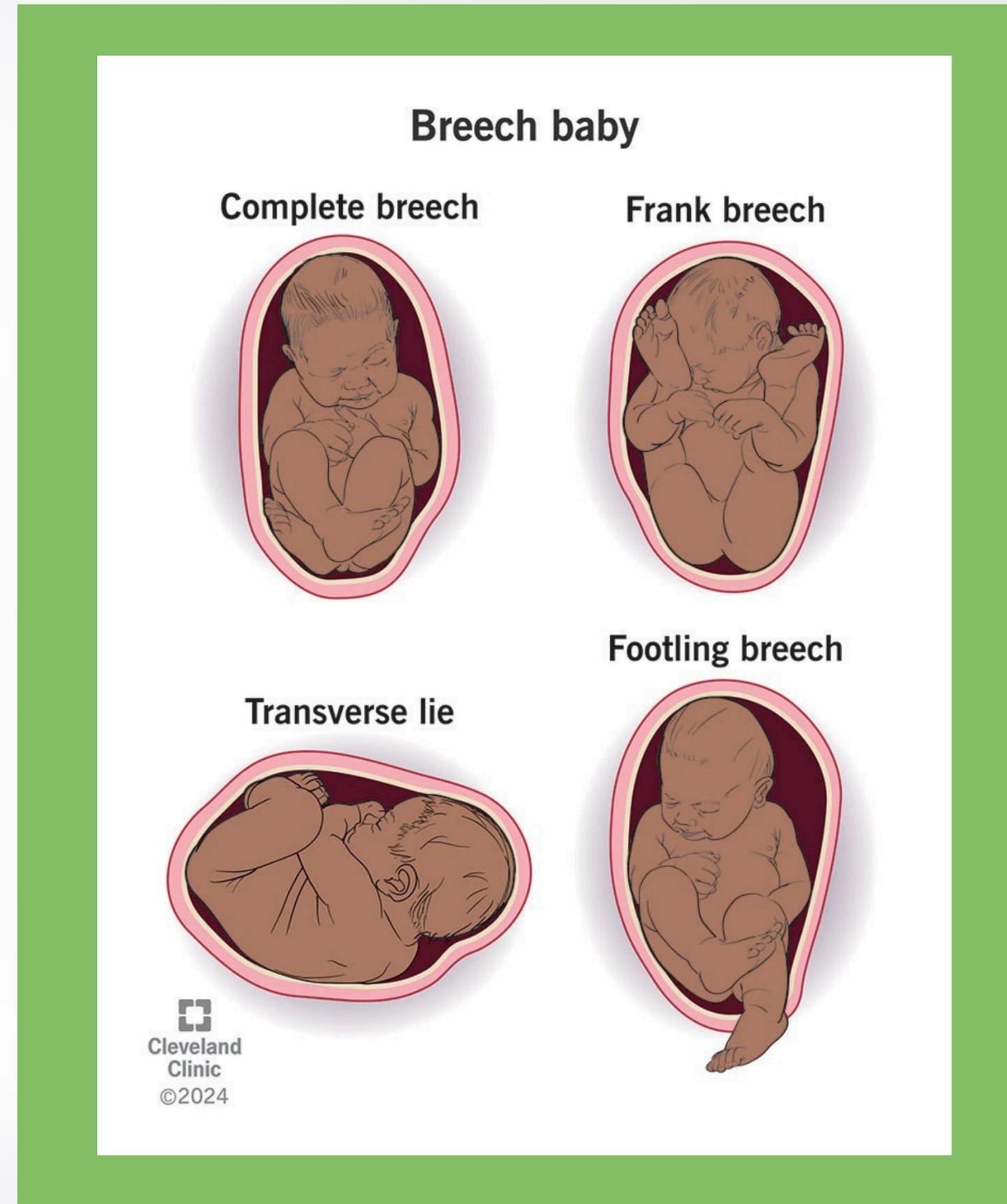
•The brachial plexus is a network of nerves (formed by the anterior rami of the lower four cervical nerves and first thoracic nerve (C5, C6, C7, C8, and T1)). •It supplies afferent and efferent nerve fibers to the chest, shoulder, arm, forearm, and hand.

