

Shoulder Dystocia

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دستوشی شانه

Shoulder Dystocia

Key learning points

- Antenatal and intrapartum risk factors.
- Understand manoeuvres required to effect delivery during shoulder dystocia.
- Clear and accurate documentation.
- Awareness of potential complications of shoulder dystocia.

Shoulder Dystocia

The turtle sign



Definition

- ▶ A head-to-body delivery time > 60 seconds due to impaction of the shoulder (anterior)against the symphysis pubis.

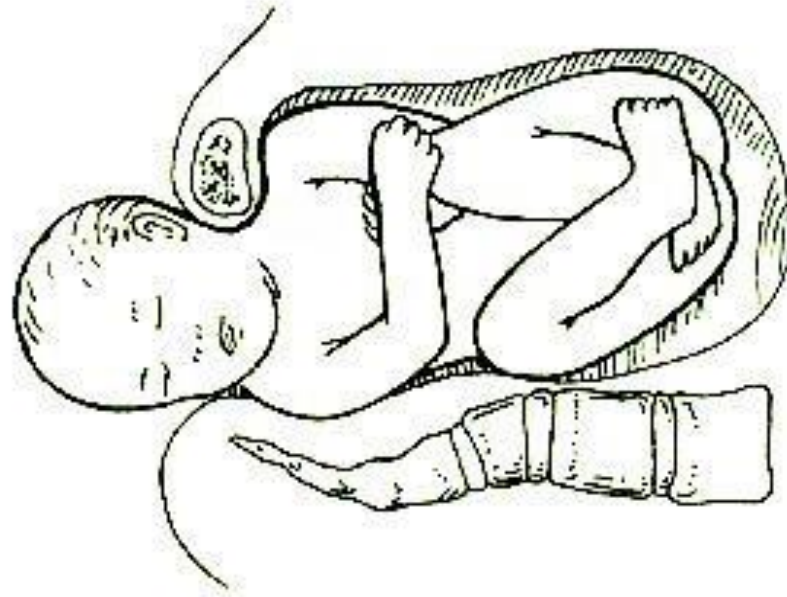
Williams Ob

- ▶ Use of any of the obstetric maneuvers to release the shoulder after gentle downward traction has failed.
RCOG ,2005

