SHOULDER DYSTOCIA

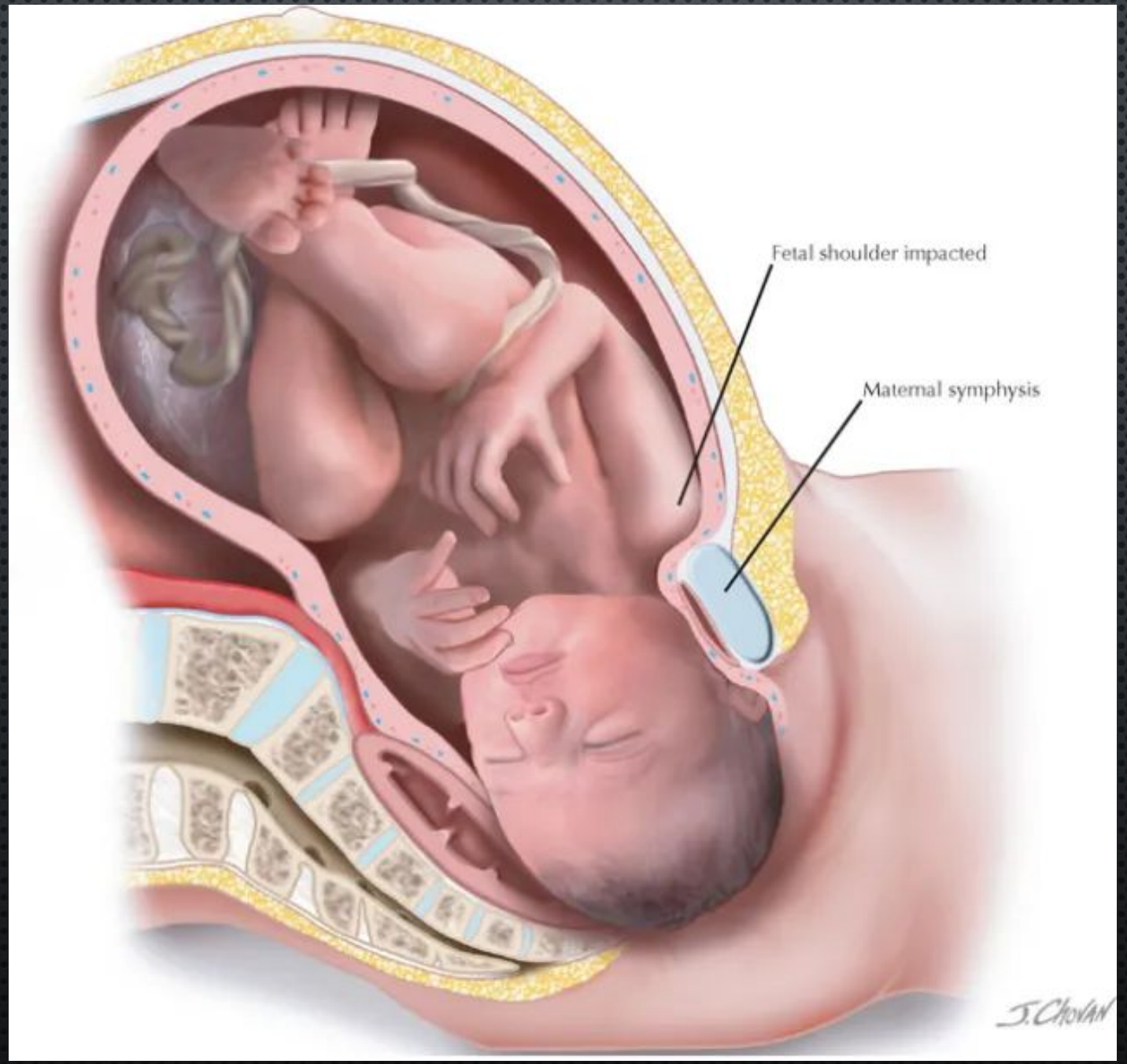
Eric H Dellinger, MD

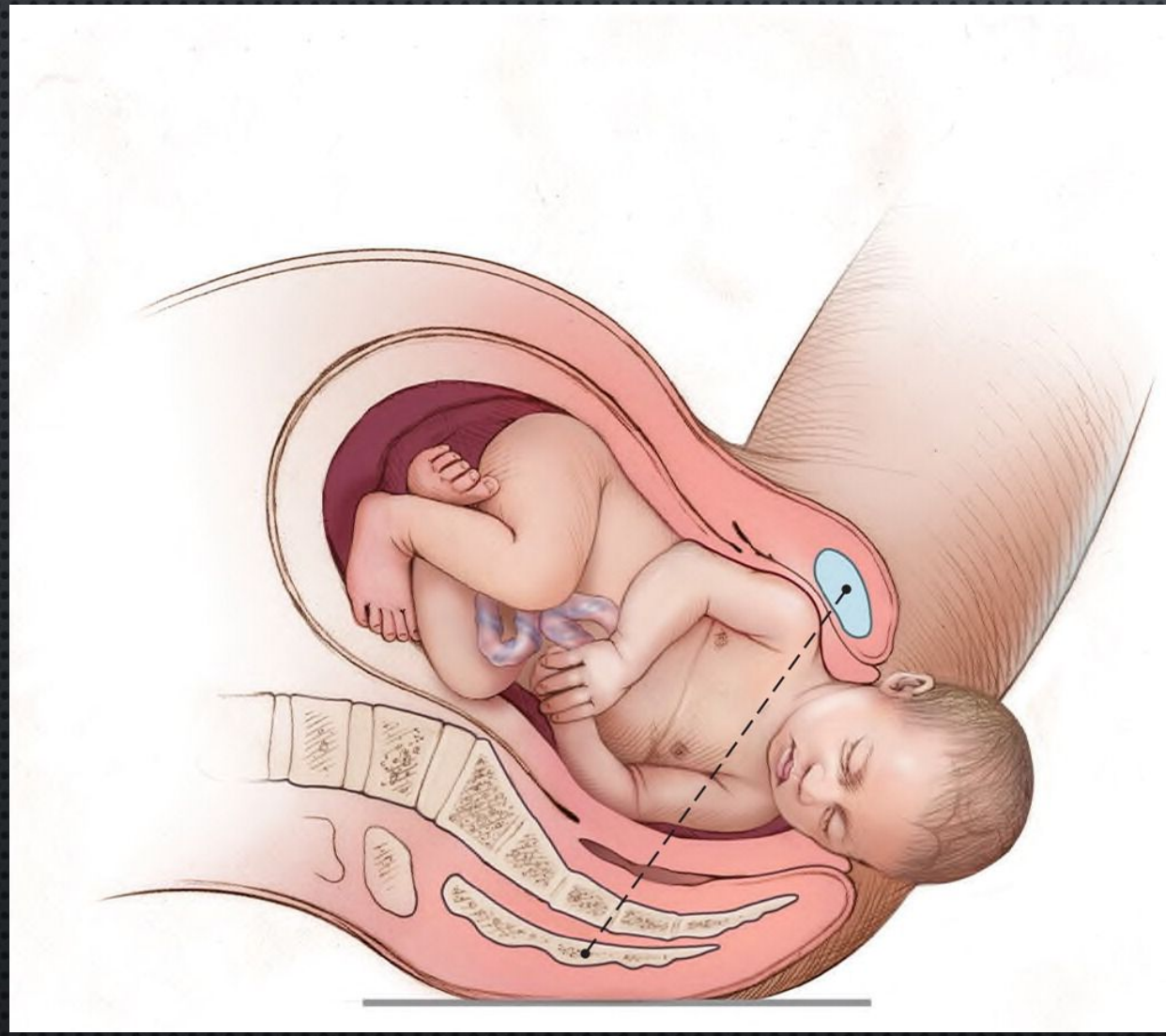
Maternal-Fetal Medicine

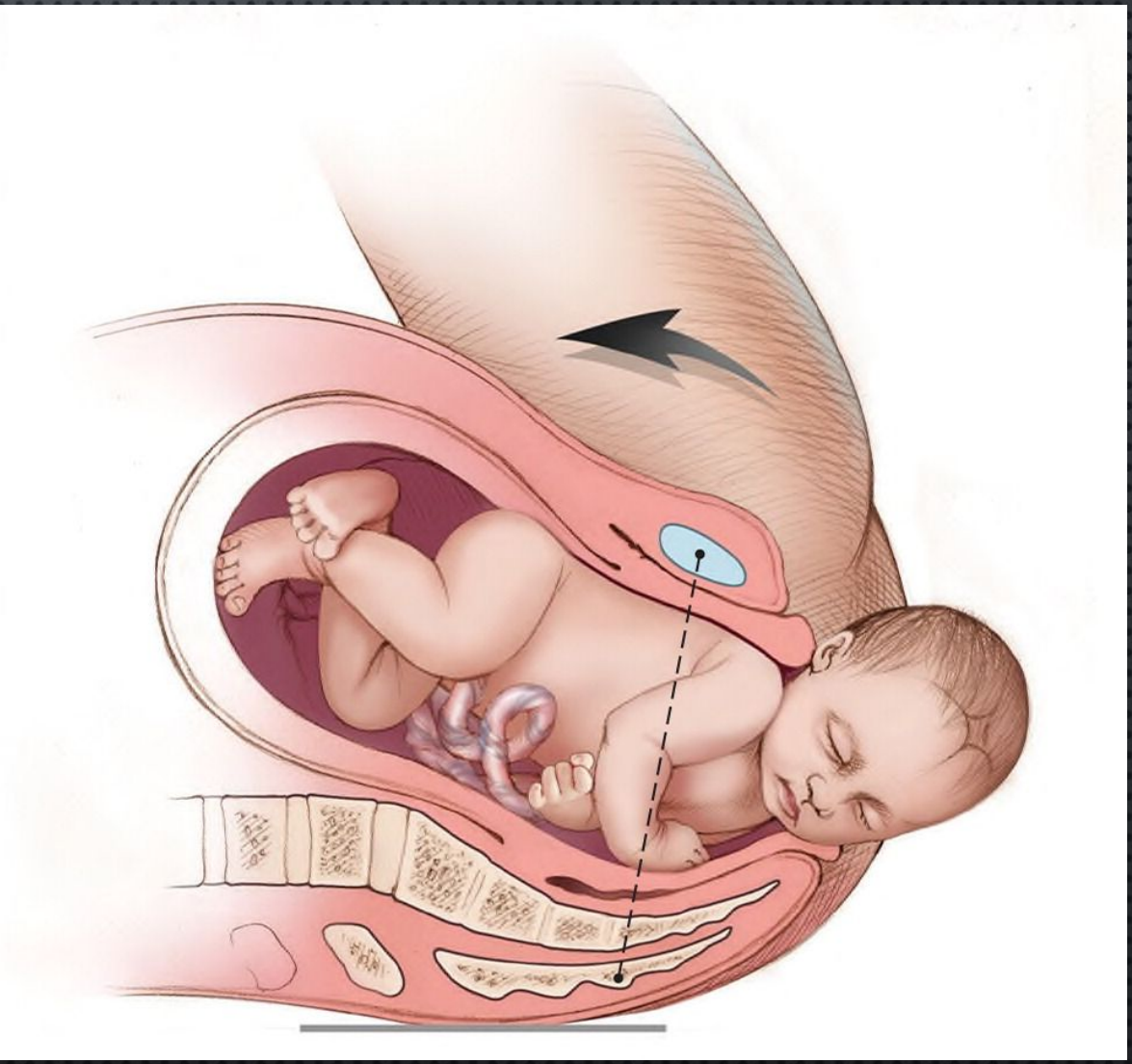
USCSOM-Greenville

DEFINITION

- Following delivery of the fetal head, additional obstetric maneuvers beyond gentle traction are needed to effect delivery of the fetal shoulders

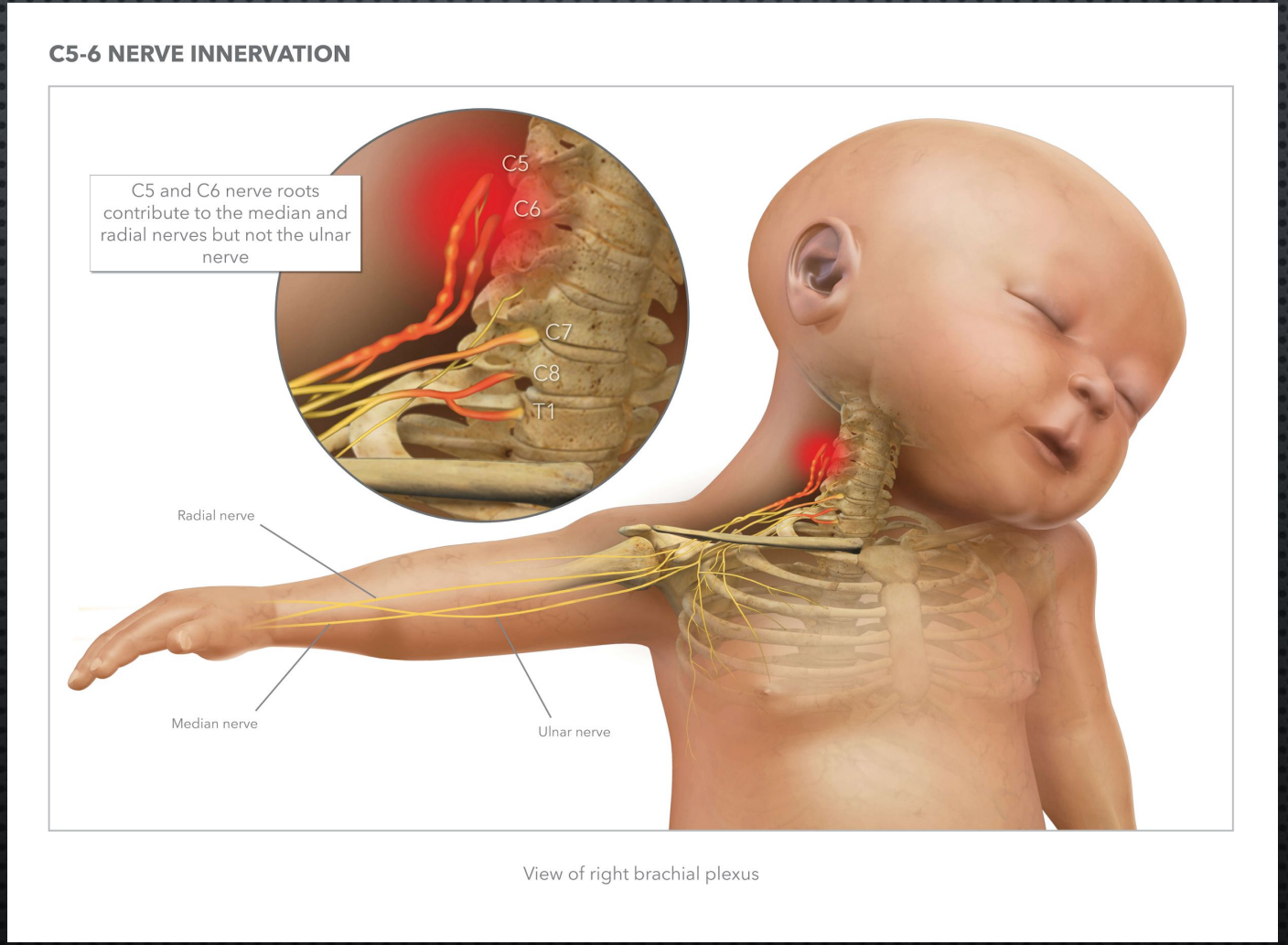

Fetal shoulder impacted
Maternal symphysis
J. Chovan





AP Orientation (Abnormal) vs. Oblique Orientation (Normal)

POTENTIAL FOR INJURY



PREVALENCE

- 0.2 TO 3.0 PERCENT OF BIRTHS
  - VARIATION DUE TO DIFFERENCES IN THE PREVALENCE OF MACROSOMIA AND DIABETES
  - SUBJECTIVE NATURE OF THE DIAGNOSIS

Predisposing factors: antepartum

- High birth weight
- Diabetes mellitus
- Previous shoulder dystocia - recurrence risk is 1 - 25 %
- Post term pregnancy
- Male fetal sex - (55 - 68% versus 51% female)
- obesity and excessive gestational weight gain
- Maternal demographics - Advanced maternal age, Parity, African American

Predisposing Factors: Intrapartum

- Abnormal progress of labor – Precipitous and prolonged 2nd stage
- Assisted vaginal birth
  - combination of birth weight >4000 g, prolonged second stage, and midpelvic assisted vaginal birth was associated with a 21% incidence

Benedetti TJ, Gabbe SG, Obstet Gynecol. 1978;52(5):526

PREDICTION

- SHOULDER DYSTOCIA CANNOT BE ACCURATELY PREDICTED
- PREDICTIVE VALUE OF ANY ONE OR COMBINATION OF RISK FACTORS IS LESS THAN 10%
- AT LEAST 50 PERCENT OF CASES HAVE NO IDENTIFIABLE RISK FACTORS

- BE PREPARED!!

