

# Postpartum Complications

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# Objectives

- After the class, students will understand
  - Postpartum hemorrhage
  - Thromboembolic disease
  - Postpartum infection
  - Postpartum psychiatric disorders

# Postpartum Hemorrhage

- Definition
  - Loss >500 ml blood after VD
  - Loss >1000 ml blood after CS
  - Ht ↓10% from admission for labor to postpartum

# Postpartum Hemorrhage

- Type
  - Early PPH
    - Within 24 hours
    - Caused mostly by uterine atony and trauma to birth canal

# Postpartum Hemorrhage

- Type
  - Late PPH
    - After 24 hours and within 6 weeks
    - Caused by subinvolution

# Postpartum Hemorrhage

- Etiology
  - Uterine atony
  - Lacerations of the genital tract
    - Bleeding continues despite a firm fundus
  - Retained placenta

# Postpartum Hemorrhage

- Etiology

- Inversion of the uterus

- Most often in multiparous & with placenta accreta or increta

- Subinvolution of the uterus

- Cause late postpartum bleeding
    - Caused by retained placental fragments and pelvic infection

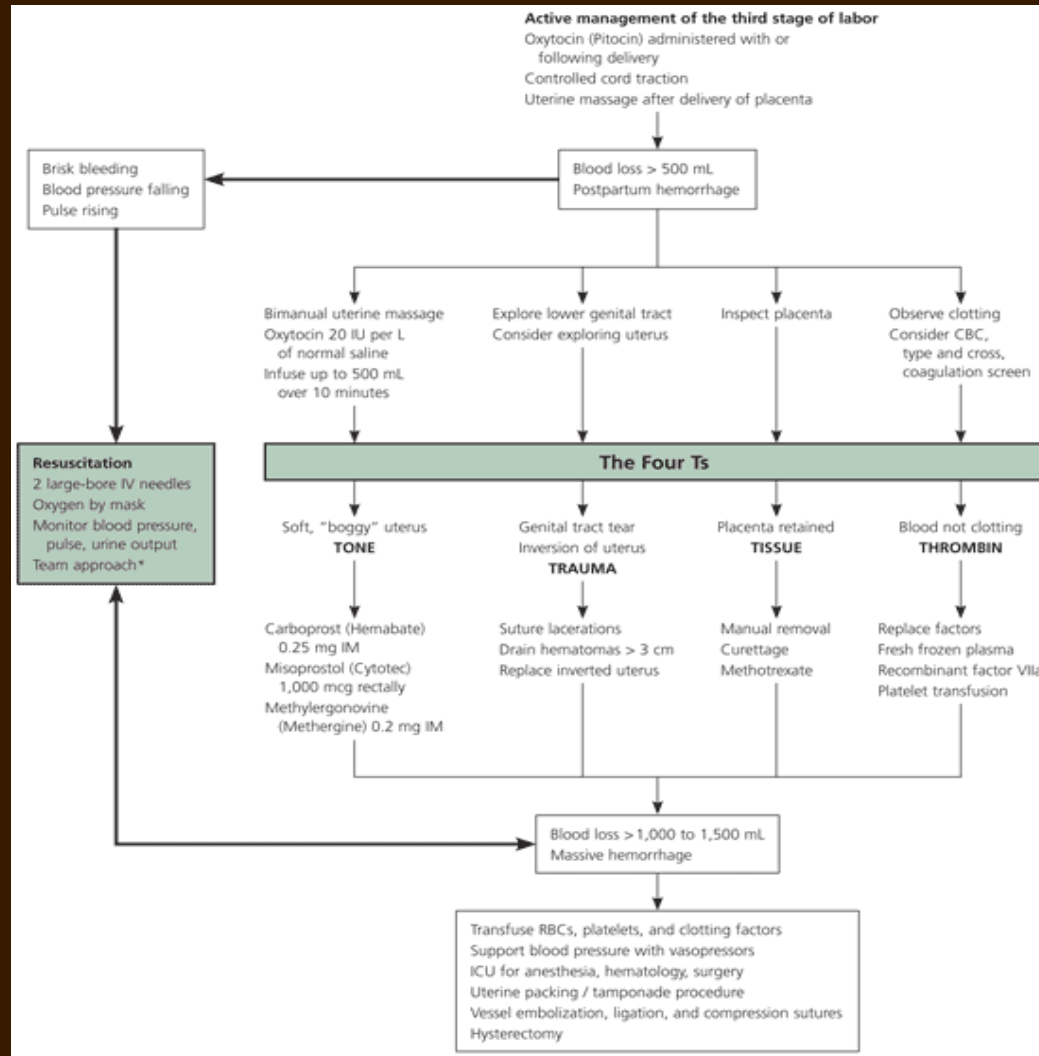
# Postpartum Hemorrhage

- Care
  - Assessment
    - Vital signs (may not be reliable), fundus, lochia/bleeding, placental fragments, hematoma, bladder distention, lab..