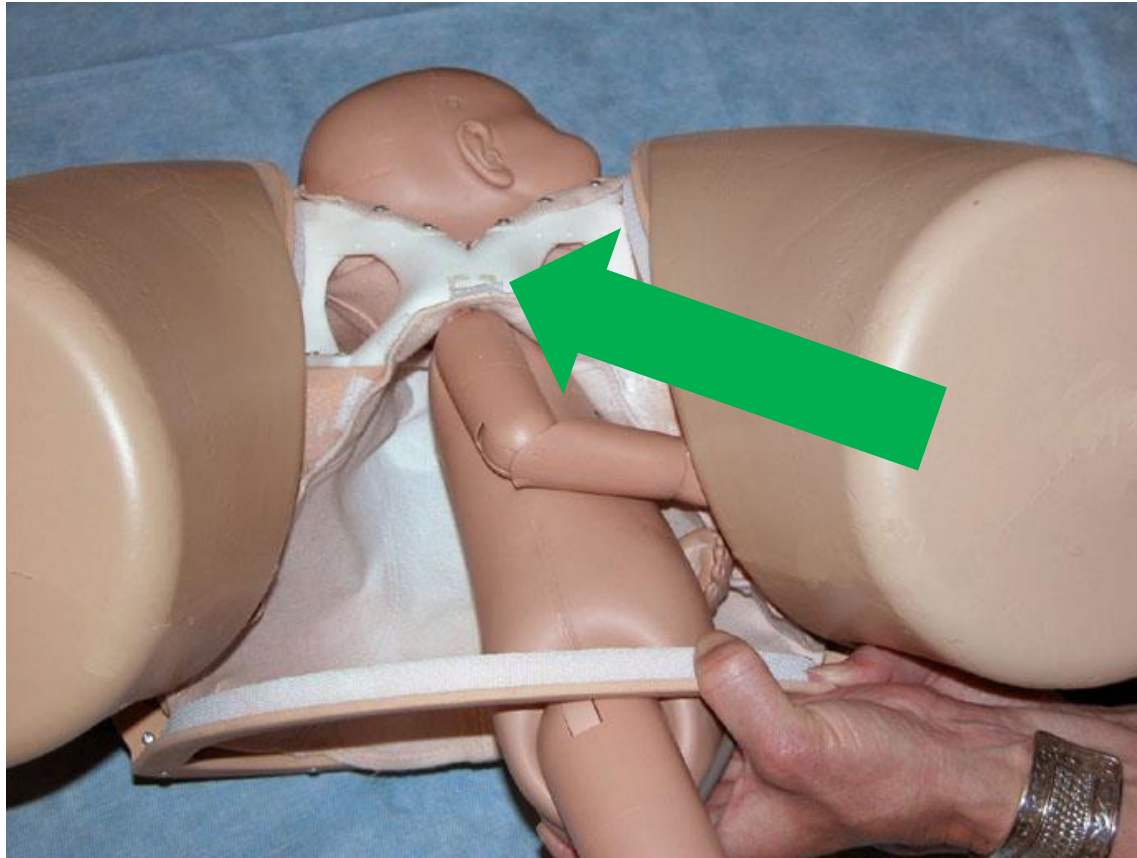
Head successfully delivered

Shoulder lodged behind pubic bone Posterior shoulder may be lodged behind sacral promontory

Delivery arrested



Anterior Shoulder Impaction



Incidence

- ▶ Defined as a range of difficulties encountered with delivering the shoulders after delivery of the head, 1% of all deliveries
- ▶ Many attempts have been made to try and standardise the definition and therefore the incidence reporting

Why is it important?

Why is it important?

- An obstetric emergency.
- Increased maternal morbidity.

Increased fetal morbidity & mortality

- ▶ Pathophysiology
- ▶ □ Size discrepancy between fetal shoulders and maternal pelvic inlet
- ▶ □ Macrosomia □
- ▶ Large chest:BPD
- ▶ □ Absence of truncal rotation
- ▶ □ Fetal shoulders remain A-P or descent simultaneously

► Risk Factors

- ◻ Antepartum ◻ Macrosomia (>4500g) ◻ DM/GDM (increases overall risk by 70%) ◻ Multiparity ◻ Intrapartum ◻ Prolonged deceleration phase of labor ◻ Prolonged 2nd stage ◻ Protracted descent ◻ Operative delivery (vacuum>forceps)

Box 7.1. Risk factors for shoulder dystocia

Prelabour

Previous shoulder dystocia
Macrosomia
Maternal diabetes mellitus
Maternal obesity

Intrapartum

Prolonged first stage
Prolonged second stage
Labour augmentation
Instrumental delivery

Unpredictable

- 25-50% have no defined risk factor!
- 50% of cases occur in infants whose birth weight is <4000g
- 84% of patients did not have prenatal dx. of macrosomia by US
- 82% of infants with brachial plexus palsy did not have macrosomia