DIAGNOSIS

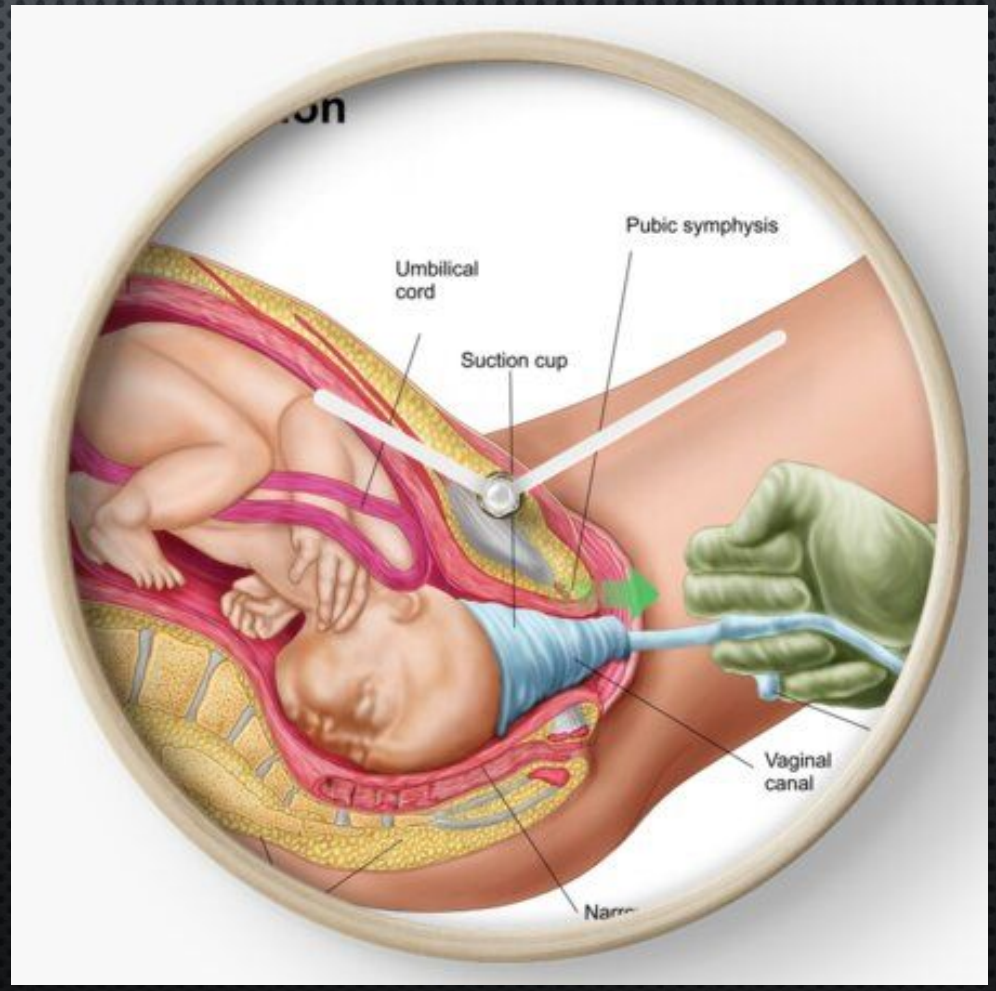
- SUBJECTIVE
- FETAL HEAD RETRACTS (TURTLE SIGN)
- GENTLE DOWNWARD TRACTION FAILS TO ACCOMPLISH DELIVERY OF THE ANTERIOR SHOULDER
- HEAD-TO-BODY DELIVERY INTERVAL >60 SECONDS

MANAGEMENT

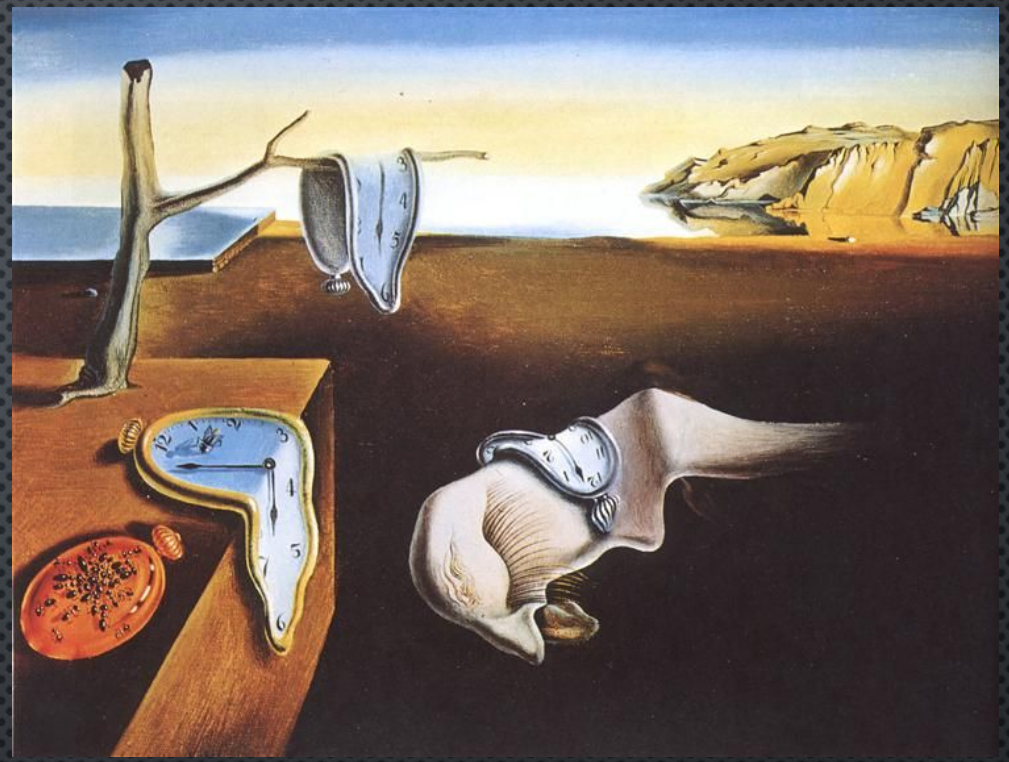
- SHOULDER DYSTOCIA IS AN OBSTETRIC EMERGENCY!!

MANAGEMENT GOALS

- SAFELY EFFECT DELIVERY BEFORE AND CORTICAL INJURY
- CONCERNS:
  - UMBILICAL CORD COMPRESSION
  - LIMITED INSPIRATION

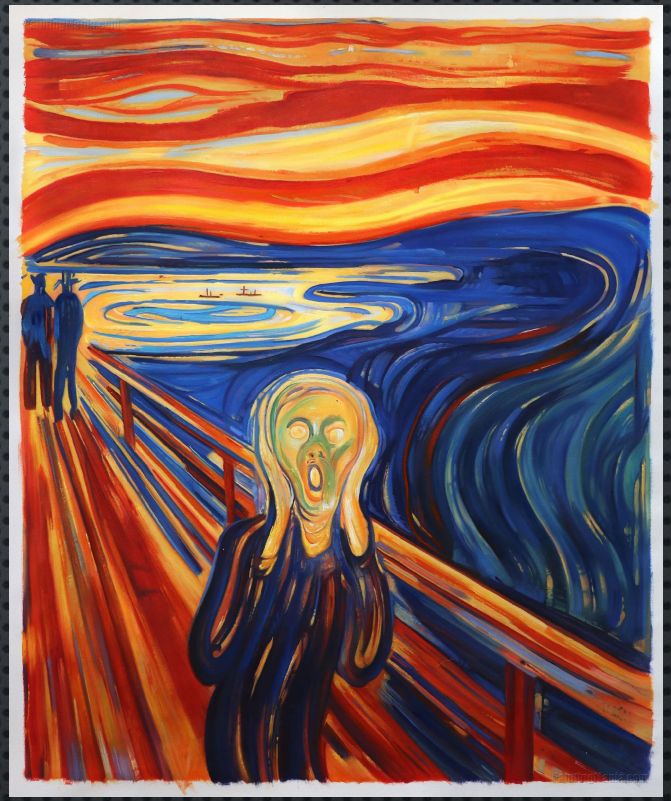


MANAGEMENT GOALS



- In general, more than 4 -5 minutes to deliver increases the risk of asphyxial injury
- umbilical artery pH can fall 0.01 and 0.04 pH units per minute
- But, poor correlation between the head-to-body delivery interval and pH, pCO2, base deficit, neonatal encephalopathy, or death

