Introduction to Obstetrics: History & Physical Exam

EMC 420: Maternal & Child Emergency Care
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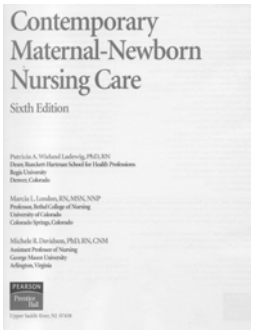
Attribution and References



Objectives

This lecture will enable you to:

- Discuss briefly the epidemiology of pregnancy-related mortality. Public health implications and brief commentary.
- Explain what is meant by ***GPAL.***
- Discuss briefly the processes of normal pregnancy, labor, and delivery.
- Define the ***stages*** of labor.
- Discuss the three "Ps" that are involved in having a successful labor.
- Discuss the pertinent H + P for the pregnant patient; and H + P for the patient in labor.

Term Pregnancy- Related Deaths

- ***Hypertension*** 25 %
- Hemorrhage 24 %
- Embolism 17 %
- Infection 16 %
- Cardiomyopathy 5 %

Pregnancy-Related Mortality and Poverty

- US Census Bureau Report on Income, Poverty, and Health Insurance [8/30/05]
  - Number without insurance in 2004: 45.8 million
  - Poverty rate : 12.7 % (from 125% in 2003)
- In the US, *race* is a marker for *poverty*

(1). Kawachi, et al, Am.J of Public Health, Vol 87, issue 9 1491-8.

(2). Hurricane Katrina, New Orleans, 8/29/05

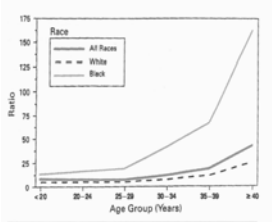


FIGURE 1–8. Pregnancy-related mortality ratio (deaths per 100,000 live births) by age group and race—United States, 1987–1990. (From Koonin and colleagues, 1997.)

HMOs

- Angell: in other developed countries, health care considered a public service, not a commodity
- Relman: "system based on investor owned [HMOs] firms is fatally flawed"
- HMO's and drug companies
  - Able to dictate that health be considered a commodity

Erosion of Health Care for the Medically Indigent

- Williams (chap 1): transforming health care from a service to a corporate, for-profit commodity:
  - Loss of service to the medically indigent
  - Negative effect on the medical infrastructure
    - Medical schools and residency training programs
    - Graduates who will serve the medically indigent
    - Medical school research

Public Policy

- Maternal mortality inequality*
  - Higher in Hispanic women
  - ***Fourfold*** higher in black women (* has not improved)
- Public Health policies and government policies have consequences
- The absence of policies have consequences
- Hurricane Katrina
  - The abstraction of "poverty" has been made concrete and understandable to the non-medical public
  - The consequences of an ideology of "Government is not part of the solution to our problem. Government is the problem" : now finally been made concrete and understandable
  - Virchow: founder of modern pathology

Obstetrical Terms and History

Hx: more than just SAMPLE

- Pregnancies - past and present (GPAL)
- Labor history
- Past history
- Brief review of systems

Brief Obstetrical History

Variation of SAMPLE

- When are you due?
- How many babies? Any complications?
- What have you taken; have you eaten?
- Any prior C section or complications?
- GPAL
  - Gravida
  - Para
  - Abortions / miscarriages
  - Living children

Gravida and Parity Terms

Hx : GPAL

- Gravida:
  - <u>total</u> number of times a woman has been pregnant
- Parity:
  - number of times she has carried a fetus to full <u>term</u> (or for more than 28 weeks)

Parity History (GPAL)

Parity:

- Primigravida: 1st pregnancy
  - primipara, "primip" : this will be the 1st delivery
  - Nullipara : no previous delivery
- Multigravida: multiple pregnancies
  - Multipara, "multip" : multiple deliveries
- Grand multip: 7 or more prior deliveries

Present Gestation History

- Gestation
  - Duration of fetal development
  - Normally : 40 weeks
    - "term"
  - Viable after 28 weeks

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Labor History

- Contractions / pain:
  - Onset of contractions / pain
  - Duration of each contraction
  - Interval between each contraction
- Bleeding: heavy vs "show"
- Fluids
  - Onset of leakage
  - Clear vs green
- Urge to push (symptom of immanent delivery)

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Additional Obstetrical History

PMH
- Allergies
- Medications
- Adult illnesses: DM ; BP

ROS / PI
- Headaches
- "Spots" [scotomata]
- Abdominal pain

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Obstetrical Physical Exam (in MICU or in L + D)

- VS
  - BP
    (and compare with baseline - old records or if patient can remember)
  - Temp
- HEENT (fundi)
- Chest
- CV
- Abd
- Pelvic
- Neuro
  - reflexes