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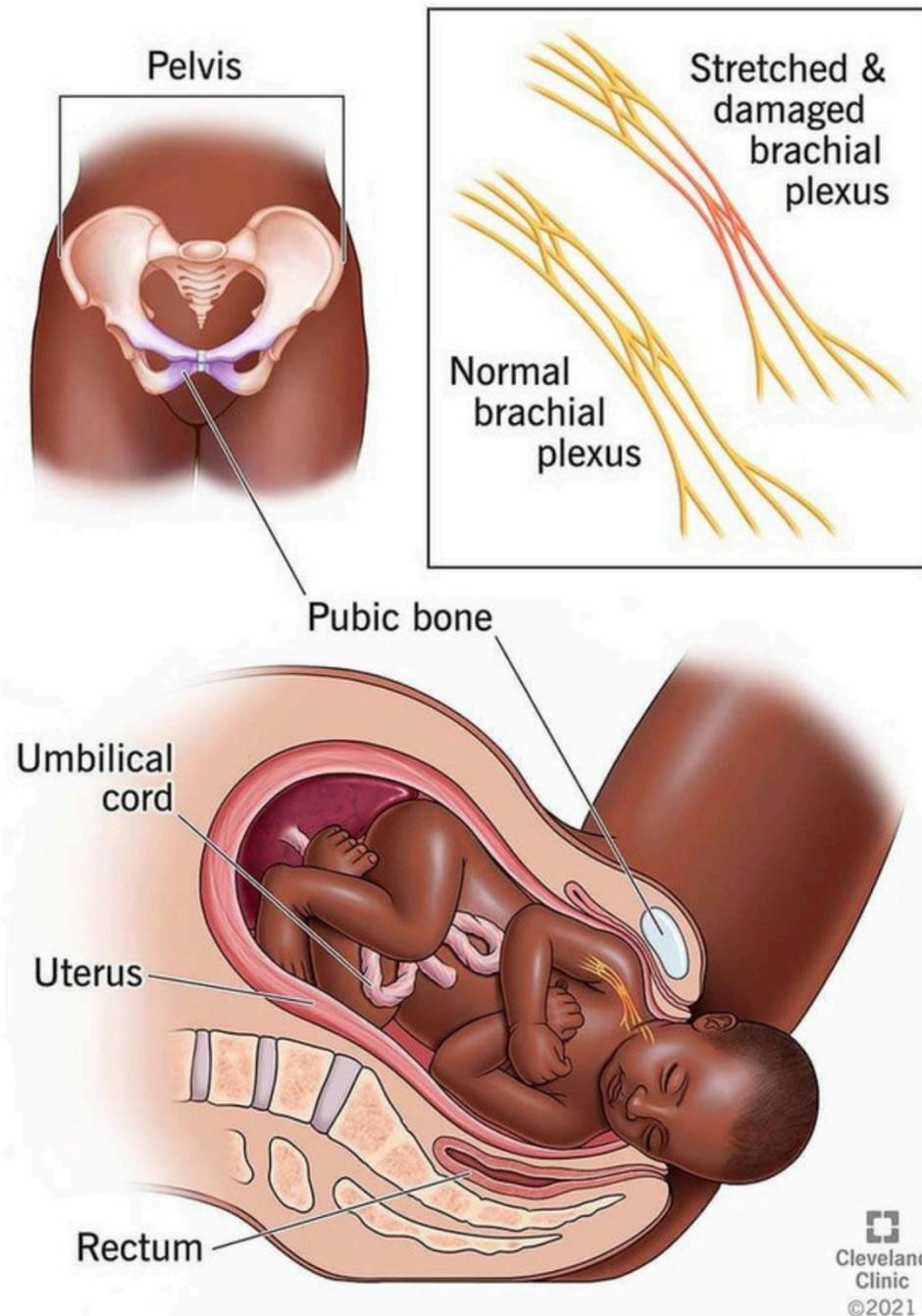


# BRACHIAL PLEXUS INJURY

- How does the injury happen ?
- Injury to the nerves of the **brachial plexus** may result from excessive traction, on the neck, during birth.
- Approximately, 2 out of every 1000 baby delivered, suffer for a form of Brachial Plexus Birth Palsy (BPBP).
- This Injury can happen during difficult deliveries, such as: 1. Large baby. 2. Breech delivery (bottom first). 3. Prolonged delivery. 4. Shoulder dystocia.