# Postpartum Hemorrhage

- Care
  - Management
    - Contract uterus
      - Massage, foley catheterization, medications (oxytocin, ergonovine, methergine, prostaglandin F<sub>2</sub>α, misoprostol)
    - Increase blood volume
    - Treat laceration
    - Prevent infection
    - Sufficient nutrition



Algorithm for management of postpartum hemorrhage. Many of the steps involved in diagnosing and treating postpartum hemorrhage must be undertaken simultaneously. Although the steps in maternal resuscitation are consistent (bold arrows) other actions may differ based on the actual cause. (IV = intravenous; IU = international units; CBC = complete blood count; IM = intramuscularly; RBC = red blood cells; ICU = intensive care unit)

Etiology	Manifestation	Management
<p>Uterine atony</p> <p>Overdistended uterus</p> <p>Anesthesia/analgesia</p> <p>Prolonged labor/precipitous Labor</p> <p>Oxytocin-induced labor</p> <p>Assisted labor</p> <p>Placenta previa</p> <p><u>Manual removal of placenta</u></p> <p>High parity</p>	<p>Difficult to locate fundus</p> <p>Boggy fundus</p> <p>Fundus higher than expected</p> <p>Excessive bright red lochia</p>	<p>Contract uterus</p> <p>Massage the fundus</p> <p><u>Bimanual compression</u></p> <p>Extract clots in the uterus</p> <p>Eliminate bladder distention</p> <p>Medication</p> <p>10-40u oxytocin in 1000ml LR/NS</p> <p>0.2mg ergonovine/methergine (contraindicate to hypertension)</p> <p>0.25mg prostaglandin F<sub>2α</sub></p> <p>Increase blood volume</p> <p>Crystalloid solutions</p> <p>Blood or blood products</p> <p>Vessel ligation, selective arterial embolization, hysterectomy</p>
<p>Uterine inversion</p> <p>early traction of cord</p>	<p>A mass protudes outside introitus</p>	<p><u>Reposition the uterus</u></p> <p>Give oxytocin</p> <p>Avoid aggressive fundal massage</p>

Etiology	Manifestation	Management
Lacerations of the genital tract Precipitous labor, rapid dilation/descent Assisted labor	Firm fundus and normal lochia Deep pain and pressure	Suture lacerations Cold therapy to hematoma Ligation of bleeding vessels Fluids/blood replacement
Hematoma bleeding into loose connective tissue	Deep, severe, unrelenting pain & pressure Signs of blood loss with firm fundus and normal lochia	Observe Apply cold Ligation and evacuation
Retained placenta Nonadherent retained placenta Adherent retained placenta <u>Placenta accreta</u> <u>Placenta increta</u> <u>Placenta percreta</u>	Expelled placenta fragments	Manual separation and removal of adherent placenta Blood replacement Dilation and curettage Hysterectomy
Subinvolution of the uterus Retained placental fragments Pelvic infection	Prolonged lochia Excess bleeding	Medication Oxytocin, ergonovine/ methergine/prostaglandins Antibiotics Dilation and curettage

# Thromboembolic Disease

- Type
  - Superficial venous thrombosis
  - Deep vein thrombosis
  - Pulmonary embolism

# Thromboembolic Disease

- Etiology
  - Venous stasis and hypercoagulation
  - Often associated with inflammatory process of vessel wall

# Thromboembolic Disease

- Risk factors
  - History of varicose veins
  - Obesity
  - Previous DVT
  - Nulliparity, Multiple gestations
  - Increased age
  - Smoking
  - C/S

# Thromboembolic Disease

- Signs and symptoms
  - Tenderness
  - Redness and swelling of the extremity
  - Pain
  - Fever, malaise, chills



# Thromboembolic Disease

- Diagnosis
  - Venous ultrasound/doppler
  - Plethysmography
  - Venography

# Thromboembolic Disease

- Prevention

- Side or back-lying position
- Change positions frequently
- Avoid deeply flex leg at groin or sharply flex knees
- Prevent to stand too long
- Not to wear constrictive clothing
- Wiggle toes and ambulate
- Wear antiembolism stocking for support

Manifestation	Management/Care
Superficial thrombosis	
Pain, tenderness	Analgesia
Warmth, redness, enlarged and hardened vein	Rest with leg elevated Use elastic stockings before ambulate Local application of heat
Deep venous thrombosis	
Unilateral leg pain, calf tenderness	Anticoagulant therapy
Warmth, swelling	IV heparin x 3-5 days
Positive Homan's Sign	PO warfarin x 3 months Bed rest with leg elevated Use elastic stockings before ambulate
Pulmonary embolism	
Dyspnea, tachypnea, chest pain, cough, hemoptysis, air hunger, pale, cyanosis	Anticoagulant therapy IV heparin SC heparin/PO warfarin x 6months Streptokinase, urokinase Embolectomy Analgesia Bedrest with head of bed elevated

**Do not rub the affected area**

# Postpartum Infection

- Definition
  - Fever of  $\geq 38^{\circ}\text{C}$  for 2 successive days of the first 10 days (not the first 24 hours)

# Postpartum Infection

- General signs
  - Fever
  - Increased pulse
  - Chills
  - Anorexia
  - Nausea
  - Fatigue & lethargy
  - Pelvic pain
  - Uterine tenderness
  - Profuse and purulent lochia
  - Leukocytosis
  - Increased ESR
  - Anxiety

# Postpartum Infection

- Risk factors
  - c/s
  - vaginal infection
  - Episiotomy
  - Lacerations
  - Catheterization
  - prolonged rupture of membranes
  - retained placental fragments
  - PPH

