STABILIZATION OF THE PREGNANT WOMAN FOR TRANSPORT

George J. Gilson, M.D.
Alaska Native Medical Center
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MATERNAL TRANSPORT OBJECTIVES

- The participant will become familiar with the diagnosis and management prior to transport of the woman with:
- 1. preterm contractions
- 2. elevated BP
- 3. an unanticipated birth emergency

CASE #1
PRETERM CONTRACTIONS

- 24 y/o G2P1 at 29 wks 4 days by dates and an early US, presents to your rural level I facility c/o UC q3'. No LOF. No bloody show. H/O prior PTB at 34 wks. EFM reveals reactive FHR and mild UC q3'.
- How should you manage??

PRETERM BIRTH: The Alaska Experience

- (March of Dimes – 2003 data):
- PTB rate in AK is 9.8% (US: 11.1%)
- In an average week in AK:
  - 19 preterm infants are born
  - 11 LBW infants are born
  - 2 VLBW infants are born
- Over the course of a year the total cost for preemie care is $13.6 billion…

PRETERM LABOR (Or is it??)

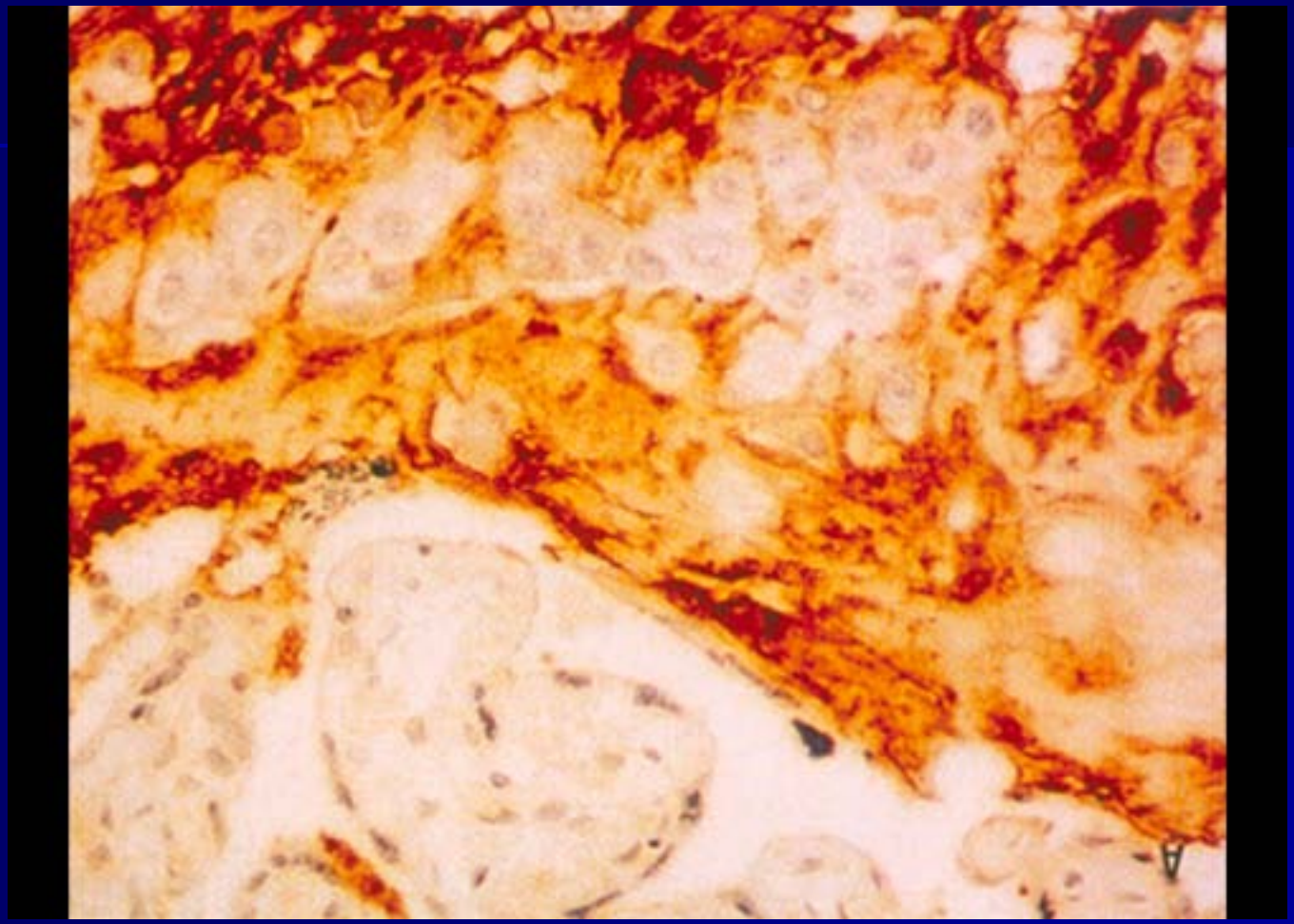
- 3 out of 4 women who present with preterm UC will deliver at term
- The only significant risk factor for PTB is a prior PTB (RR=2.5)
- 67% of all UC occur after dark
- Day animals deliver at night...
- So how do you tell if it's for real??

PRETERM LABOR: Uterine activity facts

- No increase in UC w/ exertion (-0.1%)
- Rest decreases UC x 3 h (-1.1%)
- Sex increases UC x 1 h (+5.5%)
- “Stress” has no effect on UC (+0.2%)

PRETERM LABOR: How do you tell?

