# Obstetrics & Gynecology
## TEAM


**Puerperium & puerperal sepsis, coagulation disorders**

Leader: Sara Alhaddab

Done By: Afnan Alhemiddi

◆very important ◆mentioned by doctor ◆team notes ◆not important

# PUERPERIUM & PUERPERAL SEPSIS

**PUERPERIUM:** is the time from the third stage of labor (delivery of the placenta) tell reproductive organs return to their original non-pregnant condition.

- All the physiological changes of pregnancy is reversed
- And the pelvic organs return to their previous state
- And endocrine influence of the placenta is removed

PUER= child
PERIUM= giving birth

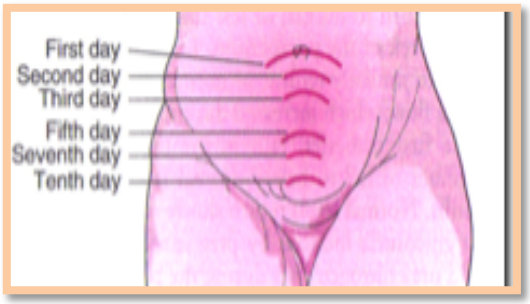
→ It is a time of physiological and mental adjustment to the new environment with the arrival of a new baby.

## OBJECTIVES OF MEDICAL & NURSING CARE DURING THE PUERPERIUM

1. Monitor physiological changes of puerperium
2. To diagnose and treats any postnatal complications
3. To establish infant feeding (encouraging mothers to choose breast-feeding)
4. To give the mother emotional support (b/c of the big changes in the hormonal levels, and there are emotional and psychological changes happen in the puerperium too)
5. To advise about contraception

## THE PELVIC ORGANS

### 1. Uterine involution:




- After delivery: uterine fundus palpable at level of umbilicus
- 10-14 days later, disappears behind the symphysis pubis
- This process is aided by oxytocin during breastfeeding
- Delay in involution (doesn't go to its normal size) can happen if there is an infection, accessory lobe of placenta or retained products of placenta

### 2. The cervix:

The cervix before delivery will be firm and pink, but after delivery it will become fluffy and soft, and with time it will become firm but it will never close completely like before!

- ☛ After delivery: flaccid and curtain like
- ☛ Few days → original form & consistency
- ☛ External os dilated (one finger (weeks—months)

Internal os is closed to less than one finger by the 2nd week of the puerperium.

### 3.The vagina:

- ☛ 1st few days of puerperium, vaginal wall is smooth, soft and edematous
- ☛ Slight distention return to normal capacity in few days
- ☛ Episiotomy and tears of vagina and perineum heal well

(The vagina after delivery is very friable, edematous and congested, so it's difficult to suture a small tear (you can just pack it) but if it's a big tear, you can suture it. And we advise the pregnant women if they would like to do perennial repair, they should never do it after delivery immediately b/c they may bleed a lot, so after delivery, they have to wait 3 to 4 months before doing any surgery in the vagina)

- ☛ Healing is impaired in presence of hematoma or infection

## 4. ENDOMETRIUM CAVITY:

- Decidua is cast off as a result of ischemia → **lochial flow** (bleeding after the birth) there are normal variations between the women, and normal variations during the puerperium, and normal variations between baby and other baby from the same lady)
- **Lochia**= blood, leucocytes, shreds of decidua and organisms.
- Initially; dusky red, fades after one week, clears within 4 weeks of delivery.
- New endometrium grows from basal layer of decidua.

## OTHER SYSTEMS

### • Bladder & Urethra

- Within 2-3 weeks →hydroureter and calycial dilatation of pregnancy is much less evident.

It's important to know that b/c if the woman does US immediately after delivery, you may say "she is having stone" especially in the right side, but it's not! b/c this is normal!

- Complete return to normal → 6-8 weeks
- Diuresis during first day

### • Blood

(After delivery, large amount of blood will go form Intra-vascular to Extra-vascular space, so the women may become buffy and this is normal but with time the body will get rid of it, that's why the women loss lots of weight in the first week.)