# Postpartum Infection

- General care
  - Monitor vital signs
  - Medications
  - increase fluids
  - pain relief
  - warm blankets

# Postpartum Infection

- Endometritis
  - Usually starts from the placental site
  - Care
    - Semi-fowler's position
    - Pericare



# Postpartum Infection

- Wound infection
  - Signs
    - Erythema
    - Edema
    - Warmth
    - Tenderness
    - seropurulent drainage
    - wound separation

# Postpartum Infection

- UTI
  - Signs
    - Dysuria
    - Urgency
    - Frequency
    - Low grade fever

# Postpartum Infection

- Mastitis

- Usually infected with staph. aureus through nipples
- Etiology
  - Fissures
  - Abrasion
  - blocked milk ducts
  - incomplete let-down
  - engorgement

# Postpartum Infection

- Mastitis
  - Symptoms/signs
    - shooting pain during breastfeeding, itchy skin on breast
    - Fever
    - Chills
    - Malaise
    - Redness
    - Tenderness
    - Hardness
    - enlarged lymph

# Postpartum Infection

- Mastitis

- Care

- Medications
    - increase fluid
    - Bedrest
    - empty breasts
    - warm shower to facilitate milk flow
    - cold compresses

# Postpartum Infection

- Mastitis

- Care

- Offer affected breast first
    - Alternate feeding position
    - Adequate nutrition and balanced meals with plenty of fluids

# Postpartum Psychiatric Disorders

- Postpartum depression
- Postpartum psychosis
- Differentiate from postpartum blues

# Prenatal Depression

- Etiology
  - Progesterone and genetic risk: indirect effects mediated through psychosocial stressors and anxiety
  - Cytokines?



# Prenatal Depression

- Prevalence
  - 7-25% with screening tools; 8.5-11.0% diagnosed
  - Prevalence decreases from 1st to 2nd, 2nd equals 3rd trimester
  - Severity increases from 1st to 2nd trimester

# Prenatal Depression

- Rate of receiving treatment
  - <21%
- Reasons of not seeking treatment
  - Stigma
  - Guilty

# Prenatal Depression

- Risks of untreated prenatal depression
  - Fetus
    - Fetal growth retardation
    - Fetal death
    - Low birthweight
    - Small for gestational age
    - CNS development

# Prenatal Depression

- Risks of untreated prenatal depression
  - Infant
    - Low Apgar scores
    - Smaller head circumference
    - Irritability, hostility, erratic sleep, enhanced stress response

# Prenatal Depression

- Related with
  - Intimate partner violence
  - Stressful life events
  - Substance and tobacco use (in someone close)
  - Unplanned pregnancy
  - Personal or familiar psychiatric history

# Prenatal Depression

- Related with
  - Low SES; unstable housing
  - Communication barriers; barriers to care
  - Ethnicity: AA
  - Young age
  - High marital conflict; high mother-in-law conflict
  - Higher cortisol and norepinephrine, lower dopamine

# Prenatal Depression

- Risks of untreated prenatal depression
  - Maternal
    - Gestational hypertension/preeclampsia (2.5 folds)
      - Altered excretion of vasoactive hormones and other neuroendocrine transmitters
    - Spontaneous abortion
      - CRH and ACTH interact with T cells or mast cells and change cytokine production

# Prenatal Depression

- Risks of untreated prenatal depression
  - Maternal
    - Placental abnormalities
    - Preterm delivery
    - Increase rate of cesarean section or assisted vaginal delivery
    - Unhealthy or unsafe behaviors
      - Substance, cigarette, alcohol use
      - Poor self-care
    - Postpartum depression



# Prenatal Depression

- Correlated with
  - Low self-esteem
  - Anxiety
  - Anger
  - Happy about pregnancy
  - Prenatal and postnatal fatigue
  - Postnatal breast infection or problems
  - Postnatal depression

# Prenatal Depression

- Pharmacological treatment
  - Serotonin reuptake inhibitors
    - Fluoxetine, paroxetine, sertraline, citalopram, fluvoxamine
  - Serotonin-norepinephrine reuptake inhibitors
    - Venlafaxine, duloxetine
  - Tricyclic antidepressants
    - Amitriptyline, desipramine, imipramine

# Prenatal Depression

- Prevalence
  - 0-60% depending on screening tools, countries, postpartal time
  - 6.5-12.9% diagnosed within 1 year
- Not seeking help
  - 58.7% think no need for help, 74.2% did not talk problems to professionals
  - stigma

# Postpartum Depression

## – Effects of maternal mental disturbance

### – Mothers

- Unbearable loneliness
- Not been understood
- Loss of control over emotions
- Isolate themselves
- Contemplate death
- Sense of empty
- No longer enjoy or love

# Postpartum Depression

## – Effects of maternal mental disturbance

### – Mothers

- Uncontrollable anxiety attacks
- Approaching insanity
- Feel insecure
- Hopeless
- Unhappy
- Helpless
- Useless
- Using violence to escape the trap of depression

# Postpartum Depression

- Effects of maternal mental disturbance
  - Mothers
    - Less verbal interaction or play less with child
    - Unable to take care of sick children
    - Negative family dynamics