- Fetal fibronectin (fFN) – what is it?
- Extracellular matrix protein
- Concentrated at the chorio-decidual juncture (the mat-fetal interface)
- Lyses and “leaks” thru the cx when birth about to begin



PRETERM LABOR: Use of fFN

98% negative predictive value

- But only 13% positive predictive value
- Collect vaginal fornix swab BEFORE digital exam!!
- No bleeding, no sex, no ROM, no lubricant!

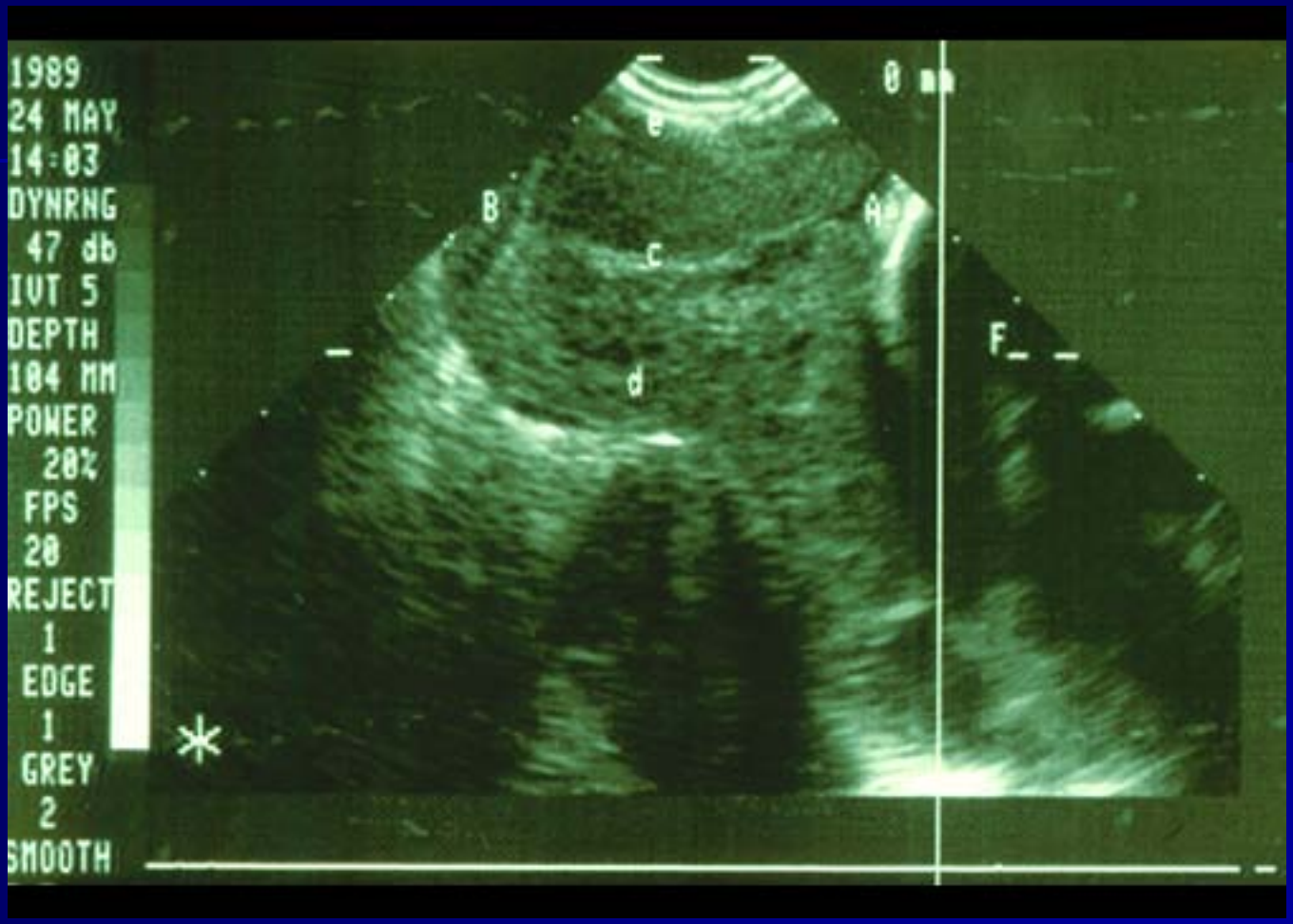
Preterm labor: How do you tell?

- Our patient's exam:
- Monitor reveals q 3 min contractions
- Cx: post/soft/FT dil/50% eff/vtx-3 sta
- Is it real labor or not?

PRETERM LABOR: How do you tell?

Endovaginal cervical length:

- Technical issues
- Normal cx length: 3.5±0.8 cm
- <10th %: <2.5 cm
- What is the internal cx os doing?
- “Funnelling” (“beaking”)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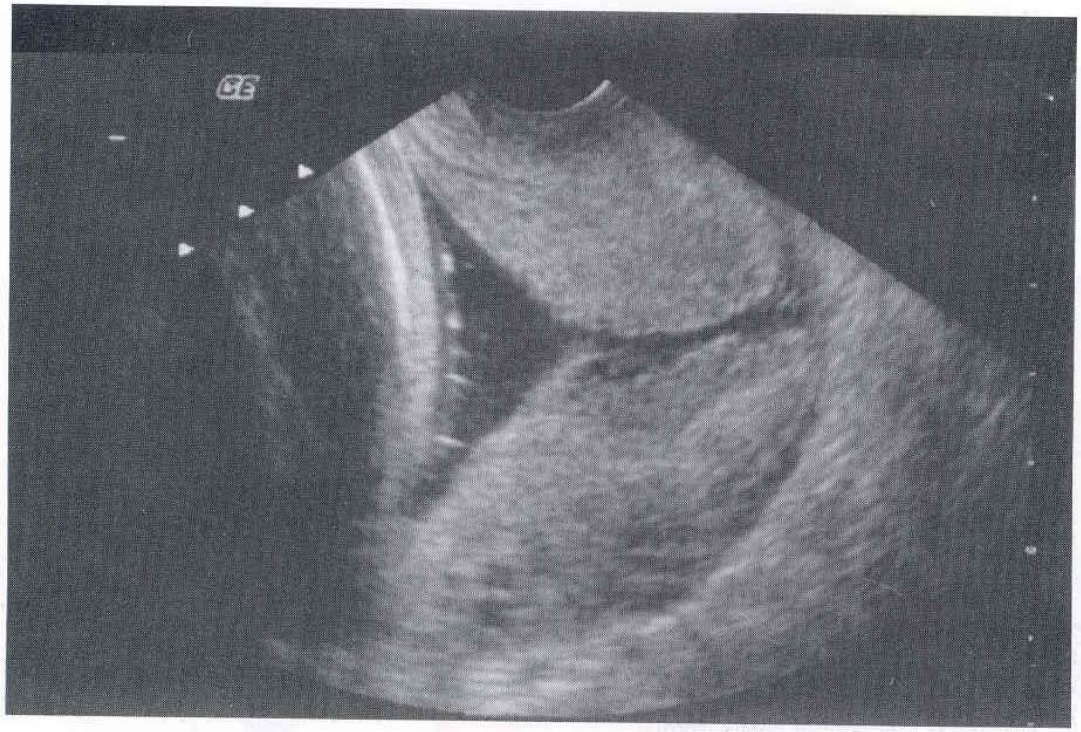
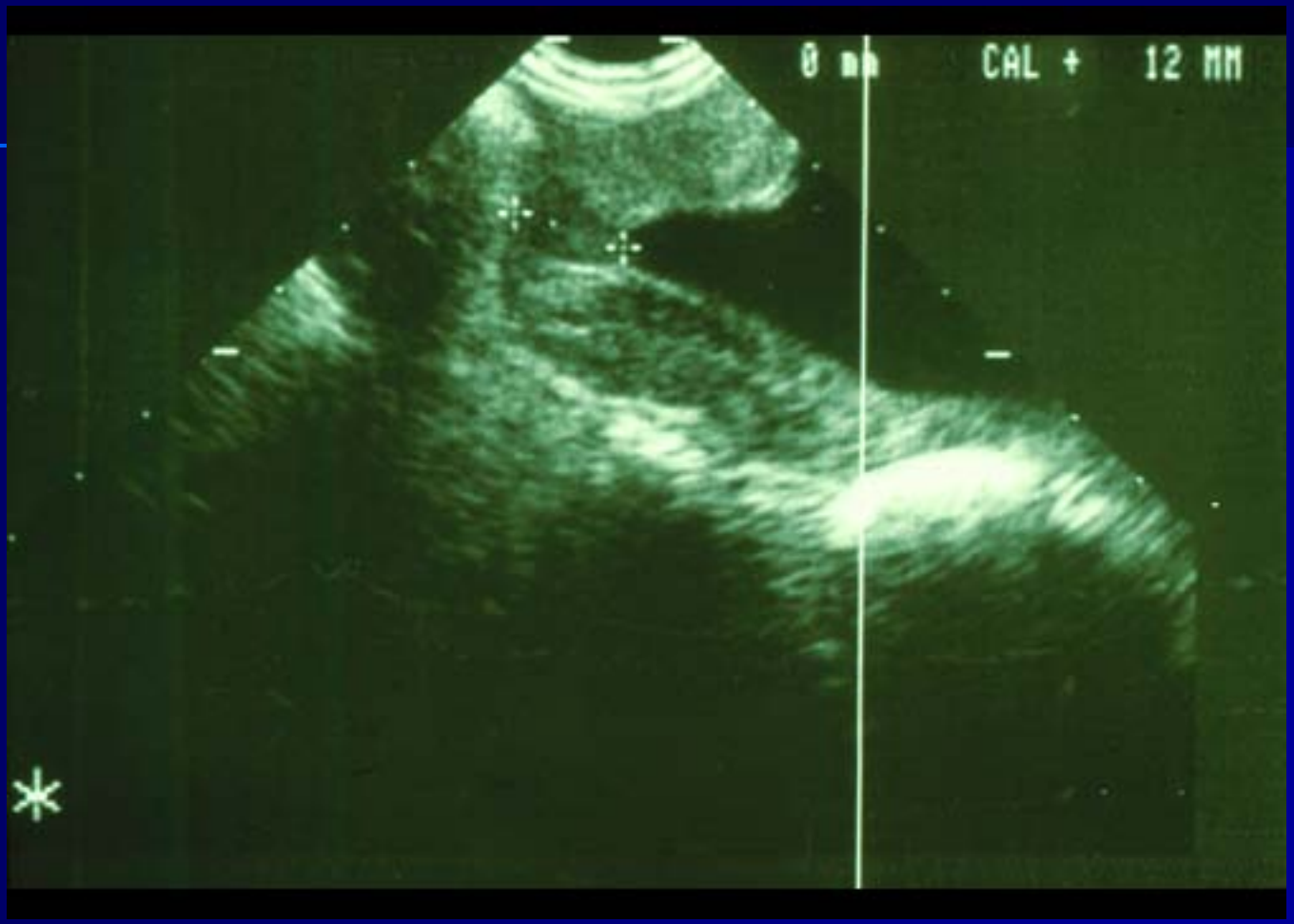
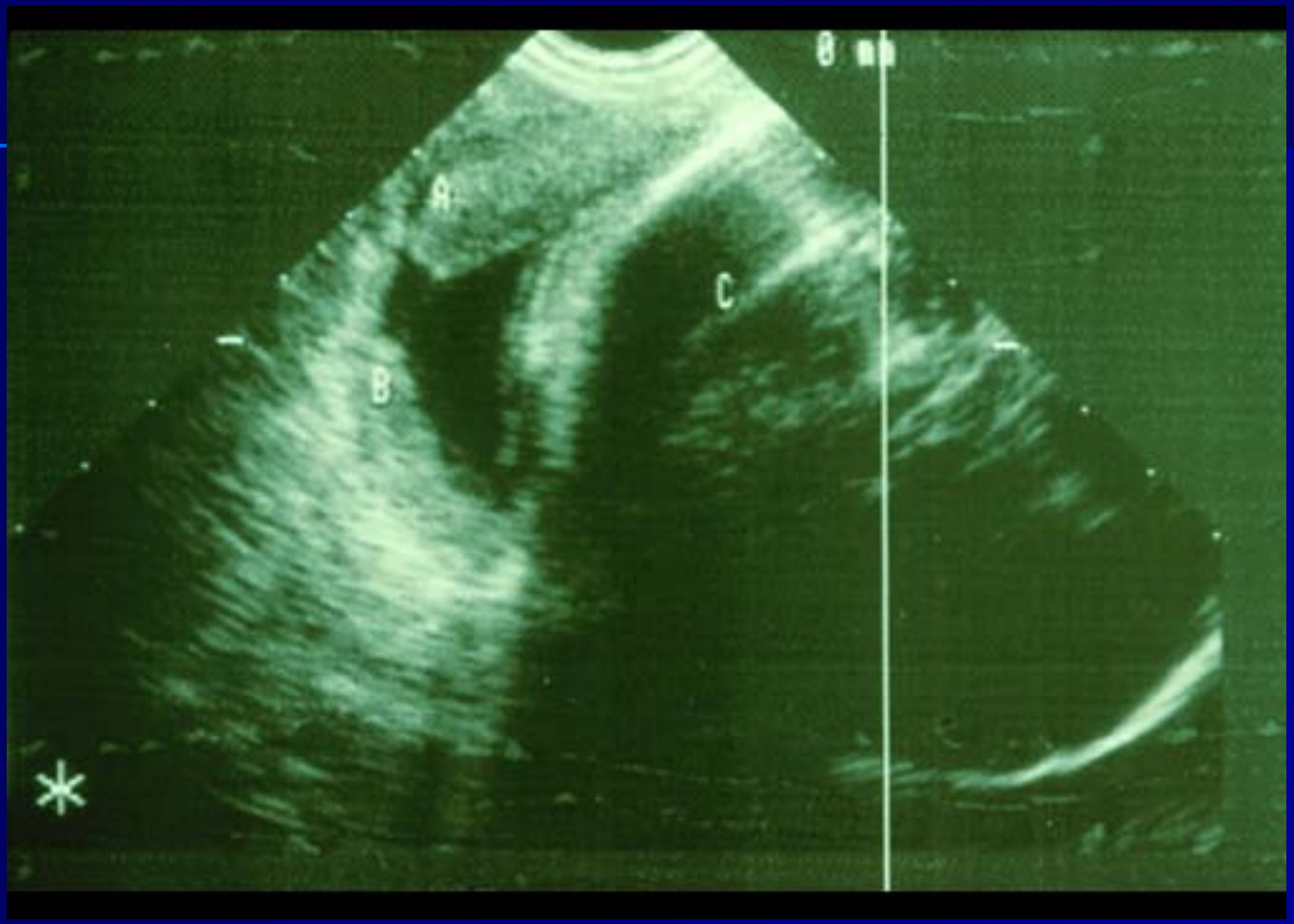