PREPARATIONS

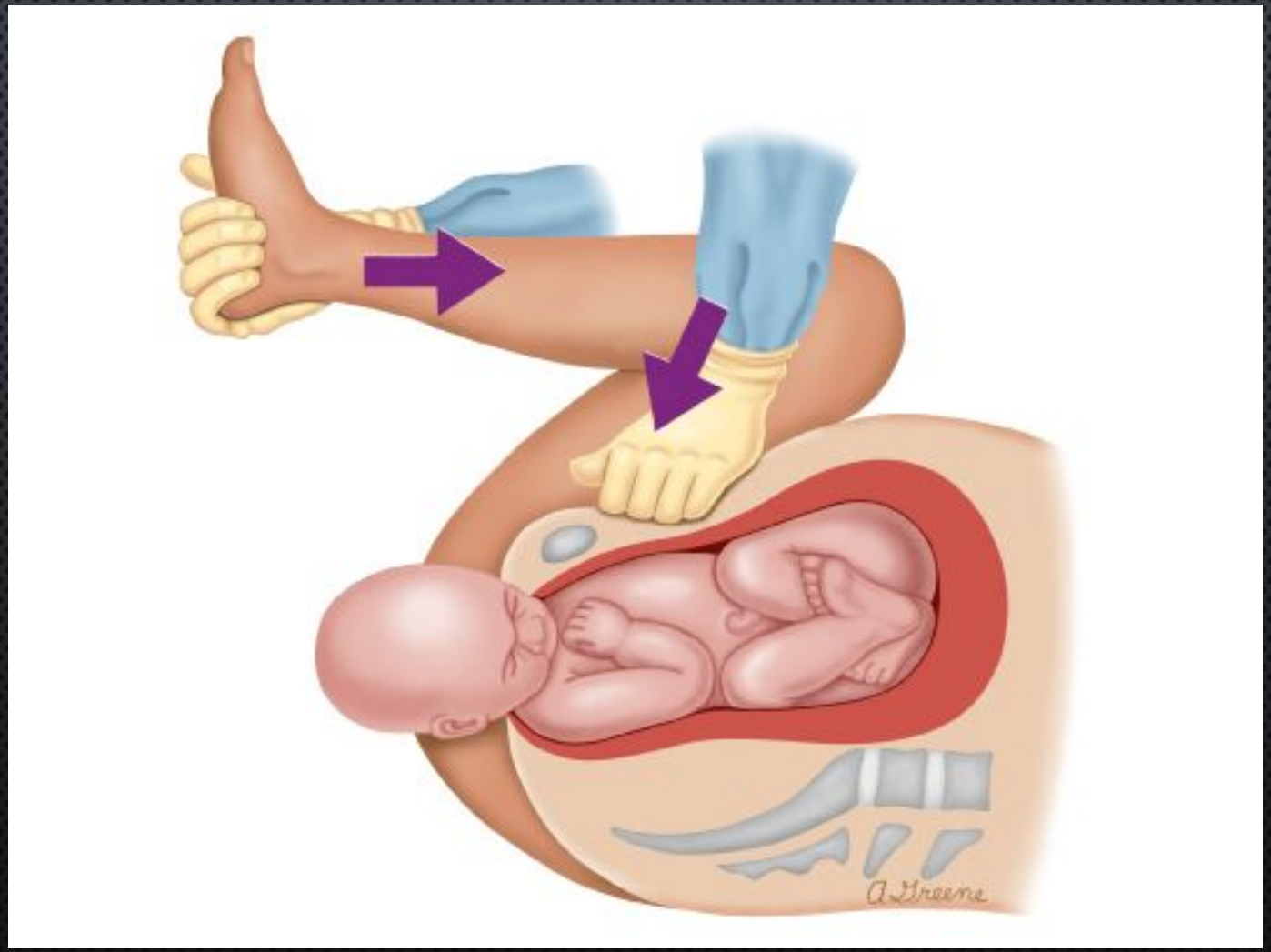


- Time of diagnosis is documented. Take a deep breath!
- Verbally note every 60-seconds of elapsed time
- Patient is told not to push
- Get Help! Nursing, anesthesia, obstetric, pediatric
- A tight nuchal cord, if present, is reduced over the fetal head. Do not cut!
- Avoid fundal pressure, forceful downward traction, excessive traction on the head and neck
- Empty bladder, consider episiotomy or episioproctotomy

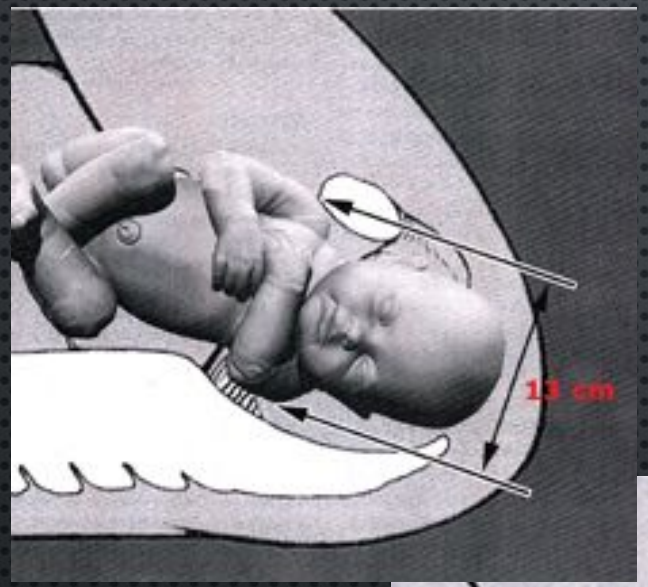
Initial group of maneuvers

- McRoberts maneuver with suprapubic pressure
- Deliver the posterior arm
- axillary traction to deliver the posterior shoulder
- Woods screw maneuver
- Rubin maneuver

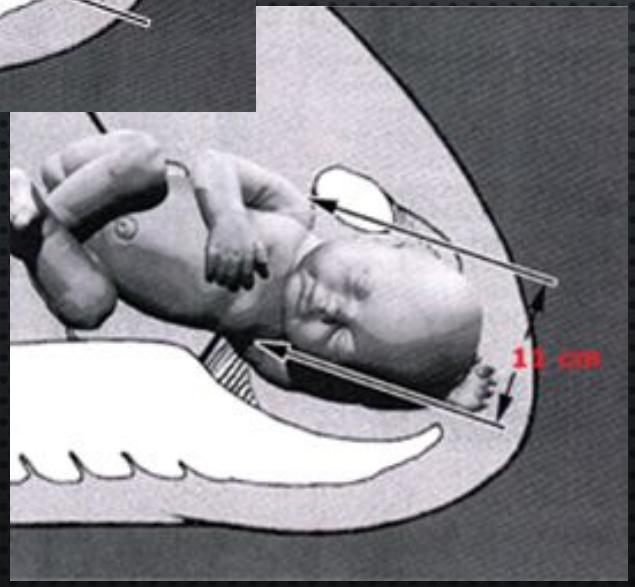
MCROBERTS MANEUVER WITH SUPRAPUBIC PRESSURE