Complications

- **Maternal**

- Hemorrhage
- 4th degree laceration

- **Fetal**

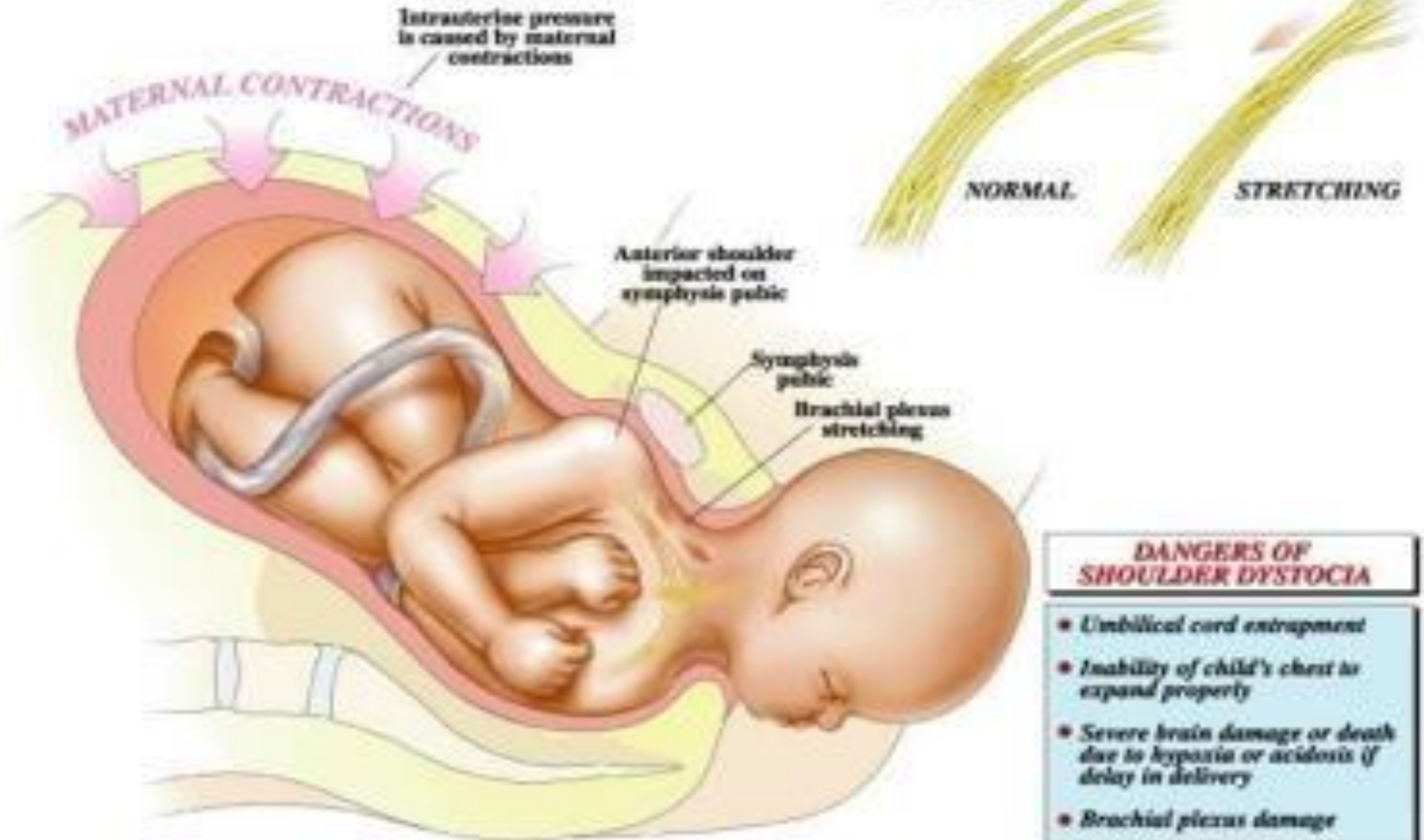
- Fx of humerus or clavicle
- Brachial plexus injury (Erb's/Klumpke's palsy)
- Asphyxia/cord compression

- **Physician**

- Litigation: 11% of all obstetrical suits

SHOULDER DYSTOCIA

BRACHIAL PLEXUS



Management

- ▶ Goal:
- ▶ Safe delivery before neonatal asphyxia and/or cortical injury 7 minutes!!!