Figure 3. Transvaginal ultrasound image of the cervix obtained from a woman with symptoms of preterm labor. The image supports a diagnosis of preterm labor because of the length (23 mm) and the Y-shaped appearance of the cervix.

Iams. Early Detection of Prematurity. Obstet Gynecol 2003.


0 mm
CAL +
12 MM


A
B
C

PRETERM LABOR: EV cx length and risk of PTB

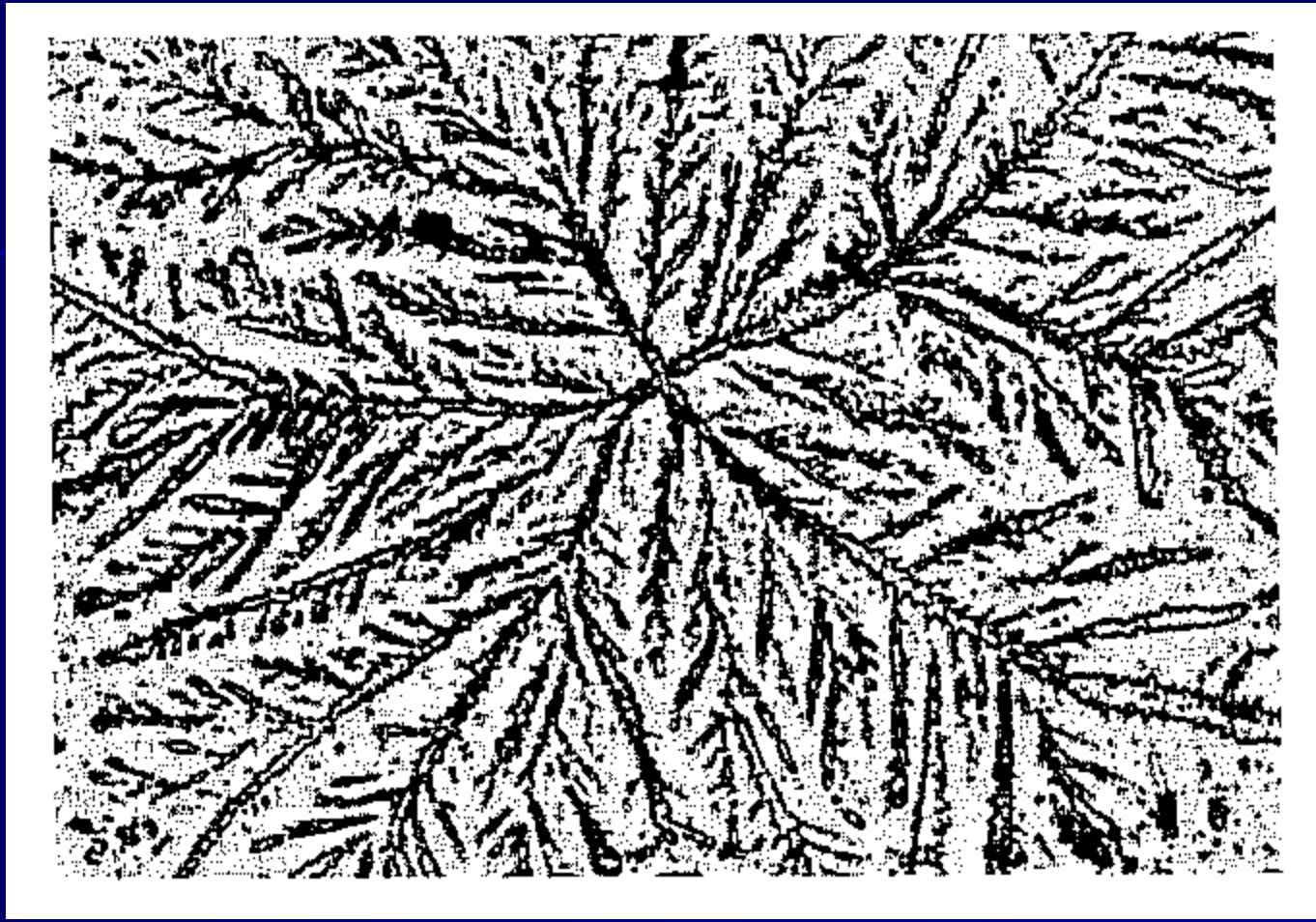
- > 3 cm -→ 7% risk of PTB
- 2 cm -→ 15% risk of PTB (RR=6.2)
- < 1 cm -→ 42% risk of PTB
- (+) fFN + cx <2.5 cm -→ 65% risk

PRETERM LABOR
How do you tell?

- "TERBUTALINE TRIAGE": (Guinn DA)
- GA: 30 wks; UC: q5'; cx dil: "0"
- Terbutaline 0.25 mg SQ x1
- 79% stopped UC and went home within 4 h
- 7% delivered <34 wks
- Worth a try....

PPROM?

- “KFO!” = keep fingers out!
- Sterile speculum exam
- Pooling?
- “Everything” turns nitrazine blue…
- Ferning highly reliable (1.5% FP)
- US for AFI and presentation



Demonstration of arborization pattern of amniotic fluid.

Gabbe, et. al, 3rd edition, p. 483.

Parking
violation????
RESERVED
PARKING
EXPECTANT
MOTHER
RESERVED
PARKING
EXPECTANT
MOTHER

PRETERM LABOR:

PRETERM LABOR: How should you treat?

- HYDRATION/SEDATION:
- 2 RCT of hydration (1L RL): no benefit
- 1 RCT of sedation (MS): no benefit
- Downsides:
  - fluid overload/pulmonary edema
  - NR-NST/fetal depression

PRETERM LABOR: How should you treat?

- TOCOLYTICS:
- 18 RCT (n=1406 women)
- Decreased risk of del 48 h (OR=0.47)*
- Did not reduce PNM risk: (OR=1.22)
- Did not reduce LBW risk: (OR=0.79)
- Best tocolytics were:
  - Indomethacin: del < 48 h: OR=0.27 (.08-.96)
  - Nifedipine: " " " : OR=0.72 (.53-.97)

PRETERM LABOR
How should you treat?

- INDOMETHACIN:
- 13 RCT (n=713)
- GA<34 weeks, normal AFI
- Loading dose: 100 mg po
- Maintenance: 50 mg po q6h
- Max dose: 400 mg in 48 h
- Minimal mat side effects (prn antacids)

PRETERM LABOR
How should you treat?

- NIFEDIPINE
- 12 RCT (n=1029)
- Nifedipine 30 mg po load –OR-
- Nifedipine 10 mg po q20 min x 4
- Nifedipine maintenance: 10 mg po q6h
- Decrease dose if hypotension or severe headache

PRETERM LABOR
How should you treat?

- CORTICOSTEROIDS:
- 23 RCT (n=1635 women)
- Reduction in RDS: OR=0.49*
- " " NND: OR=0.59*
- " " Neurol abn: OR=0.61
- Steroids really work!
- The chief benefit of tocolytics is to give you time to get the steroids on board!

PRETERM LABOR
How should you treat?

- ANTIBIOTICS:
- 14 RCT (n=1572)
- Amp, erythro, clinda, metro
- No significant delay of delivery
- No improvement in NN outcomes
- And that includes women with BV…

PRETERM LABOR
How should you treat?