DELIVER THE POSTERIOR ARM

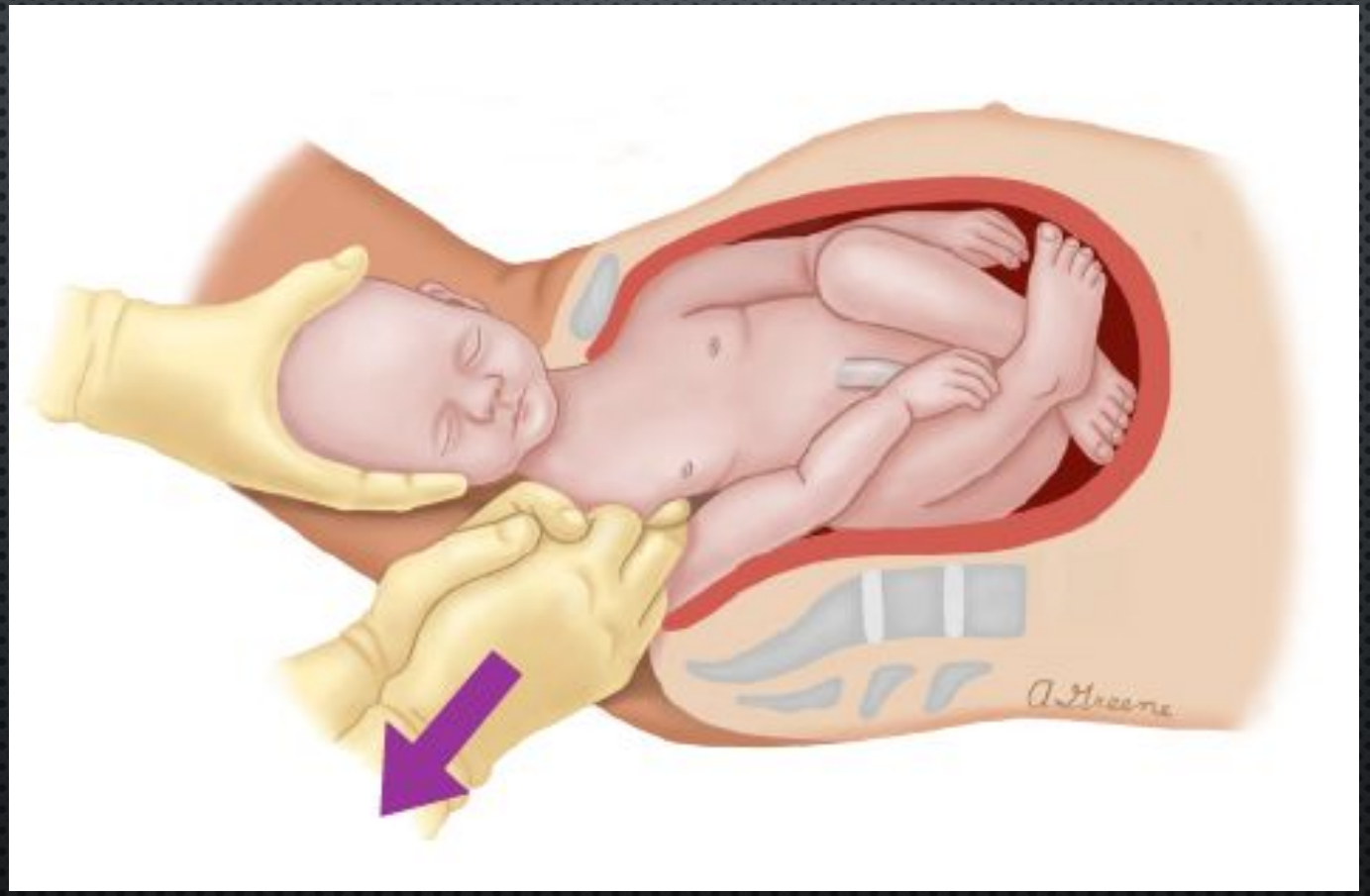


13-cm bisacromial diameter



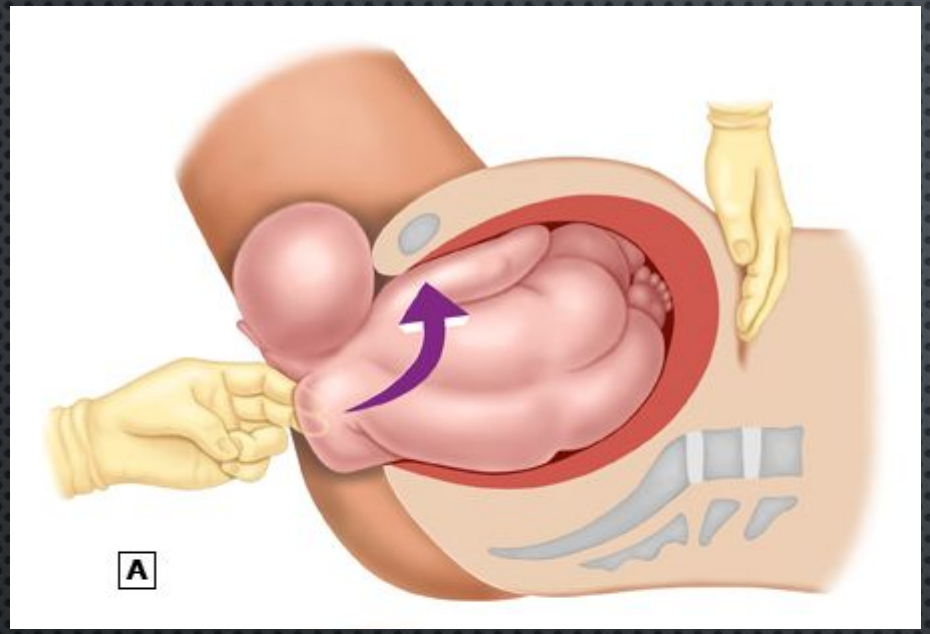
11-cm axillo-acromial diameter

AXILLARY TRACTION TO DELIVER THE POSTERIOR SHOULDER

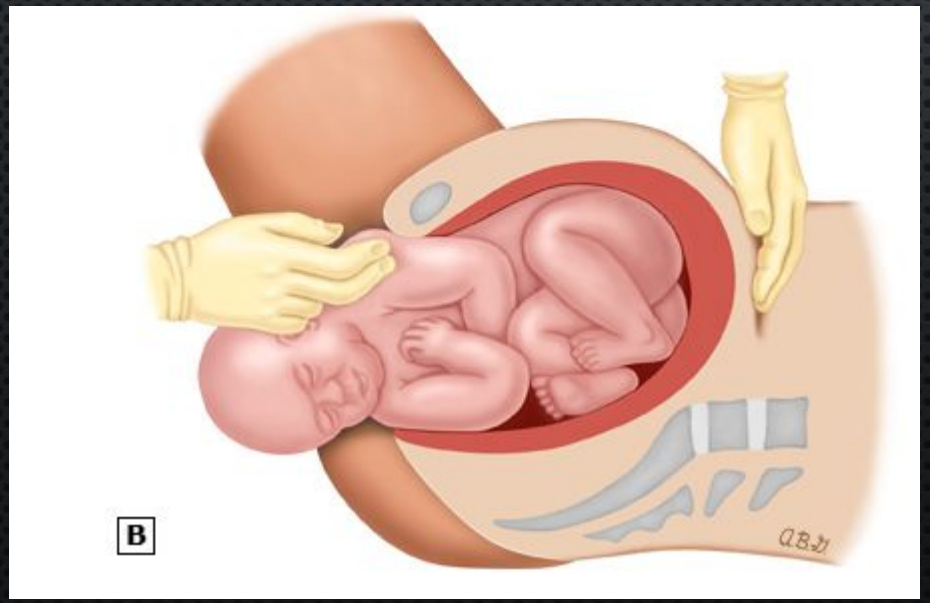


Helpful if not possible to reach the elbow or forearm of the posterior arm

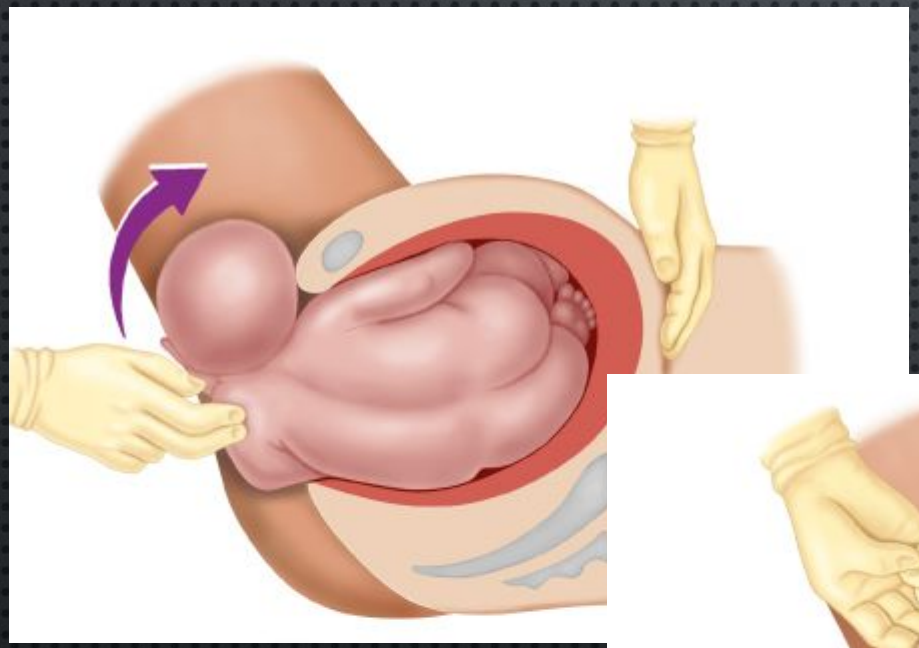
WOODS SCREW MANEUVER



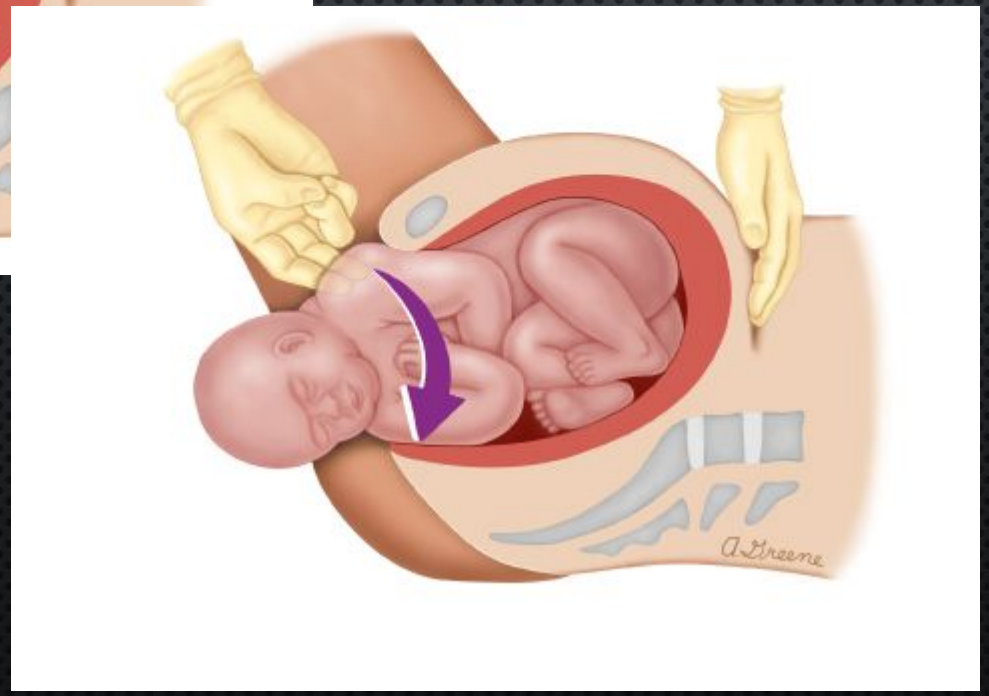
Push on the clavicle of the posterior arm and rotate the fetus 180 degrees in a counterclockwise direction