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Obstetrical Abdomen Exam (in MICU or in L + D)

Abdomen
- FHT (HR found near the umbilicus at term)
- Tenderness
- Fundal height of uterus
  - above pubis : more than 12 week gestation
  - at umbilicus : 20 -22 week
  - near xiphoid : 36-39 week

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Abdomen Exam

- Uterine size (in last half of pregnancy)
  - Measurement (in cm.s)
    - Tape-measure, or estimate
    - Correlates with the weeks of gestation
      - eg., 28 cm = 28 weeks [viable]

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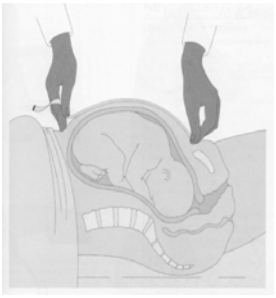
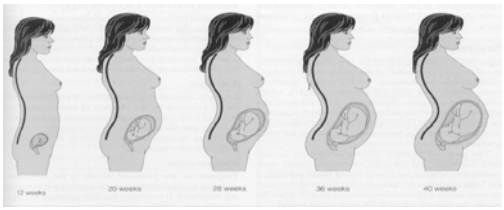
Uterine Size

- Measurement (in cm)
  - AKA : McDonald's method used to estimate weeks of gestation
  - *Umbilicus*:
    - 20 -22 weeks
  - Xiphoid:
    - 36 cm = 36 weeks
  - *Mid-point* betw xiphoid and umbilicus:
    - 28 cm = 28 weeks [viable]



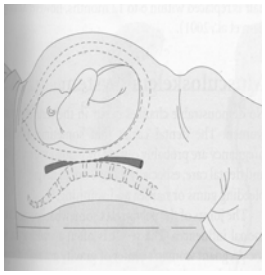
Uterine Changes

- Postural changes
- Inferior vena cava syndrome



Inferior Vena Cava Hypotension

- Inferior vena cava hypotension syndrome
  - Secondary to fetal and uterine compression of the vena cava



Obstetrical Exam (in L + D)

- Bony pelvic birth canal
- Cervical changes
- Fetal exam (Leopold's)

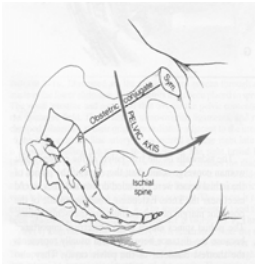
Labor and Delivery Exam

- Bony pelvic birth canal
  - Pelvic inlet
  - Pelvic outlet
  - Pelvic shape
    - Shape of the sacrum
    - Shape of the pubis
- Cervical changes
  - Effacement
  - Dilatation
- Fetal exam (Leopold's)
  - Presentation

Obstetrical Bony Birth Canal

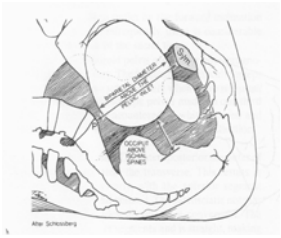
True pelvis

- Bony pelvic birth canal
  - Pelvic inlet
  - Pelvic outlet
  - Pelvic shape
    - Shape of the sacrum
    - Shape of the pubis



Passage: Pelvic Inlet

Transverse diameter
- Usually 10 cm +/-
- AKA biparietal diameter (BPD)



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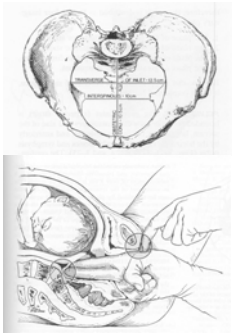
Diagonal Conjugate

- Pelvic inlet: DC (diagonal conjugate)
  - should be greater than 11.5 cm , for uncomplicated delivery
- Pelvic outlet: IT (ischial tuberosities)
  - should be greater than 8.5 cm



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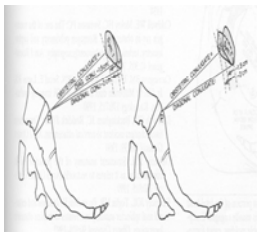
Using the Diagonal Conjugate to Estimate Obstetrical Opening

- The true bony inlet: only an estimate
- The inlet may equal the DC (Diagonal Conjugate) minus 1.5 cm, or minus 2 cm, depending on the shape of the pubic bone



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Inadequate Obstetrical Pelvimetry (in L + D)

Delivery may complicated if:
- Pelvic inlet: DC (diagonal conjugate)
  - Is it less than 11.5 cm
- Pelvic outlet: IT (ischial tuberosities)
  - Is it less than 8.5 cm
- Sacral shape : curved / avg / flat
- Angle of pubis : narrow / avg / wide