- Group B Strep:
- get a R-V culture but tx empirically
- loading dose: PCN 5.0 MU IV
- maint dose: PCN 2.5 MU IV q4h x 48 h
- Ampicillin 2 g IV then 1 g q6h x 48 h
- Clindamycin 900 mg IV q8h x 48 h for PCN allergic women

PRETERM LABOR
Finally, the plane is here!

- Is she safe to send?
- Recheck cx and the monitor.
- Do you need to go with her?
- Are you prepared for birth in flight??
- Receiving institution alerted and concurs w/ management?
- Good work!

CASE #2
Does this woman have PREECLAMPSIA?

- 18 y/o G1P0 at 37 wks 2 days by dates and early US, presents to your rural level I facility c/o UC. She denies HA or vision problems. Her BP is 154/96, she has 2+ PTE, 3+ DTR, and 2+ proteinuria.
- Is this PEC? Is it mild or severe?
- How should you manage??

Preeclampsia: Making the Diagnosis

- BP $\geq$140/90 (sitting, repeated)
- Proteinuria 1+ dipstick (clean catch)
- (Edema)

Preeclampsia: Is it mild or severe?

- Severe preeclampsia:
- >160/110
- 4+ proteinuria
- Signs and symptoms:
  - CNS
  - Liver
  - Cardiopulmonary
  - -Renal
  - -Hematologic
  - -Fetoplacental

Preeclamsia: Who's most at risk?

- Young primigravidas
- Older multiparas
- Twin pregnancy
- Women w/ underlying medical conditions
  - HTN
  - DM
  - Renal disease

Preeclampsia: Is it or isn't it?

- Gestational HTN
- Chronic HTN
- "Superimposed" preeclampsia
- Normal pregnancy edema
- HELLP syndrome

Preeclampsia: How do you manage?

- Goals:
- Prevent seizures
- Prevent fetal jeopardy
- Deliver!
- Points to remember:
- Delivery is the only cure
- It's NOT all about lowering the BP!

Preeclampsia: How do you manage?

- Bed rest in left lateral position
- BP q 15' -→q1h
- Fetal monitor
- IV hydration:
  - Bolus 1000 mL RL
  - maintenance 100 mL/hr
  - Foley
  - I&O

Preeclampsia: How do you manage?

- Magnesium Sulfate ($MgSO_4$):
- Bolus: 4-6 g IVPB over 15 min
- Maintenance: 1-3 g/hr IV
- Follow DTRs, UO, SaO_2, mental status
- DON'T stop $MgSO_4$ for the transport!!

Preeclampsia: What labs do you need?

- CBC with platelets
- ALT/AST
- Creatinine
- ?urine protein/creatinine ratio

Preeclampsia: What about the BP?

- Anti-HTN meds are NOT primary tx
- What if BP still >160/110 despite BR, hydration, MgSO4, analgesia?
- Labetalol 20 mg IV q 5 min (max 300)
- Hydralazine 5 mg IV q 20 min
- Nifedipine 10 mg po q4h

Preeclampsia: What if she seizes?

- Nobody dies after one seizure….
- Most likely due to inadequate $MgSO_4$
- DON'T immediately give Valium!
- DON'T immediately react to the FHR!
- Seizure precautions: protect airway!
- Re-bolus $MgSO_4$; run drip at 3g/h

70203
70204
70205
70206

Preeclampsia: Remember "the 2nd patient"

- Is FGR present?
- Treatment effects on the fetal strip
- DON'T lower BP too much!
- Keep BP 150-140/90-100
- If a seizure occurs, cover the monitor!

Preeclampsia: Is she safe to send?

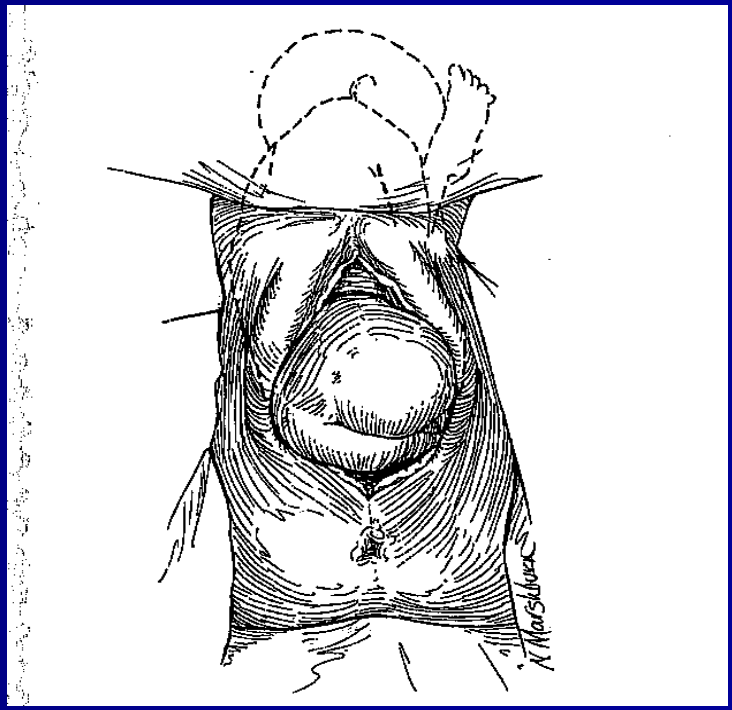
- $MgSO_4$ running on a pump
- Left lateral decubitus
- Seizure precautions (suction) at hand
- Monitor BP, FHR, IV rate, UO
- Load head forward in aircraft
- Coordinate with receiving hospital

The unanticipated birth emergency….