# Postpartum Depression

- Effects of maternal mental disturbance
  - Children
    - Less happy, responsive, energy, secure attachment
    - Long-term physical health

# Postpartum Depression

- Correlated with
  - Demographics
    - Low SES
    - Single/not living with spouse or significant others
    - Other young children at home
    - Race/ethnicity



# Postpartum Depression

- Correlated with
  - Physical conditions
    - Backache, breast problems, frequent headaches, sleep disturbance, interrupted sleep, hemorrhoids, fatigue, eating disorder, decrease in memory

# Postpartum Depression

- Correlated with
  - Psychosocial factors
    - Stress and low social support
    - Low self-esteem
    - Prenatal depression and anxiety
    - Poor marital relationships

# Postpartum Depression

- Correlated with
  - Psychosocial factors
    - History of depression
    - Difficult infant temperament
    - Maternal blues
    - Unplanned/unwanted pregnancy
    - Unhappiness
  - Biochemical markers?

# Postpartum Depression

- Screening tool
  - Edinburgh postnatal depression scale
    - $\geq 12$
  - General Health Questionnaire
  - Beck Depression Inventory
  - Center for Epidemiologic Studies-Depression
  - Postpartum depression screening scale

# Postpartum Depression

- Treatment
  - Professional support; individual based intervention
  - medications
    - Antidepressant: SSRI (starts with half of recommended dose)
    - Hormonal therapy: estradiol

# Postpartum Depression

- Treatment
  - Cognitive behavioral therapy
  - Interpersonal psychotherapy
  - Relaxation with guided imagery
  - Education, stress reduction, support system

# Postpartum Depression

- Prevention and management
  - Educate the public and healthcare practitioners
  - Use of screening tools that have high sensitivity and specificity and are cultural sensitive
  - Integrate care with primary care/midwifery/obstetrics services

# Postpartum Depression

- Prevention and management
  - Establish community-based services
  - Provide social support including partners/family members
  - Promote self-care activities
  - Provide counseling and education programs
  - Prophylactic treatment



# Summary

- The most seen cause of PPH is uterine atony and PPH can be managed by contracting the uterus, increasing blood volume, treating laceration, preventing infection, and providing sufficient nutrition.

# Summary

- A positive Homan's sign may indicate a thromboembolic problem. It can be prevented by keeping side or back-lying position, changing positions frequently, avoiding deeply flex leg at groin or sharply flex knees, preventing to stand too long, not wearing constrictive clothing, wiggling toes and ambulate, and wearing antiembolism stocking for support.

# Summary

- Care for mastitis includes medications, increase fluid, bedrest, empty breasts, warm shower to facilitate milk flow, cold compresses, offer affected breast first, alternate feeding position, adequate nutrition and balanced meals with plenty of fluids.

# Summary

- Postpartum depression is a problem that will influence maternal and infant health. It can be prevented and managed by educating the public and healthcare practitioners, using of screening tools that have high sensitivity and specificity and are cultural sensitive, integrating care with primary care/midwifery/obstetrics services, Establish community-based services, providing social support including partners/family members, promoting self-care activities, providing counseling and education programs, and prophylactic treatment.

# Case 1

Around 10:00am on June 20, 2001, Rusty Yates received a startling phone call from his wife, Andrea, whom he had left only an hour before.

"You need to come home," she said.

Puzzled, he asked, "What's going on?"

She added, "It's time. I did it."

He asked her to explain and she said, "It's the children."

Now a chill shot through him. "Which one?" he asked.

"All of them."

# Case 1

- Andrea Yates, 36, a nurse at M.D. Anderson from 1986 to 1994.
- Married at age 28 and then gave birth to 5 children (7, 5, 3, 2 years & 6 months)
- Attempted suicide after 4th birth and started taking Haldol
- Father died in March, gave birth in November
- Suicidal behaviors

# Case 1

The children's mother---the woman who had called 911 seeking help---appeared able to talk coherently, but her frumpy striped shirt and stringy brown hair were soaked. She let the officers in, **told them without emotion** that she had killed her children, and sat down while they hecked. Detective thought she seemed focused when he asked her questions. She told him she **was a bad mother and expected to be punished**. Then she allowed the police to take her into custody while medical personnel checked the children for any sign of life. She **looked dispassionately** at the gathering crowd of curious neighbors as she got into the police car.

# Case 2

On 11-23-2004, day-care workers called 911 after talking to the mother; an operator then called her. Asked if there was an emergency, She **calmly** responded "yes,"

"Exactly what happened?" the operator asked.

"I cut her arms off," she replied, as the hymn *He Touched Me* played in the background.

"You cut her arms off?" he repeated.

"Uh huh," she answered.

The woman was sitting in her living room covered with blood when police arrived Monday. Her nearly 11-month-old daughter lay fatally injured in a crib in a bedroom of the family's apartment in Plano. The child died shortly afterward at a hospital.