RUBIN MANEUVER



Place a hand behind the posterior fetal shoulder and rotate anteriorly (toward the fetal face)

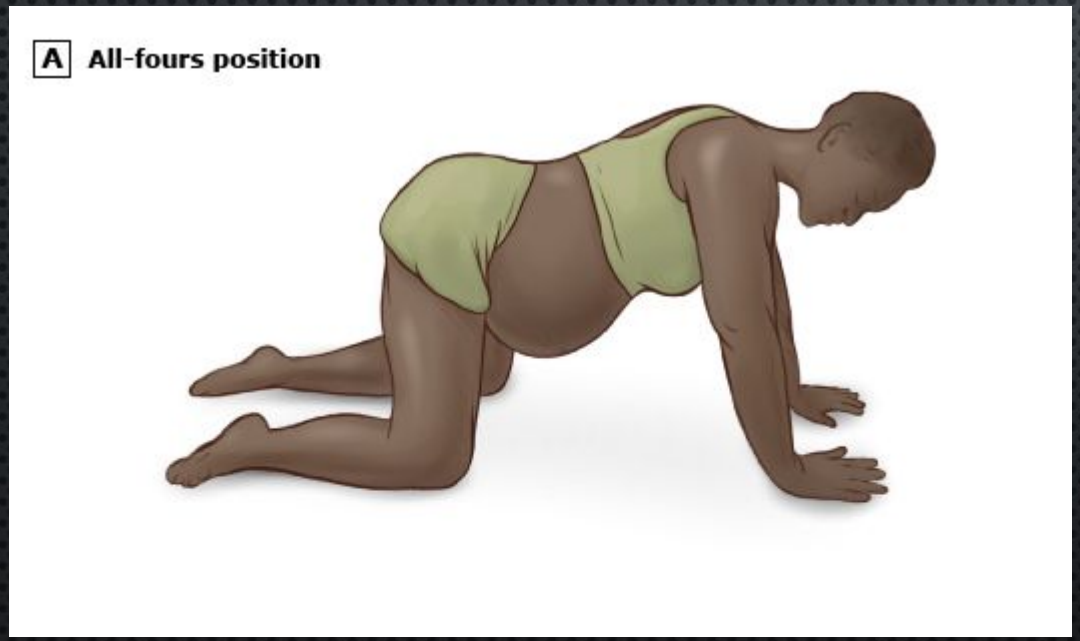


Rubin and Woods procedures can be combined so that one shoulder is being pushed from the back and the other shoulder is being pushed from the front

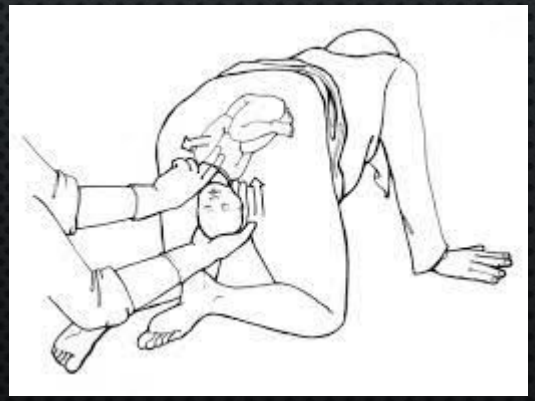
Other maneuvers

- Gaskin all-fours maneuver
- Fracture the clavicle
- Zavanelli-O'Leary maneuver
- Abdominal rescue
- Symphysiotomy