- ↓ Plasma volume
- Blood clotting factors and platelet count rise after delivery
- Fibrinolytic activity (which occurs during pregnancy) is reversed within 30 min. of placental delivery

## Complications of the puerperium

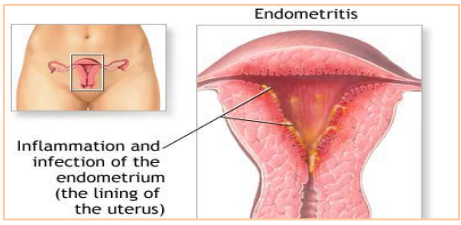
Complications of the puerperium are serious.
Sometimes fatal disorders may arise during the puerperium.

## 1. Thrombosis & Embolism

It is one of the main causes of maternal death.
(It is the commonest cause in developed countries)

## 2.Puerperal infection (IMP)

Postpartum fever is defined as a temperature greater than 38.0°C on any 2 of the first 10 days following delivery exclusive of the first 24 hours




### ➢ Causes:

### A- Endometritis

-Inflammation and infection of the endometrial lining- (It is the commonest cause)

- Local spread of colonized bacteria to the uterus affect 5-7%
- # 6 cause of maternal death (WHO)
- Risk factors:
  - ✓ Prolong rupture of membrane (which means more than 24 h)
  - ✓ C/S -Caesarean section- (now, we give prophylactic antibiotics for every C/S to prevent infection)
  - ✓ Fever before delivery
  - ✓ Prolong labor/ multiple examination (multiple vaginal Ex)
  - ✓ Manual removal of placenta (if you remove the placenta manually, you may introduce infection)
  - ✓ Others like diabetic mother, obese mother, using internal electronic fetal monitoring, or inserting any other instruments

- Symptoms:
  - ✓ Fever and chills (If a woman comes to you after delivery with fever, you have to give her broad-spectrum antibiotic until you exclude it)
  - ✓ Abdominal pain
  - ✓ Foul-smelling lochia

## ➢ Other causes:

1. **Urinary tract infection** (it is common b/c pregnancy itself increases the risk of having infection, and sometimes during delivery, the women do not empty their bladder very well, and we sometimes insert fully catheter and those will increase the risk of having infection).
2. **Breast infection** (Mastitis)
3. **Deep vein thrombosis (DVT)**
4. **Respiratory infection**
5. **Other non-obstetrics causes**
6. **Surgical wounds e.g. C.S.** or episiotomy, which is NOT common.

- **Diagnosis**

**Symptoms and signs**

- **Organisms**

**Multi-organism (most common organism id B hymolytic**

- **DX / Investigation**
  - **Full Clinical Examination**
  - **MSU**
  - **Cervical & HVS**
  - **Sputum C/S (if possible)**
  - **Blood culture**
- **Management:**

**After investigation is sent for**

- **Start antibiotics** –broad spectrum antibiotics-

# B-Mastitis (Breast infection)

I. **Acute intramammary mastitis = due to failure of milk withdrawal from a lobule**
Usually before starting breast-feeding, the breast will become engorged, hot and (she will start to shiver but with low grade temperature) quite painful and tender but there is no redness and no sign of cellulitis.

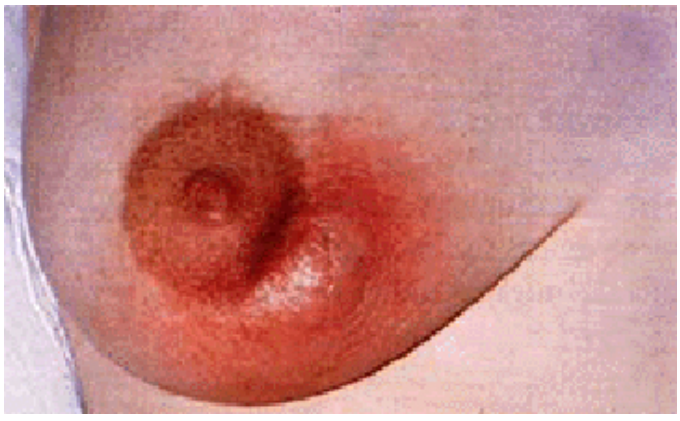
**Rx →** (supportive) encourage **breast feeding, cold compress, antibiotics if no improvement within 24 hrs.**