## Shoulder dystocia



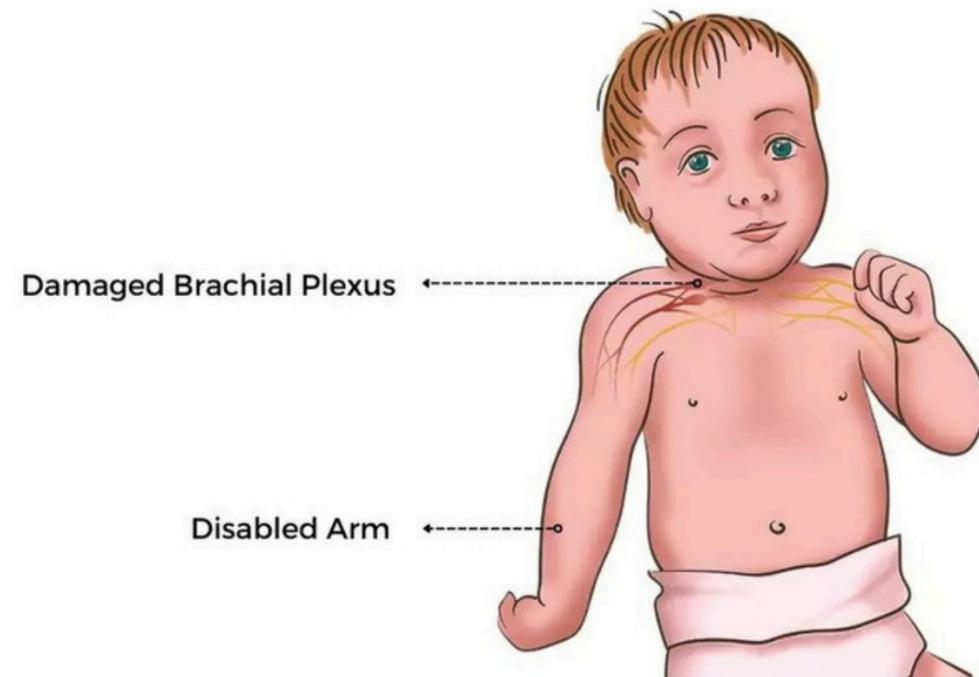
# SHOULDER DYSTOCIA

Shoulder dystocia is when, after delivery of the head, the baby's anterior shoulder gets caught above the mother's pubic bone. Stretching and injury of the brachial plexus can happen.

# ERB'S PALSY (C5-C6)

•Most common form of brachial plexus birth palsy, accounting for 45% of all injuries. •C7 can be involved in 20% of the cases. •The usual picture is of: Painless adduction, internal rotation of the arm, and pronation of the forearm. •The **Moro reflex** is absent on the involved side, and the hand grasp is intact.