- OB: “hours of boredom, moments of panic…”
- OB: Where meconium happens!
- Remember, “take a deep breath”…. and don’t push….!

Case #3
What IS that down there?!

- 38 y/o G7P5 at 37 weeks presents to your rural level I facility (that doesn't have surgical capabilities) c/o UC x several hours. She says she feels like she needs to go to the bathroom…
- On exam there is what appears to be (?) buttocks distending the perineum…

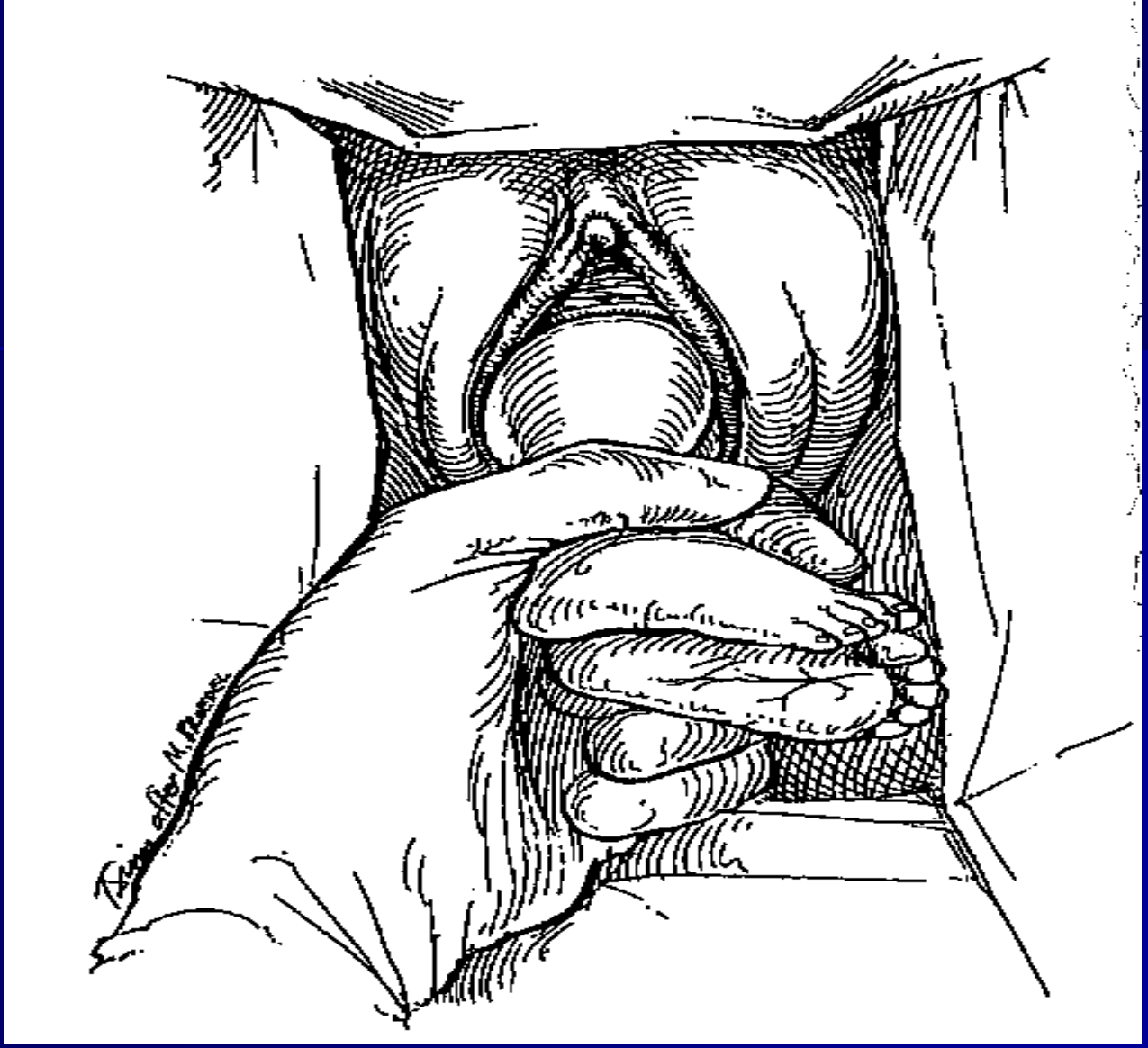


The posterior hip of the frank breech is delivering over the perineum.

Williams Obstetrics, 20th ed., p. 497.

Breech birth: Basic principles

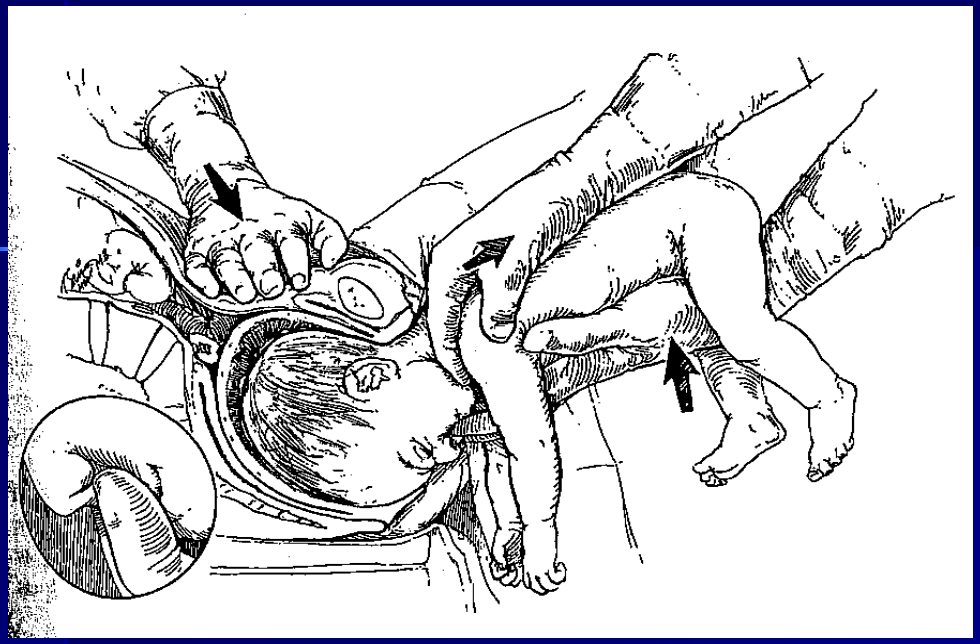
- DON'T panic!
- Call for help if available
- DON'T pull on it!
- What did I tell you?! Don't mess with it!
- Encourage the mother to push
- Keep the head flexed w/ suprapubic pressure
- Uh-uh! N-O!! What did I just tell you?! HANDS OFF!!