Management

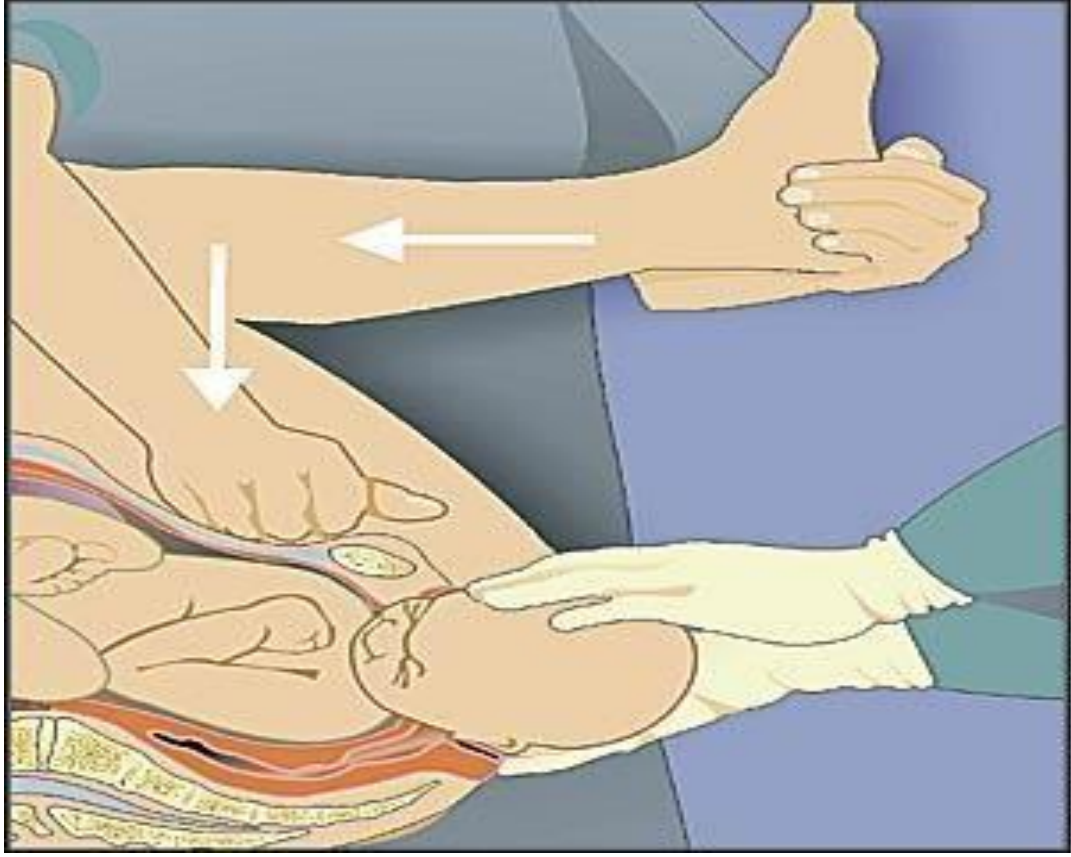
- ▶ Prepare :
- ▶ ☐ declutter the room .
- ▶ ☐ senior person .
- ▶ ☐ empty the bladder .
- ▶ ☐ STAY CALM !!!
- ▶ ☐ HELPERR

- 
- ▶ Do NOT ask the patient to push. □ Do NOT apply fundal pressure. (Grade C) □ Do NOT panic !!