## ERB'S PALSY



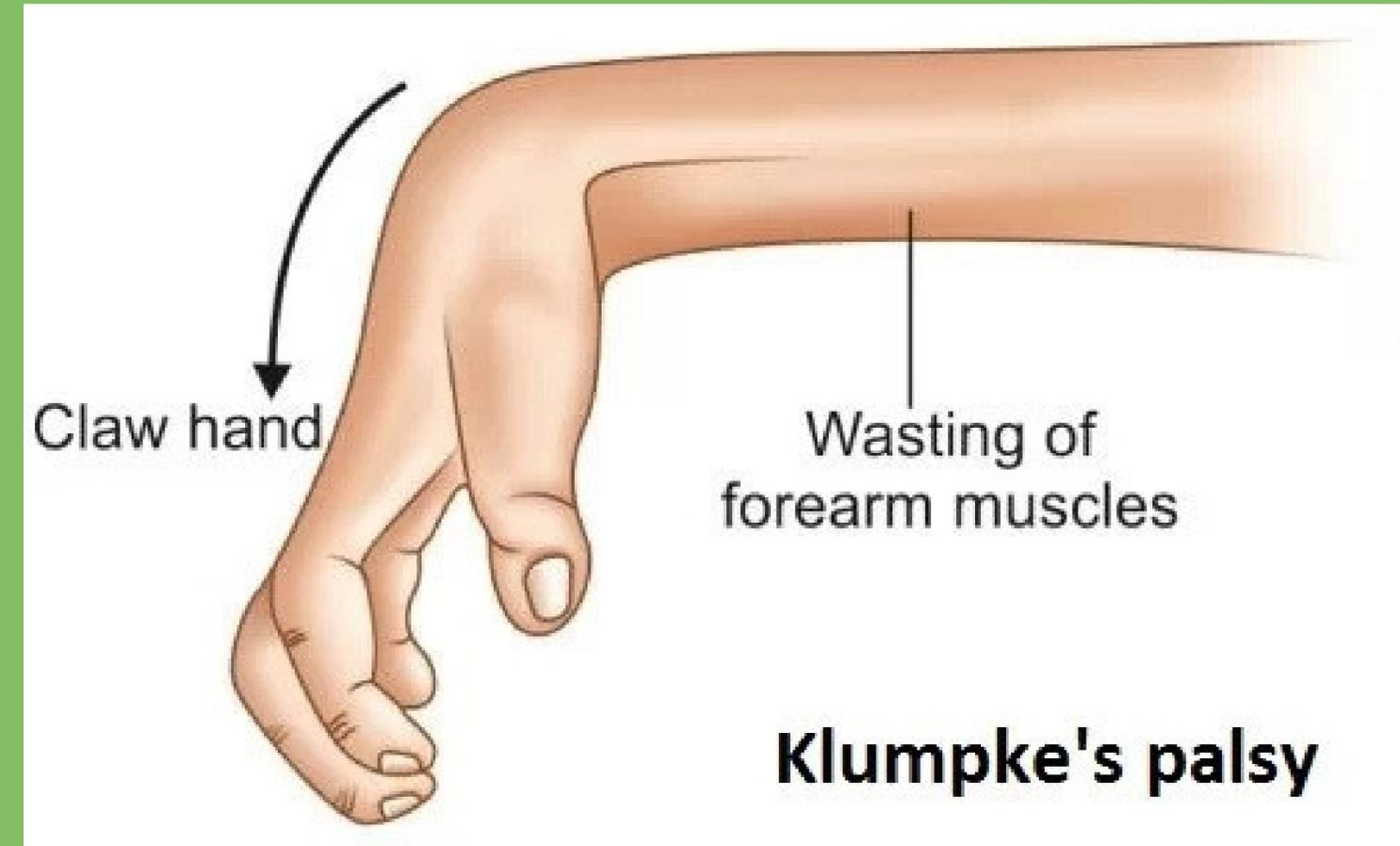
# MORO REFLEX/ STARTLE REFLEX

- 1- Begins at 28 weeks of gestation
- 2- Initiated by any sudden movement of the neck
- 3- Elicited by, pulling the baby halfway to sitting position from supine & suddenly let the head fall back
- 4- Consists of rapid abduction & extension of arms with the opening of hands, tensing of the back muscles, flexion of the legs and crying