# Case 2

## **Dena Schlosser**

35 years old

had a history of postpartum depression

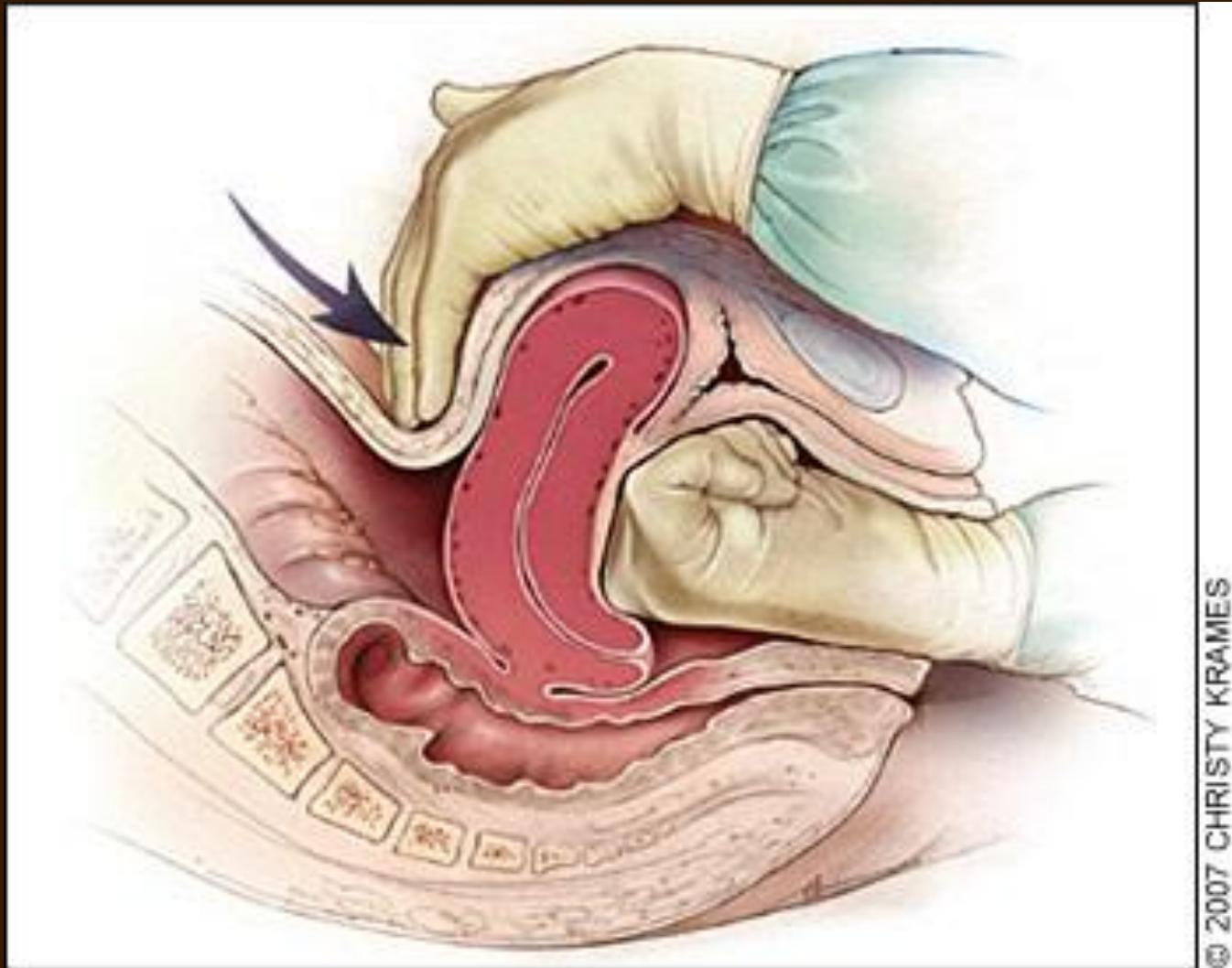
had been investigated on child neglect

Be closed a seven-month investigation Texas  
Child Protective Services recently

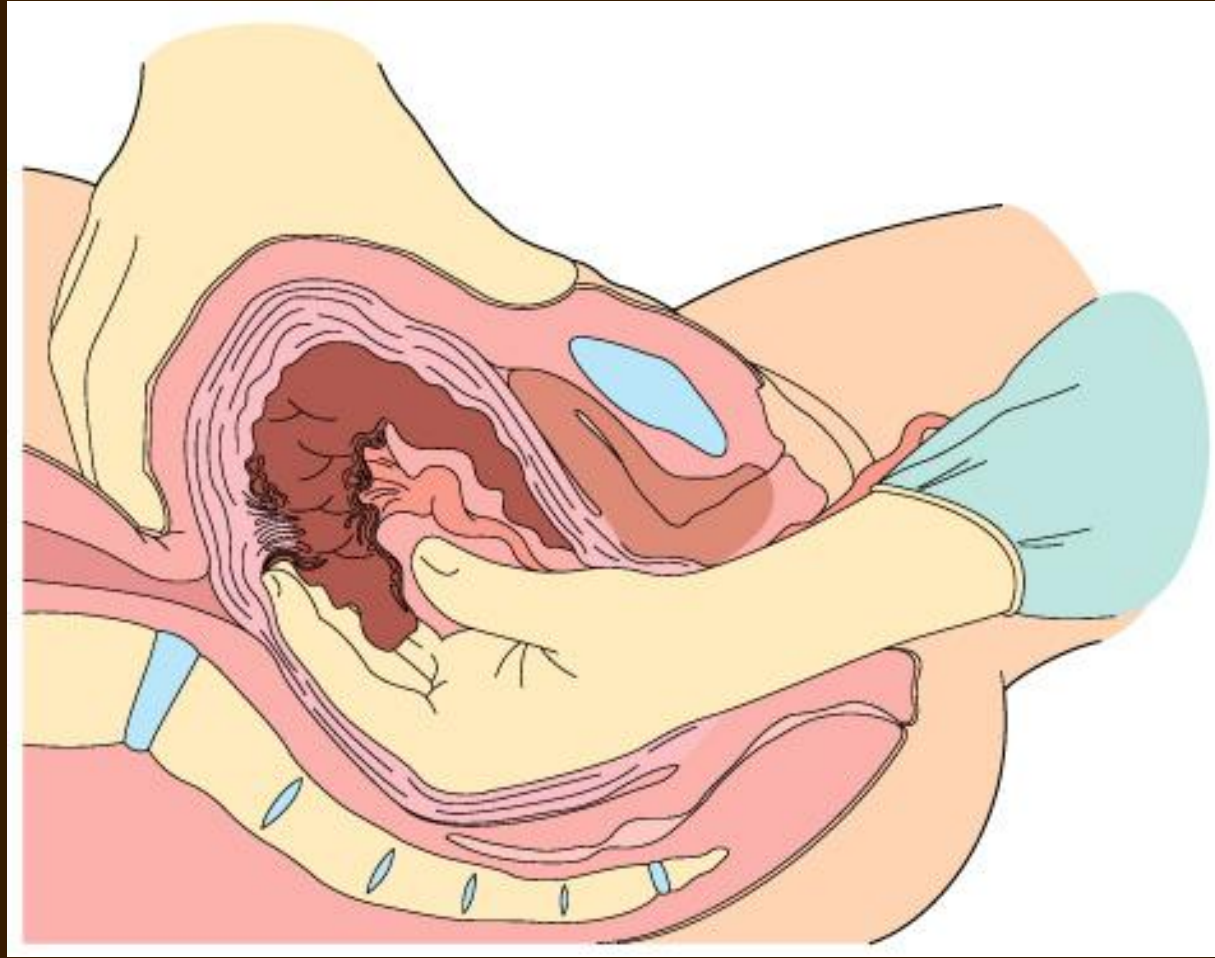