Shoulder Dystocia Management

- Suprapubic Pressure





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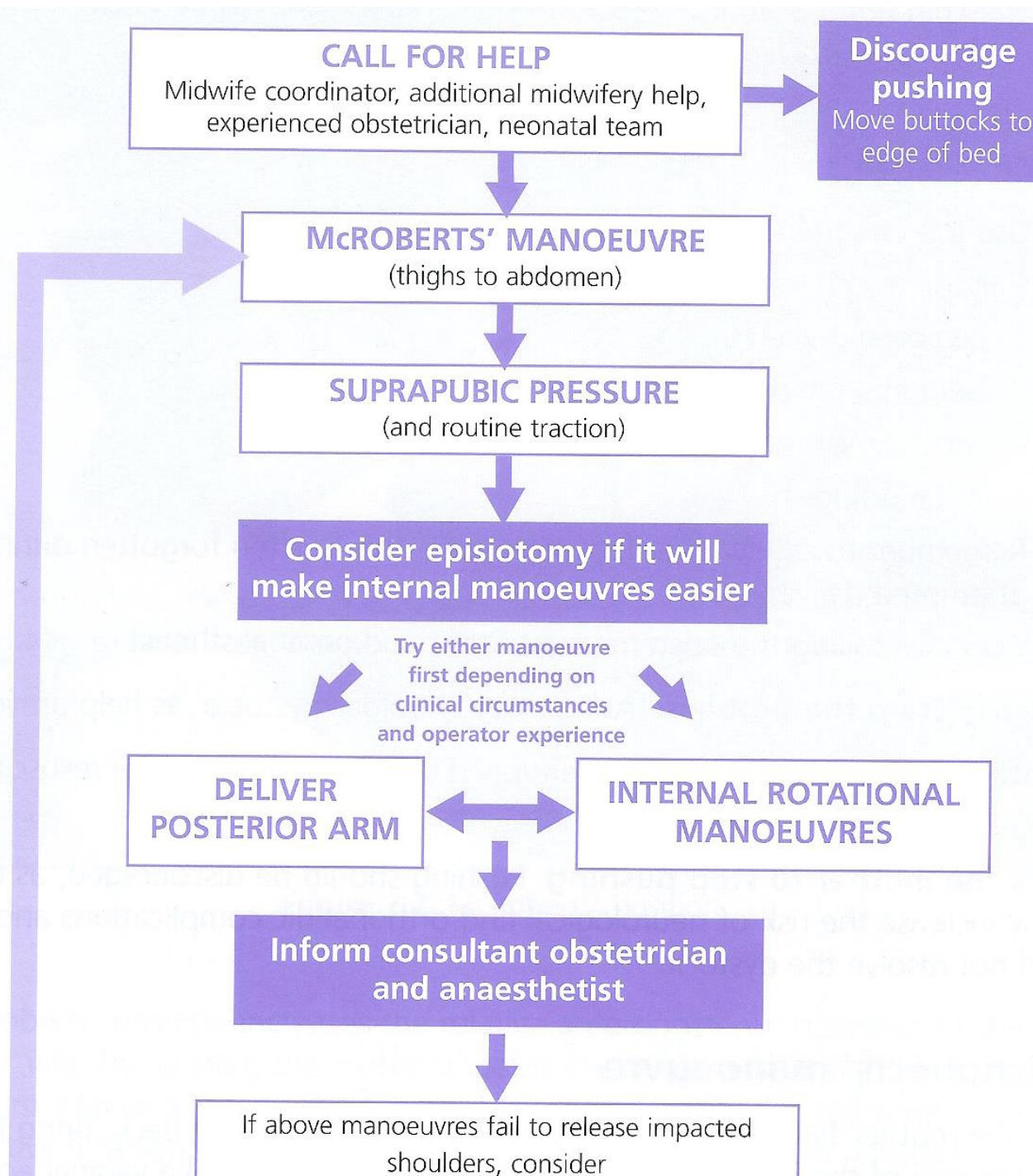
- ▶ The McRoberts maneuver
- ▶ Gherman and associates (2000) analyzed the McRoberts maneuver using xray pelvimetry.
- ▶ They found that the procedure caused straightening of the sacrum relative to the lumbar vertebrae, rotation of the symphysis pubis toward the maternal head, and a decrease in the angle of pelvic inclination.
- ▶ Although this does not increase pelvic dimensions, pelvic rotation cephalad tends to free the impacted anterior shoulder.
- ▶ Gonik and coworkers (1989) tested the McRoberts position objectively with laboratory models and found that the maneuver reduced the forces needed to free the fetal shoulder.