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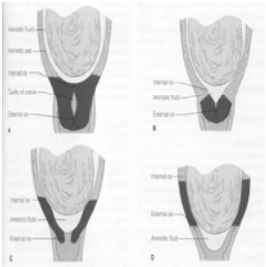
Cervical Changes on Obstetrical Exam [in L + D]

- Effacement
  - thinning
  - 0 - 100%
- Dilatation
  - widening
  - 0 - 10 cm



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Fetal Position and Station

- Presentation:
  - Fetus part that is first into the birth canal
- Lie:
  - Fetus long axis in relation to mother
- Position:
  - Presenting rotation (face-up; face-down) in relation to pelvic outlet
- Station:
  - Fetus level of descent

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Presentation, Position, and Lie

- Presentation (part of fetus in birth canal)
  - Vertex [ie, occiput first]
- Lie (long axis of fetus in relation to mother)
  - Vertical / transverse / oblique)
- Position (presenting part in relation to pelvis)
  - "LOA" means:
    - Fetal back is on mother's left, with his occiput anterior [ie, face down]
- Station
  - -2 / -1 / 0 / +1 / +2 cm [+2 = crowning]

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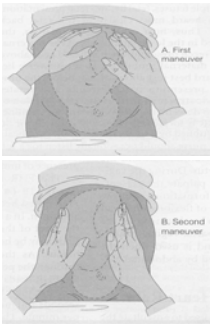
Leopold's Maneuvers

First maneuver:
- "is head : up or down"
- If head [occiput] down
  - Presentation is: Vertex [ie, occiput first]
  - Lie is likely Vertical

Second maneuver:
- "is back: right or left"
  - Lie is confirmed as Vertical
  - Position [here] would seem to be "**R**ight **O**ccput **A**nterior"



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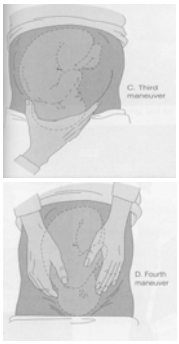
Fetal Part and Level in the Pelvis

Third maneuver:
- "is presenting part [head] floating or engaged"
- If head is "stuck", then the BPD has reached the pelvic inlet and is likely engaged

Fourth maneuver:
- "is face: right or left and is it up or down""
  - Position [here] now confirmed as "**R**ight **O**cciput **A**nterior"



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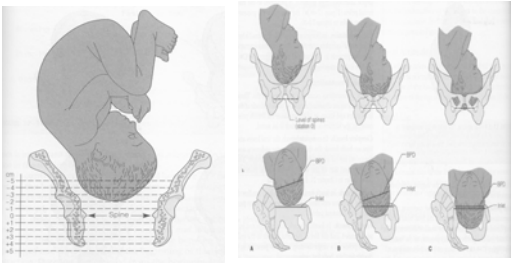
Station and Engagement



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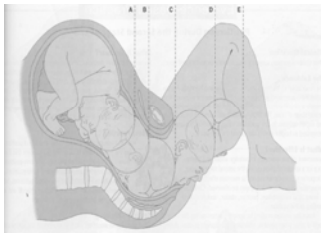
Mechanisms of Labor

A. Descent
B. Flexion
C. Internal rotation
D. Extension
E. External rotation



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Labor

- Regular contractions
  - Early labor: 10-15 minutes apart
- Cervical dilation and effacement
- Progressive, non-arrested
- Amniotic sac usually ruptures spontaneously towards end of 1st stage

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Stages of Labor

- First stage:
  - Regular contractions
  - 10 hrs (in a primip.)
- Second stage:
  - Delivery
  - 10-60 min
- Third stage:
  - Placental expulsion
  - 5-20 min
- Fourth stage:
  - Blood loss stage
  - 1 hr

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Difficult Labor

Difficult first stage of labor:

- More common in nulliparous patient

Causes [and see dystocia]

- Passage (inadequate pelvic anatomy)
- Passenger (malpresentation, macrosomia)
- Power (poor contractions)
  - Dilation and descent can be slowed by:
    - Sedation (morphine; 85% will progress later)
    - Malposition (OP presentation - back pain)
    - Other (infection,…)

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Abnormal Labor Progress

- Protracted labor
  - Slow cervical dilation [and/or fetal descent]
- Arrested labor
  - 2- **4** hr of labor without cervical dilation and/or without fetal descent

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Summary

In prehospital OB patients,

- A detailed obstetric H + P is only abbreviated
- But the paramedic professional can be informed of obstetric terms and concepts such as:
  - ***GPAL, pertinent Hx + P*** for the pregnant patient, the patient in labor
  - The ***stages*** of labor (the three "Ps" of successful labor)
  - And what an exam might show in the patient having a difficult labor

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