"She didn't give off like she was in a distant world  
or didn't care about the baby," neighbor said.

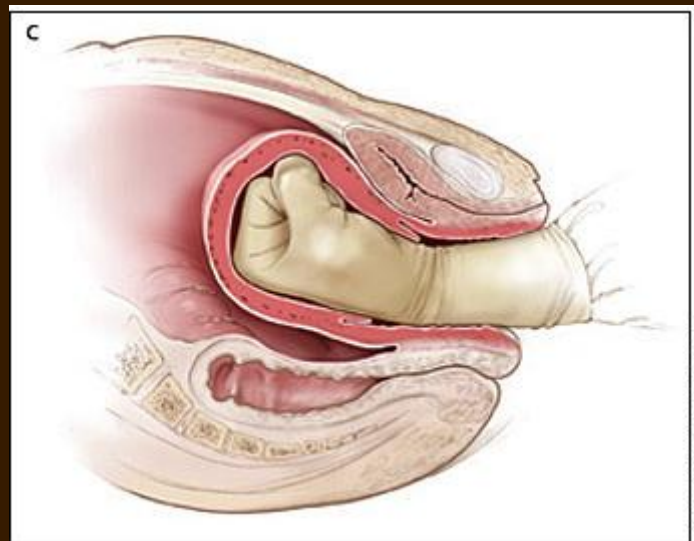
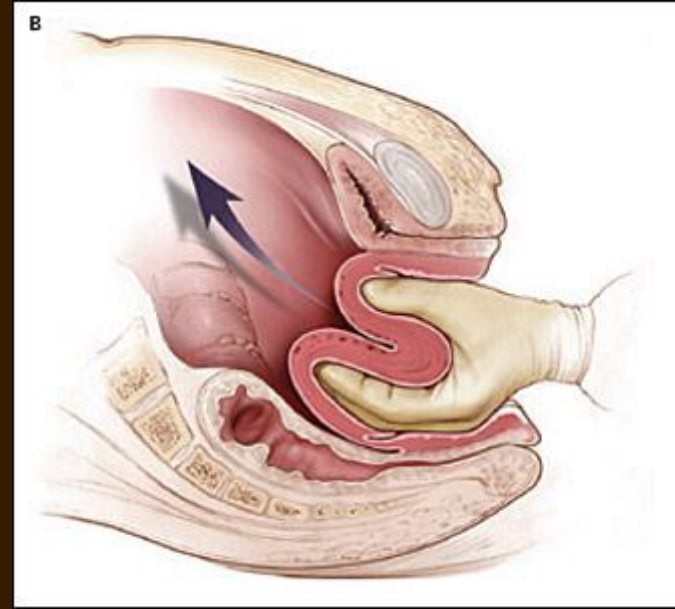
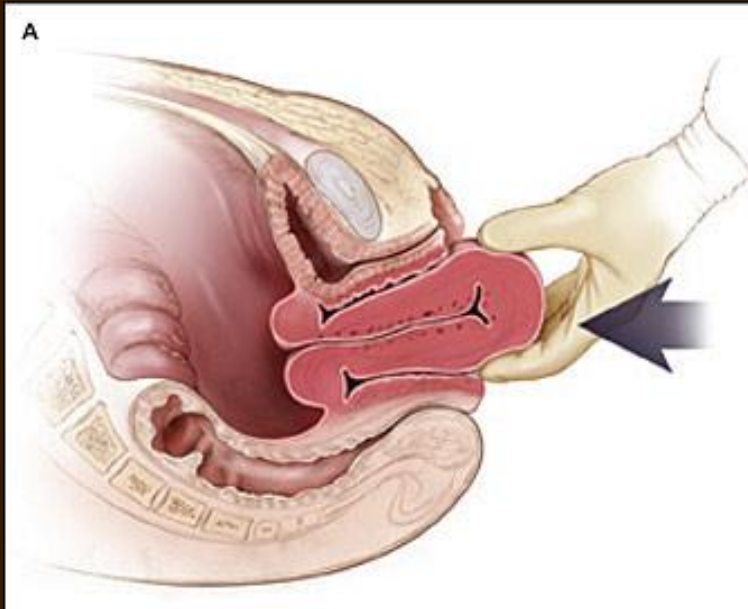
Another added: "To see her with the girls, you  
would just think she was a great mother."