# KLUMPKE'S PALSY (C7-C8-T1)

•It is a form of Brachial Plexus Birth Palsy (BPBP), and it is much less common than Erb's Palsy. •is caused by injury to the seventh and eighth cervical nerves and the first thoracic nerve, resulting in a paralyzed hand (Claw hand). •If the sympathetic nerves are injured, an ipsilateral **Horner syndrome** happens. •Grasp Reflex is absent.



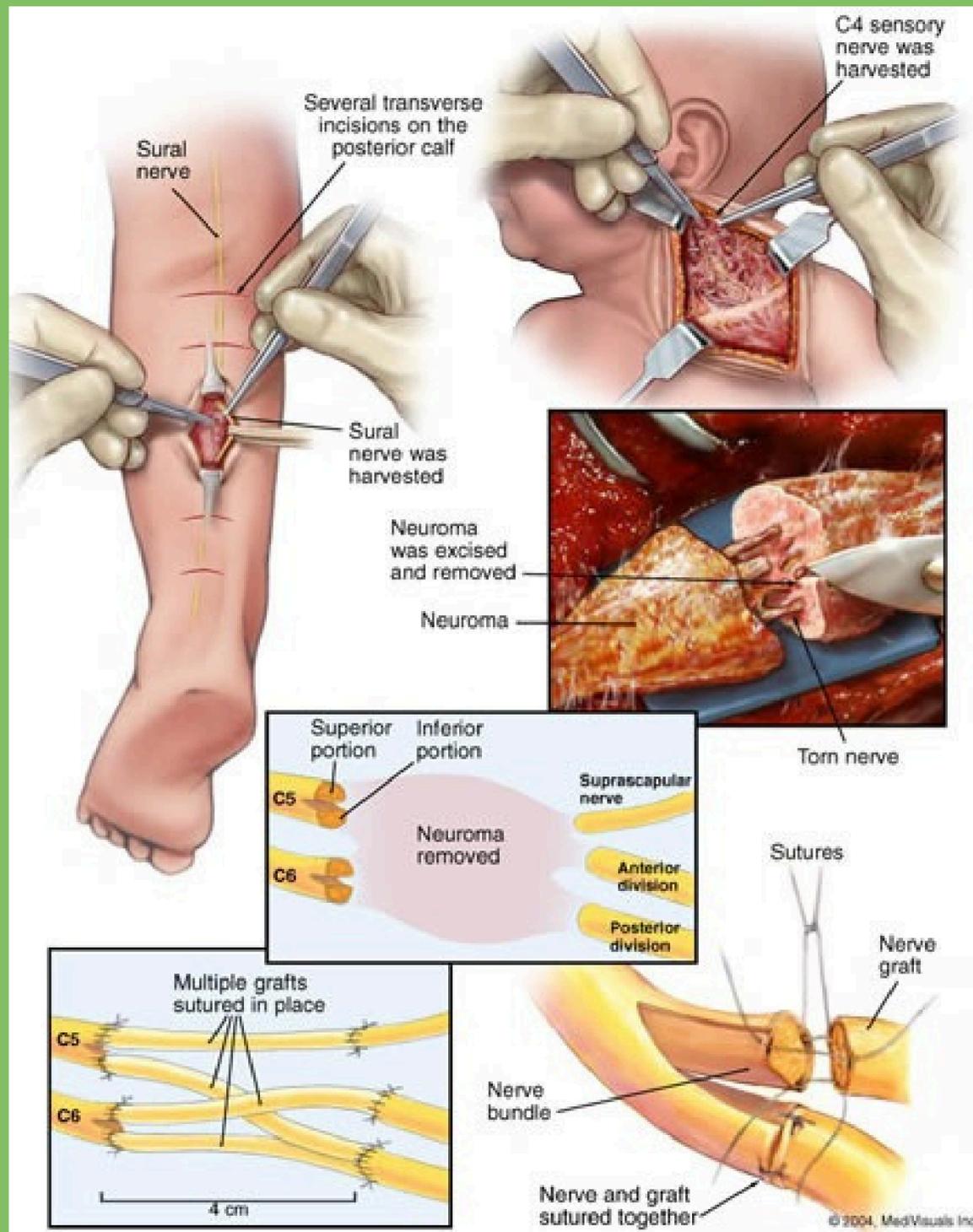
# HORNER SYNDROME:

Ptosis, Miosis and Ipsilateral anhidrosis.



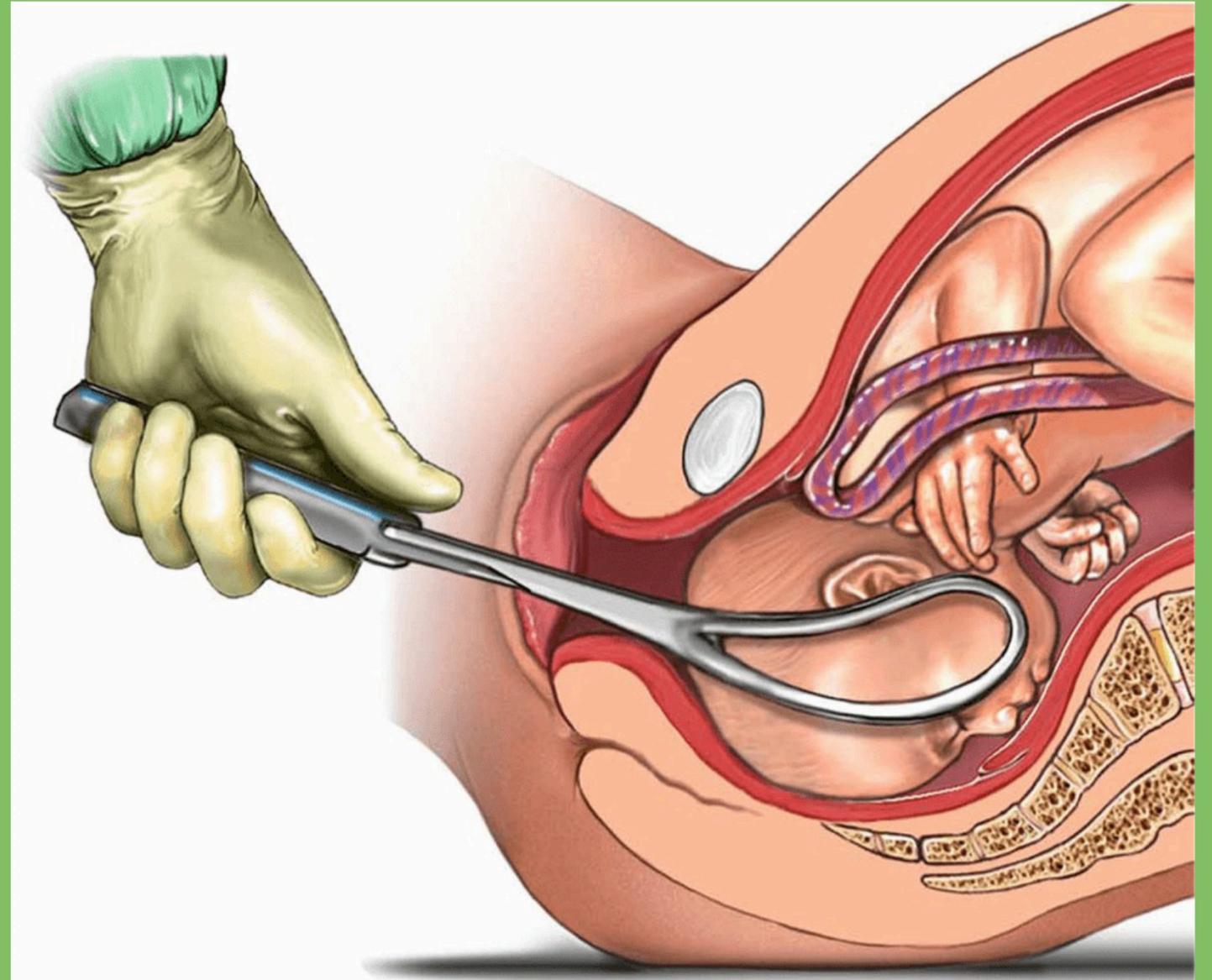
# HOW IS A BRACHIAL PLEXUS INJURY TREATED?