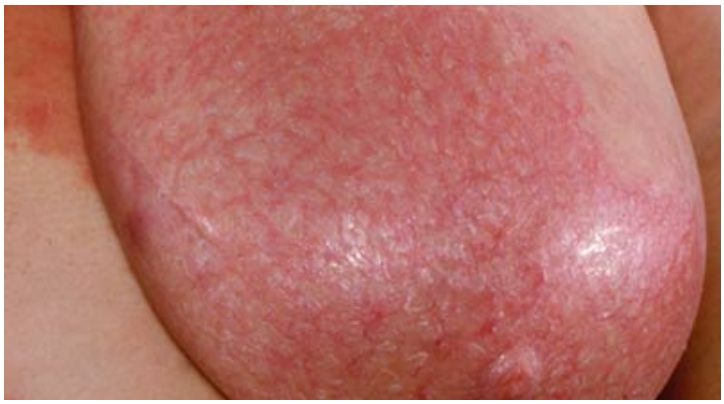
II. **Infective mastitis = May be due to staph. Aureus**

**Rx. → Antibiotics according to sensitivity**

III. **Breast abscess formation = Rare but preventable**

**Rx. → Surgical drainage if established.**
**→ Antibiotics, only if early.**





## 3-Secondary postpartum hemorrhage:

**Excessive blood loss from genital tract more than 24 hr and within 6 weeks of delivery**

- **Causes**

**i. Retained placental fragments**

**ii. Infection (late infection is usually endometritis caused especially by {chlamydia} and it can cause 2ry PPH)**

**~ Usually within a few days of delivery (Commonest between 8-14 days)**

- **Management:**

✓ **Mild bleeding →observe**

✓ **IV fluid /blood + oxytocic drug**

✓ **Evacuation of uterus under GA (general anesthesia) if:**

**- USS suggests presence of retained placental tissue**

**- Heavy bleeding persists**

**- & the uterus is larger than expected and tender; the cervix is open.**

**- The infection is treated appropriately.**

## 4-Puerperial mental disorders:

**i. Postnatal blues [Care of self and infant maintained]: it is NOT a disease (not pathology)**

✓ **Anxiety and depression**

✓ **Usually at 3rd and 4th day**

✓ **Self limiting (encourage her to not stay alone, to go out and change air, take a shower, and support her and her family)**

**ii. Puerperal Depression [Care of self and infant neglected]: it's a disease and it needs treatment!**

✓ **Pre exiting depression**

✓ **Very traumatic delivery**

**iii. Puerperal psychosis [May express ideation to harm self and/or infant]:**

**→ Uncommon, however serious**

**→ ? Due to endocrine changes in puerperium, or are an uncovering of an underlying psychotic tendency at a vulnerable stage.**