# Bimanual Compression



## Manual removal of placenta



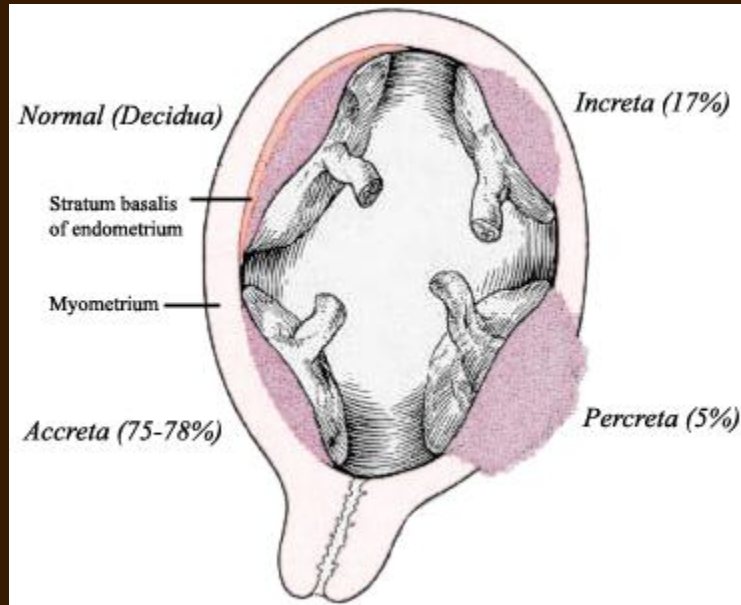


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Reduction of uterine inversion (Johnson method)