Breech extraction. Traction on the feet and ankles.

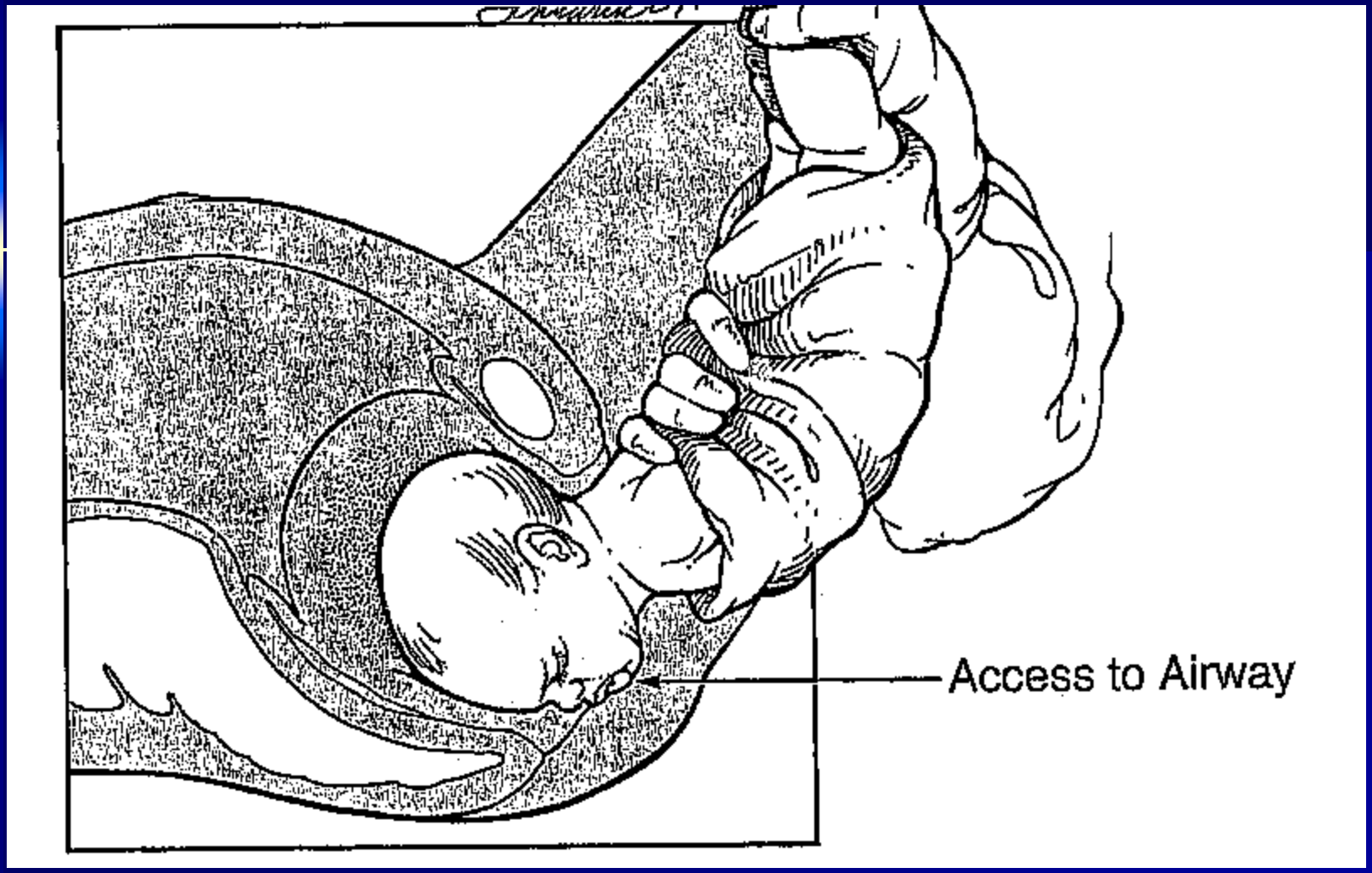
NO, No , NO!!!

Williams Obstetrics, 20th ed., p. 497.



As the fetal head is delivered, flexion of the head is maintained by suprapubic pressure provided by an assistant and by pressure on the maxilla.

Williams Obstetrics, 20th ed., p. 497.



Following delivery of the arms, the fetus is wrapped in a towel for control and slightly elevated. The fetal face and airway may be visible over the perineum.

Gabbe, et. al, 3rd edition, p. 483.

GOT QUESTIONS?