Most babies with a brachial plexus injury regain both movement and feeling in the affected arm. In mild cases, this might happen without treatment. •Other babies might need daily physical therapy. •If pain, weakness, or numbness continue, surgery often can help. •Surgical treatments include nerve grafting.



# CRANIAL NERVE INJURIES

•The nerves in a bundle that originates from the brain stem instead of the spinal cord are called cranial nerves and these can be damaged by stretching during childbirth. Depending on which nerve or nerves are damaged, a child may be born with various weaknesses or paralysis.



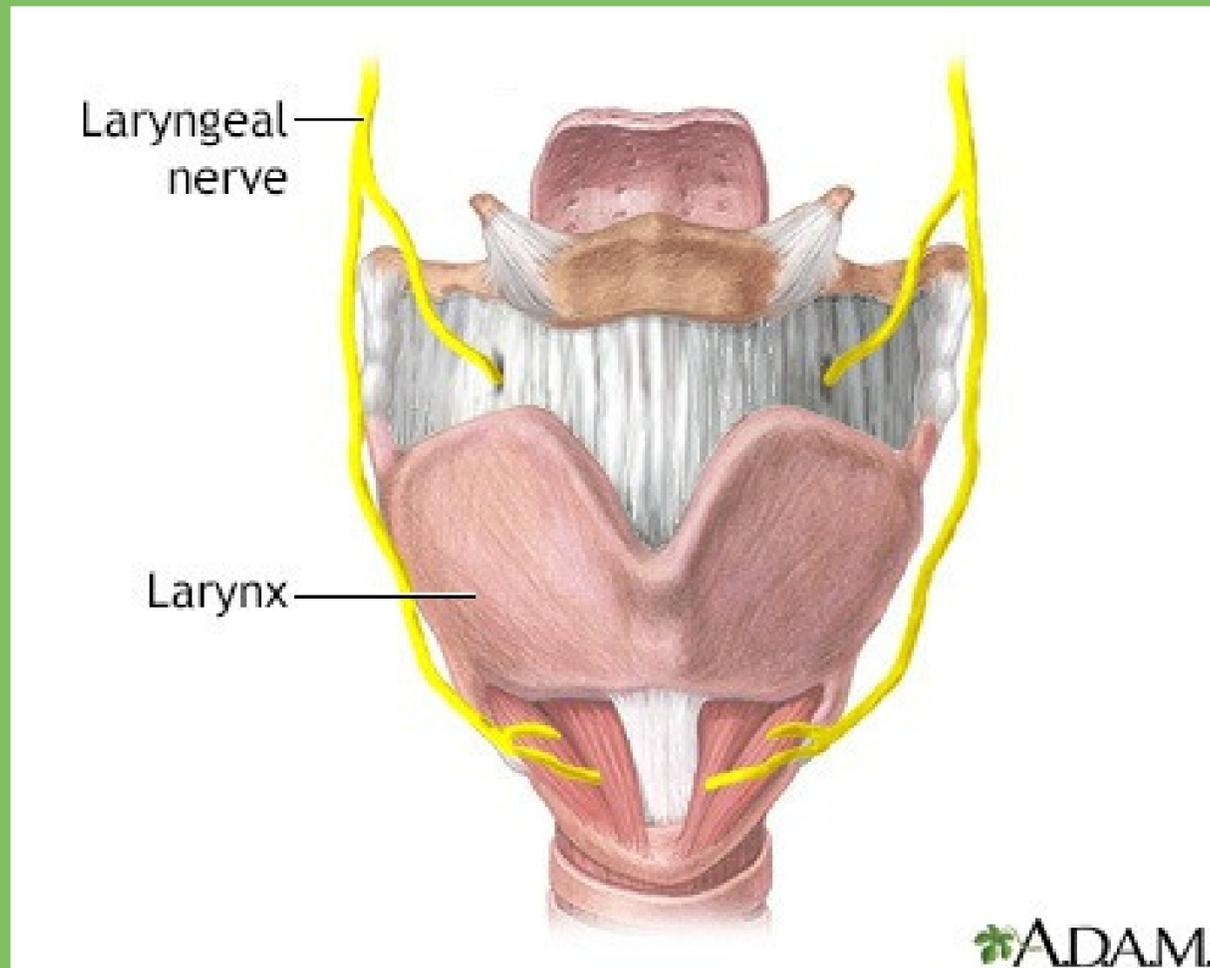
# FACIAL NERVE PALSY

Symptoms of this type of injury are: •Asymmetrical movements in the face •One side of the mouth being drawn toward the other side. •Smoother skin on the paralyzed side. •General lack of movement and expression on the affected side of the face.



# LARYNGEAL NERVE INJURY

• Damage to the laryngeal nerve may affect a child's ability to breathe and swallow. • This damage often occurs when an infant's head is turned to the side during childbirth. • If the nerve injury is **Unilateral**, the baby will present with hoarse cry or stridor. • But if the injury is **Bilateral**, the baby will have **respiratory distress or asphyxia**. • Most babies born with laryngeal nerve damage will recover within a few months.



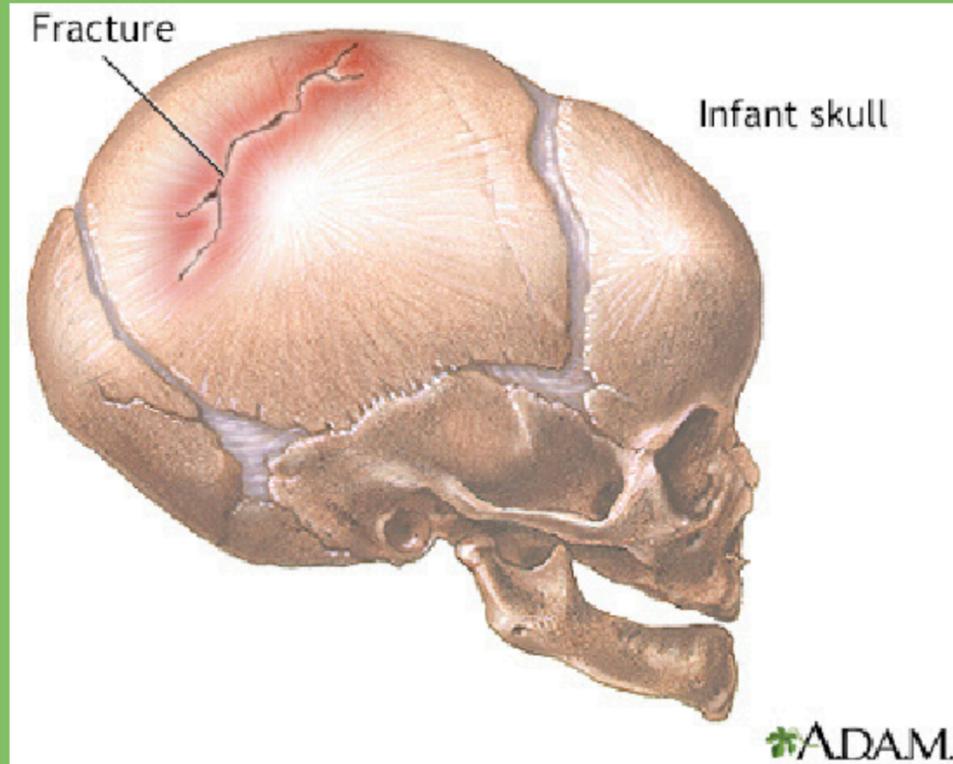
# SPINAL CORD INJURY

- In very rare cases the spinal cord may be stretched and damaged. This is a serious injury. •The result is typically paralysis below where the damage occurred. These spinal cord injuries are most often permanent and leave a child with a lifelong paralysis of a part of the body. •The clinical presentation is: 1.Stillbirth 2.Rapid neonatal death with failure to establish adequate respiratory function especially in cases involving the upper cervical cord or lower brainstem. 3.Lifelong paralysis of a part of the body

# BONE INJURY

•**Skull Fractures** •They are rare. •May occur as a result of pressure from :

- 1) Forceps
- 2) Maternal symphysis pubis .



# TYPES OF SKULL FRACTURE

1.Linear Fractures: A linear fracture is a simple break, but one that does not cause the bone to move. These are not usually too serious, but there may be underlying bleeding.

2.Depressed Fractures: A depressed skull fracture has the potential to be much more serious. This occurs when the skull is actually sunken inwards. It is more likely to cause bleeding and to put pressure on the brain.