**→ Psychiatrist opinion is needed hence risk of suicide and safety of baby are paramount consideration.**

**→ Warning signs: Confusion, restlessness, extreme wakefulness, hallucination and delirium**

- **TREATMENT**

**According to severity:**

**→ If mild (Postnatal blues) →Observe, discuss, mild sedatives**

**→If severe (Puerperal Depression and Puerperal psychosis)→ heavy sedation + transfer to psychiatric ward**

# CONSUPMTIVE COAGULOPATHY (DIC)

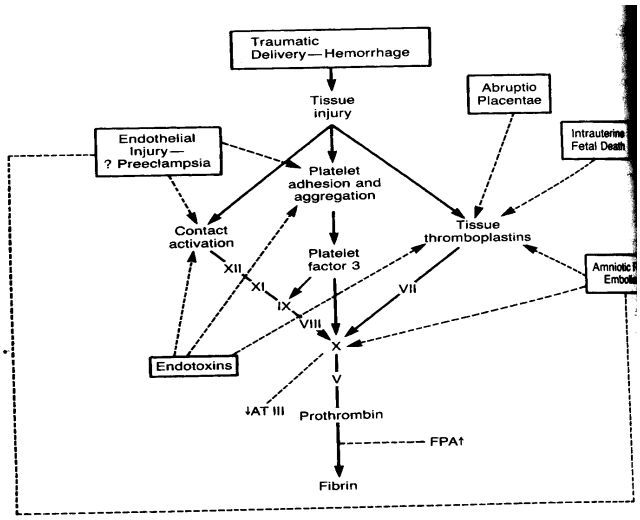
**A complication of an identifiable, underlying pathological process against which treatment must be directed to the cause**

## Pregnancy Hypercoagulability:

- ↑ Coagulation factors I (fibrinogen), VII, IX, X
- ↑ Plasminogen; ↓ plasmin activity
- ↑ fibrinopeptide A, b-thromboglobulin, platelet factor 4, fibrinogen

## Pathological Activation of Coagulation mechanisms:

- Extrinsic pathway activation by thromboplastin from tissue destruction
- Intrinsic pathway activation by collagen and other tissue components
- Direct activation of factor X by proteases
- Induction of procoagulant activity in lymphocytes, neutrophils or platelets by stimulation with bacterial toxins




## Significance of Consumptive Coagulopathy

- Bleeding
- Circulatory obstruction→organ hypoperfusion and ischemic tissue damage
- Renal failure, ARDS
- Microangiopathic hemolysis

## Causes

- Abruptio placentae (most common cause in obstetrics) which may be revealed (seen to come out through the vagina) or concealed (no visible blood loss)
- Sever Hemorrhage (Postpartum hge)
- Fetal Death and Delayed Delivery >2wks
- Amniotic Fluid Embolus (very rare, fatal condition and the survival rate is less than 30%)
- Septicemia
- Acute fatty liver syndrome

## Treatment

- Identify and treat source of coagulopathy
- Correct coagulopathy
  - FFP, cryoprecipitate, platelets

(You have to replace the blood and the factors)

# Fetal Death and Delayed Delivery:

- **Spontaneous labour usually in 2 weeks post fetal death**
- **Maternal coagulation problems < 1 month post fetal death**
- **If retained longer, develop coagulopathy**
- **Consumptive coagulopathy mediated by thromboplastin from dead fetus**
- **Tx: correct coagulation defects and delivery**

# Amniotic Fluid Embolus:

- **Complex condition characterized by abrupt onset of hypotension, hypoxia and consumptive coagulopathy**
- **1 in 8000 to 1 in 30 000 pregnancies** (so it's rare)
- **"anaphylactoid syndrome of pregnancy"**

➢ **Pathophysiology:** **brief pulmonary and systemic hypertension→transient, profound oxygen desaturation (neurological injury in survivors) → secondary phase: lung injury and coagulopathy**

➢ **Diagnosis:** **is clinical**

➢ **Management:** **Supportive**

➢ **Prognosis:**

- **60% maternal mortality; profound neurological impairment is the rule in survivors**
- **fetal: outcome poor; related to arrest-to-delivery time interval; 70% neonatal survival; with half of survivors having neurological impairment**

# Septicaemia:

- **Due to septic abortion, antepartum pyelonephritis, puerperal infection**
- **Endotoxin activates extrinsic clotting mechanism through TNF (tumor necrosis factor)**
- **Treat cause**

# Abortion:

**Coagulation defects from:**

- **Sepsis (Clostridium perfringens highest at Parkland) during instrumental termination of pregnancy**
- **Thromboplastin released from placenta, fetus, decidua or all three (prolonged retention of dead fetus)**