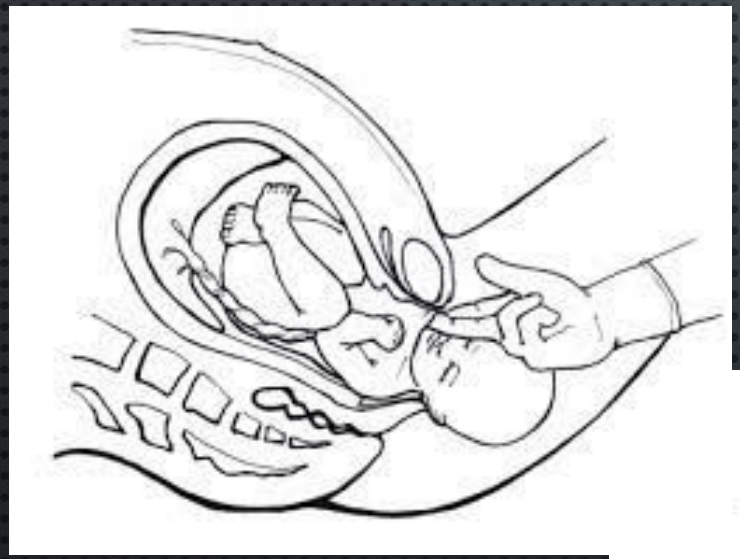
GASKIN ALL-FOURS MANEUVER

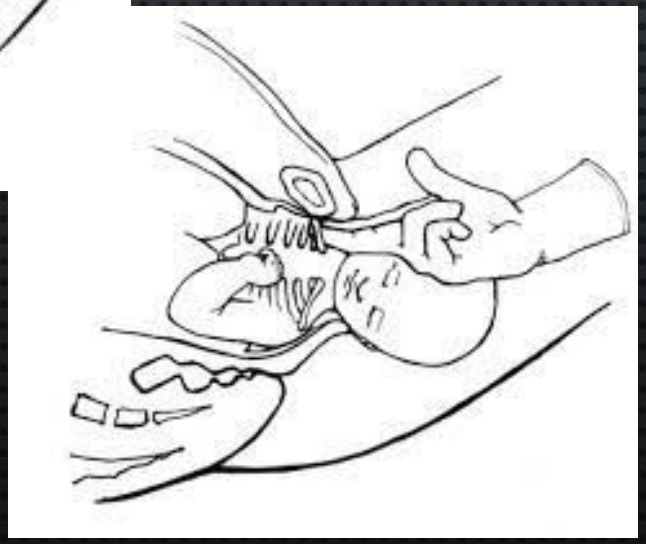


Position increases the space in the hollow of the sacrum and takes advantage of gravity, which together facilitate delivery by gentle downward traction on the posterior shoulder



FRACTURE THE CLAVICLE

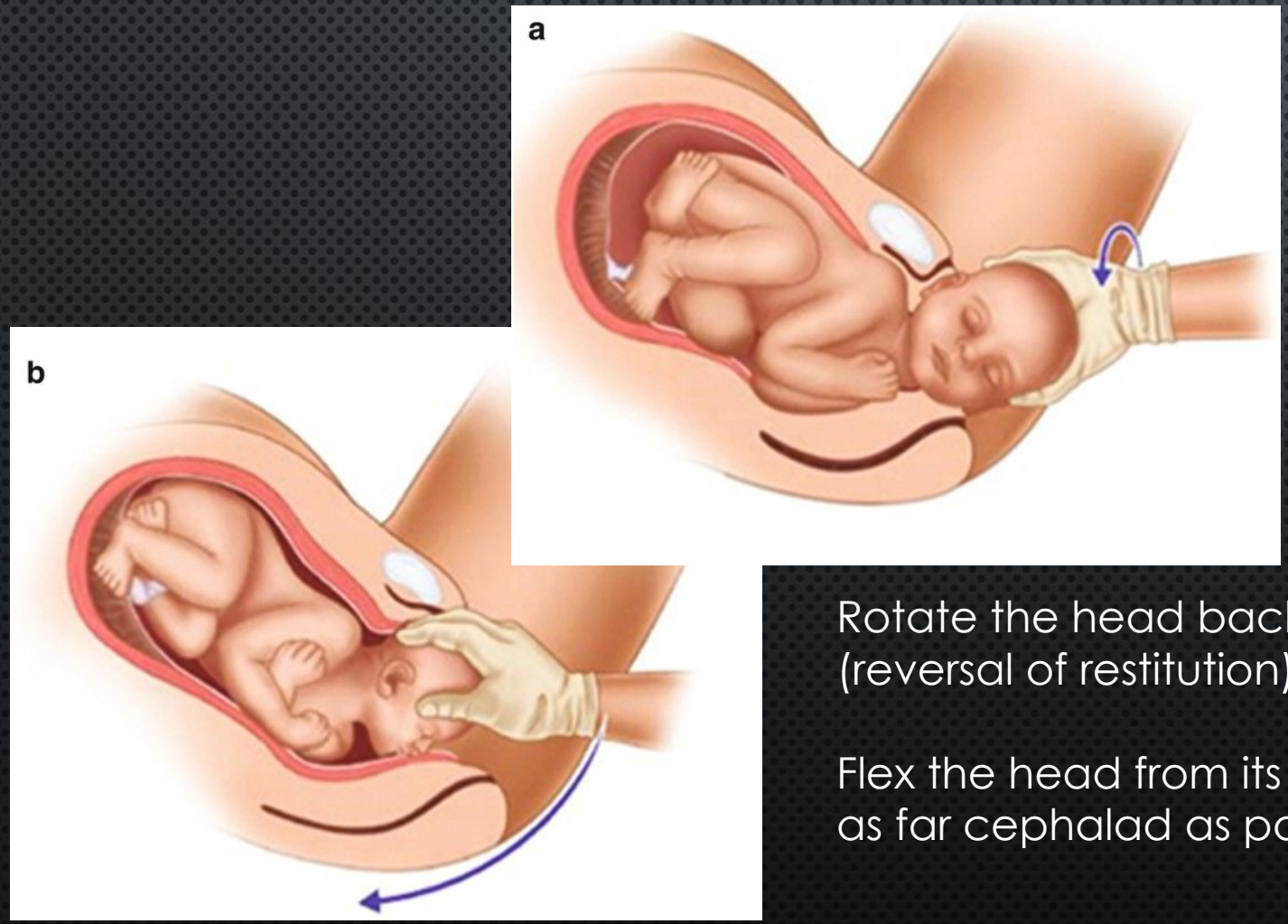




The operator uses their fingers to pull the anterior clavicle outward until it breaks.