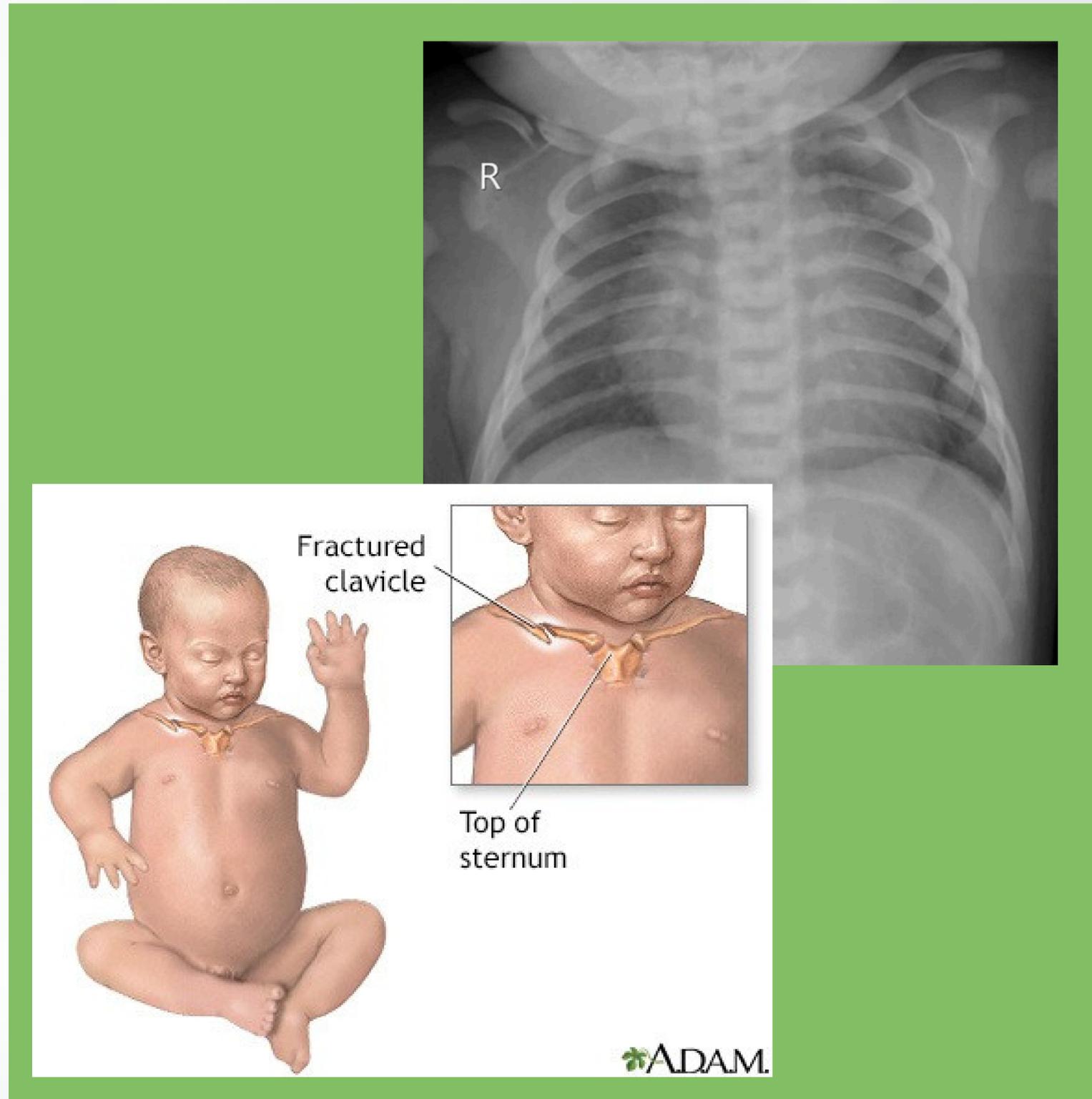
# BASILAR SKULL FRACTURE

Basilar skull fractures are fractures to the bones at the base of the skull. The pressure from this type of fracture often causes bruising around the eyes and behind the ears.



# CLAVICLE FRACTURE

- Fractures of the clavicle usually are unilateral and are noted in macrosomic infants, shoulder dystocia, and midforceps delivery. Often a snap is heard after a difficult delivery, and the infant exhibits an asymmetrical Moro response and decreased movement of the affected side.
- Examination may reveal crepitus, palpable bony irregularity, and sternocleidomastoid muscle spasm. Radiographic studies confirm the fracture.





**THANK YOU**