<http://www.aafp.org/afp/20070315/875.html>

# Abnormal Placenta



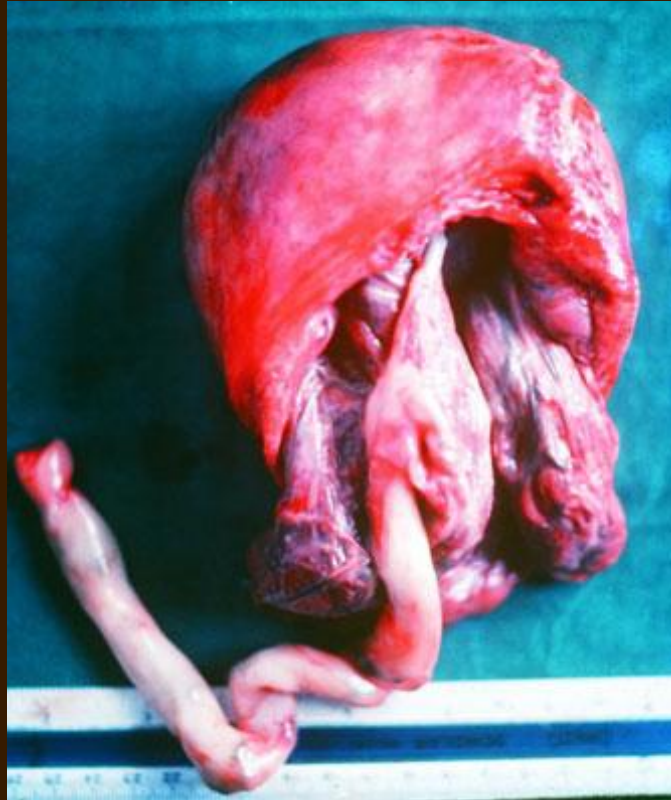
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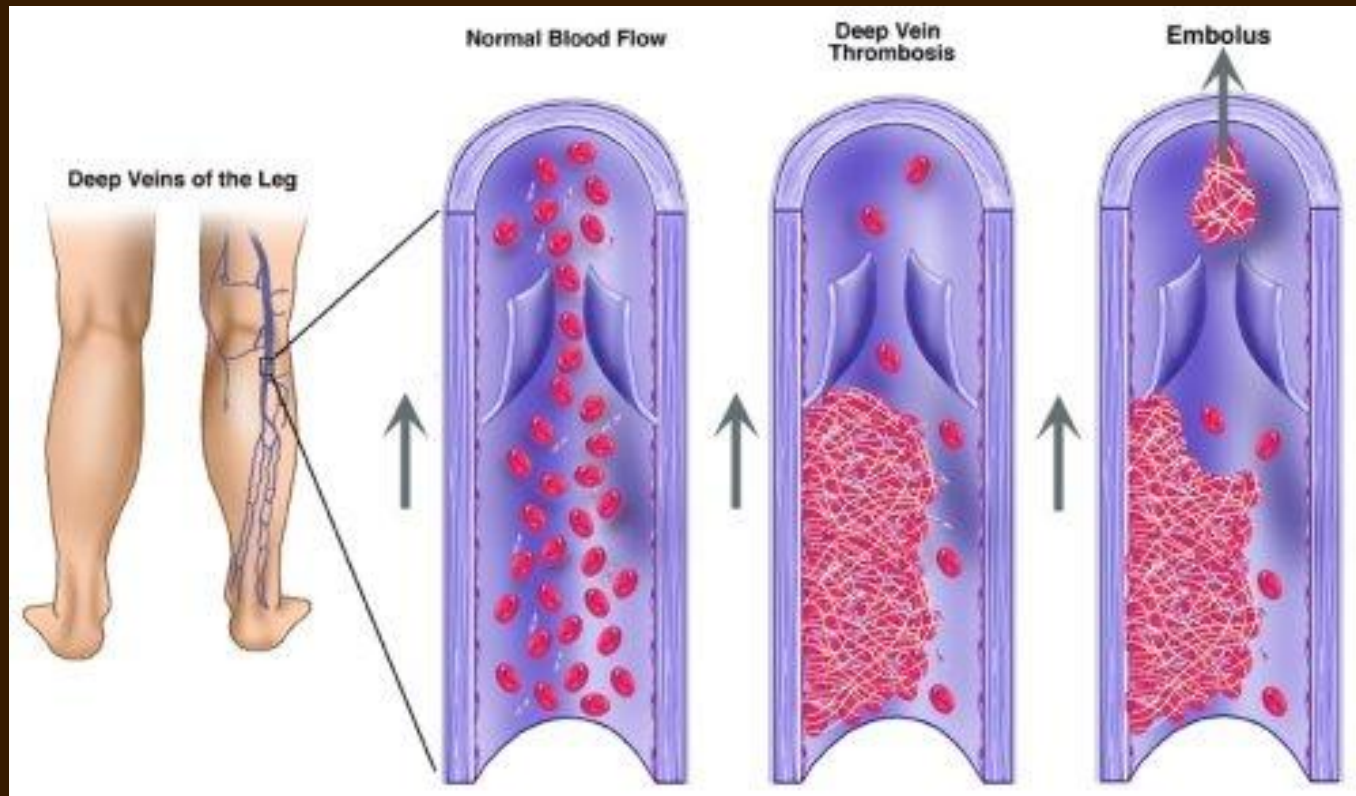
# Retained Placenta



# Superficial Vein Thrombosis



# Deep Vein Thrombosis





# Deep Vein Thrombosis



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"You really should walk around on these long haul flights,  
you don't want to be getting that deep vein thrombosis."

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# Endometritis



Hypervascularization

# Mastitis



# Case Study

Ms. Cheng is 40 years old. She is G6T2P2A2L2. She delivered a baby boy weighted 4050gm yesterday. She has a second degree laceration with repair. She is single and her boyfriend has not visited her since labor. She was diagnosed of postpartum depression in her previous birth 4 years ago. You go into her room in the morning and ask her permission to check on her. Her eyes are closed and she looked very tired and pale. Her vital signs are: 97, 110 (weak and fast), 25 (some shallow).

1. What should you assess?
2. What problems she may encounter?
3. What makes you think she has postpartum hemorrhage?
4. What interventions will you do?



# Case Study

個案40歲，G4P1A3，於8:50Am自然產下一男嬰，重3000gm，欲哺餵母乳，產後宮底硬、高度臍平，惡露量中、色紅、無異味，傷口無滲液，Pitocin靜脈輸入，注射完後已拔除，已開始進食及下床活動。8Pm時，按紅燈表示頭暈，冒冷汗，心跳很快，先前排尿時排出一血塊，評估其宮縮，發現子宮軟、位臍平，惡露浸溼產墊，判斷其為產後出血，請依護理過程討論應提供給個案之護理。

產後第三天，個案體溫38°C，無傷口感染徵象，請討論個案體溫上升之原因。當個案哺餵母乳時，您發現其哺餵姿勢不佳，請討論正確哺餵姿勢、成功哺餵母乳之原則、及預防乳腺炎之方法有何。

產後第五天，個案體溫38.6°C，左側乳房局部發紅，且有硬結，個案表示因乳房痛且寶寶很用力吸，所以已有一天未餵母乳，現在感雙側乳房漲痛，左側尤其不適，請以討論乳腺炎之病理變化、症狀及護理。

# Summary page

- Postpartum hemorrhage
- Thromboembolic disease
- Postpartum infection
- Postpartum psychiatric disorders