Risks injury to underlying vascular and pulmonary structures

ZAVANELLI-O'LEARY MANEUVER

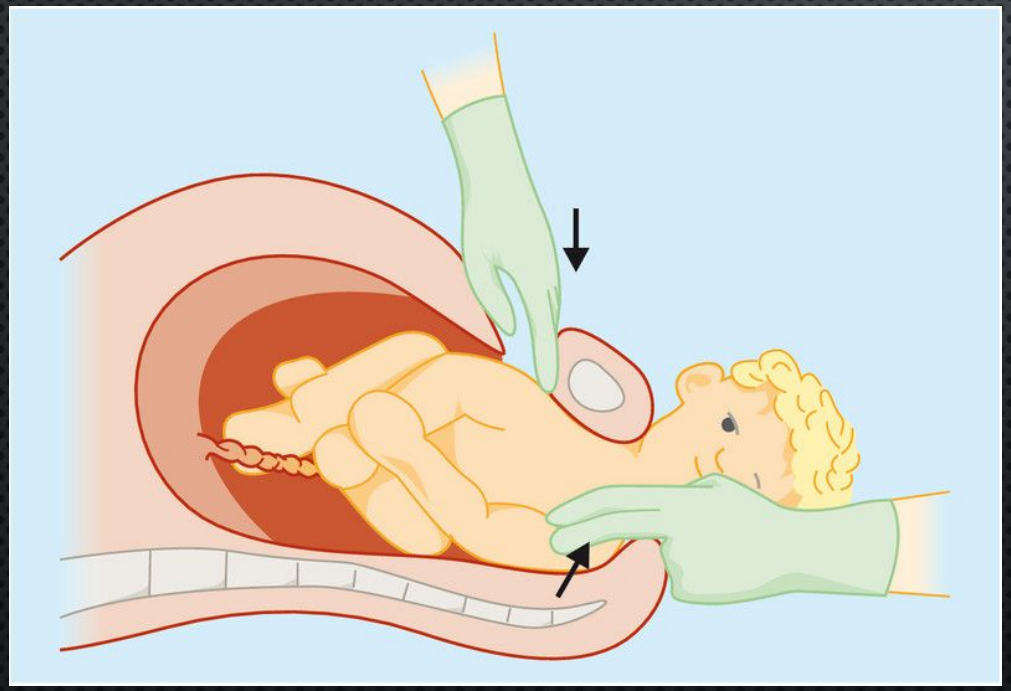


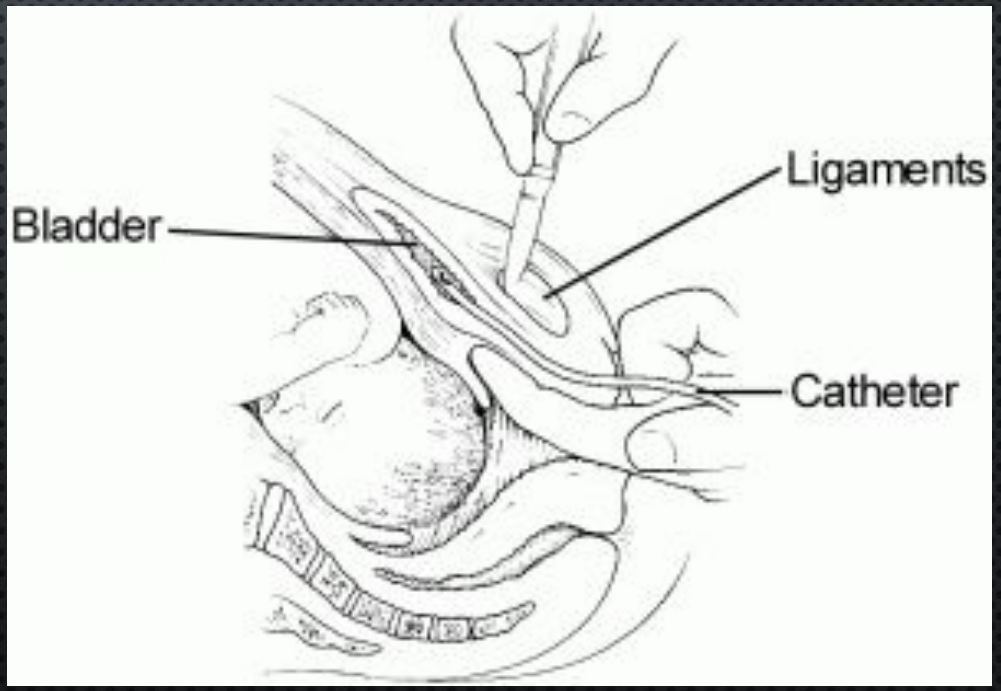
Administer terbutaline (0.25 mg subcutaneously) or another uterine relaxant

Rotate the head back to an occiput anterior position (reversal of restitution)

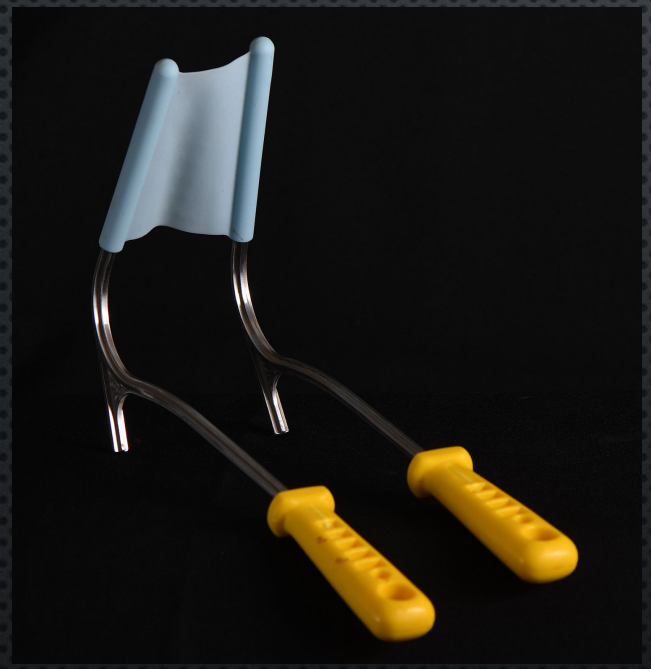
Flex the head from its extended position and push it as far cephalad as possible

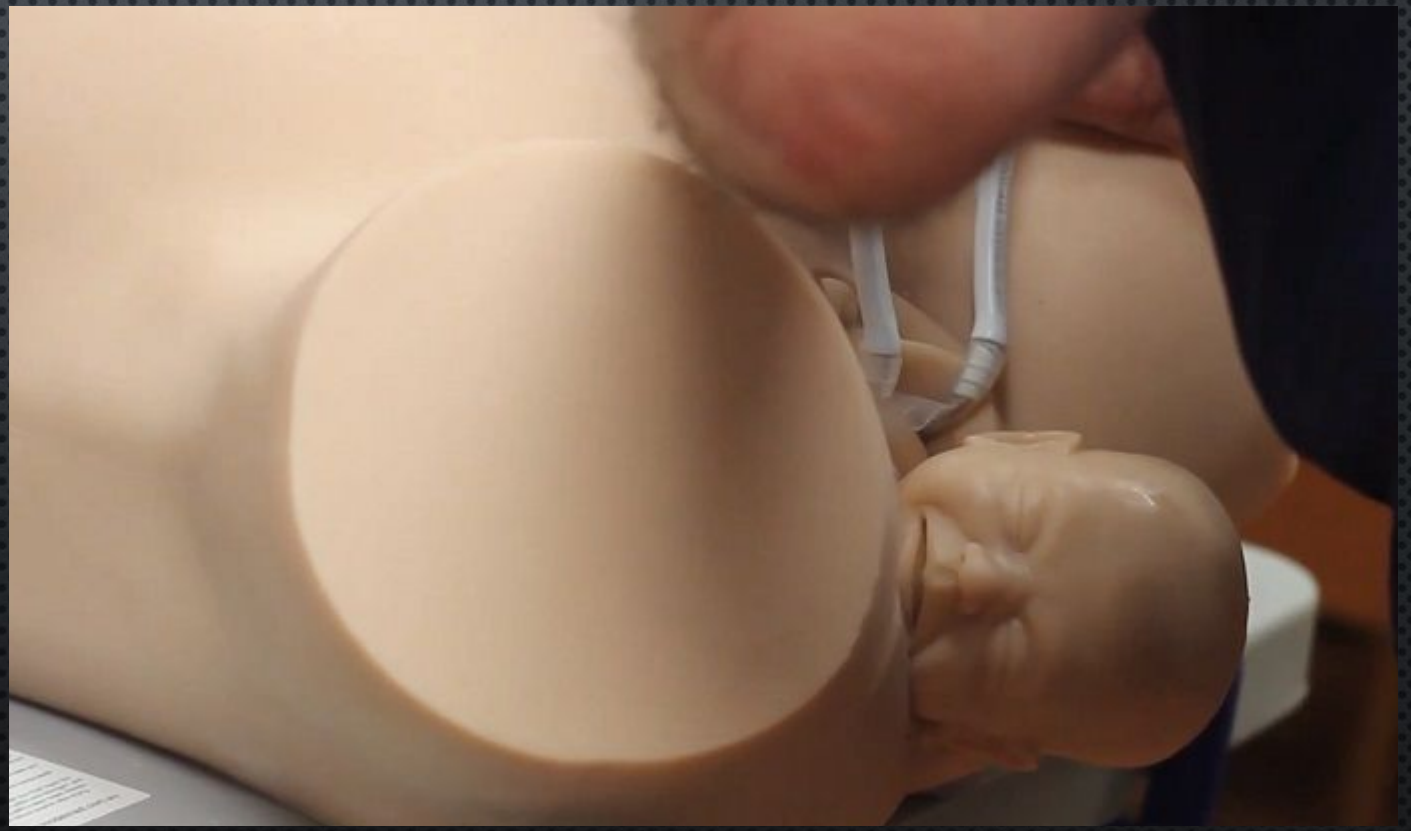
ABDOMINAL RESCUE, SYMPHYSIOTOMY





YAARI EXTRACTOR





Documentation

- Estimated fetal weight (clinical or ultrasound) on the admission H&P
- Time the diagnosis of shoulder dystocia was made, how the diagnosis was made, and the position of the head should be described
- Each of the steps taken, their order, and the results, should be described. The elapsed time should be recorded as accurately as possible
- Umbilical cord gases (arterial and venous) should be obtained in all cases
- Time pediatrician and anesthesiologist called to delivery should be noted
- All significant personnel involved should write their own notes

Complications

- Transient brachial plexus palsy (3.0 to 16.8 %)
- Clavicular fracture (1.7 to 9.5 %)
- Humerus fracture (0.1 to 4.2 %)
- Permanent brachial plexus palsy (0.5 to 1.6 %)
- Hypoxic-ischemic encephalopathy (0.3 %)
- Death (0 to 0.35 %)

SIMULATION TRAINING

Recommended by the US Joint Commission