Shoulder dystocia mnemonic

▶ H E L P E R R

- ▶ H: Call for plenty of help
 - ▶ E: Episiotomy.....????
 - ▶ L: Legs in McRoberts
 - ▶ P: Pressure (Suprapubic)
 - ▶ E: Enter (Rotational Manoeuvres) Rubin or Wood's or reverse Wood's
-
- ▶ R: Remove posterior Arm
 - ▶ R: Roll over onto all fours



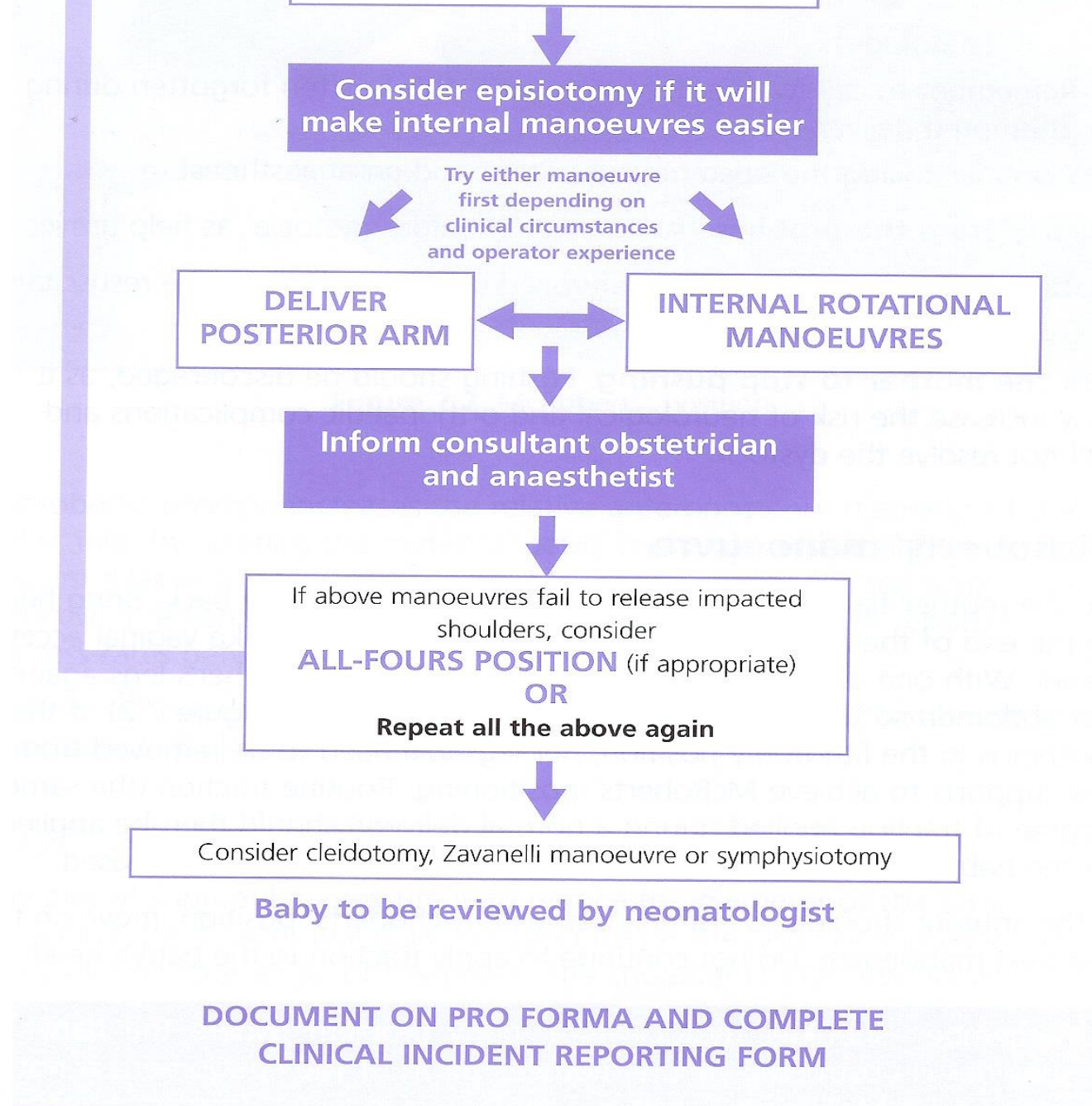


Figure 7.1. Algorithm for the management of shoulder dystocia

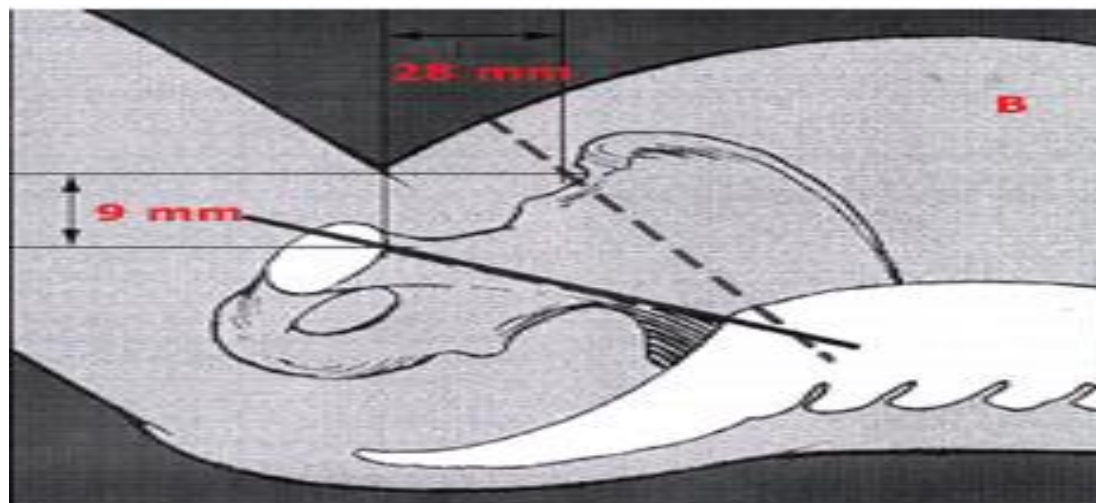
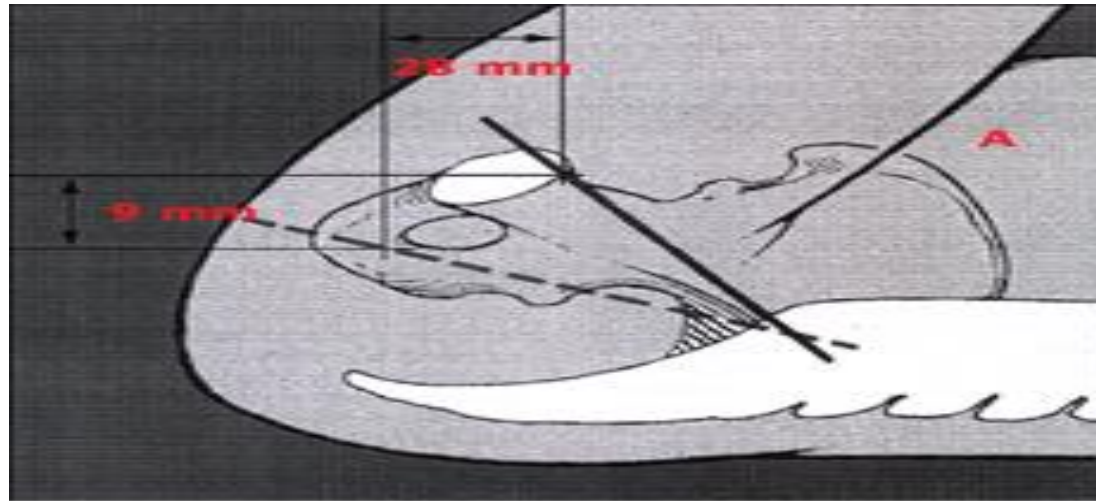
Remember: shoulder dystocia is a 'bony problem' where the baby's shoulder is obstructed by the mother's pelvis. If the entrapment is not released by McRoberts' position, another manoeuvre (not traction) is required to free the shoulder and achieve delivery.

McRoberts maneuver

- ▶ The McRoberts maneuver requires two assistants, each of whom grasps a maternal leg and sharply flexes the thigh back against the abdomen
- ▶ This procedure relieves shoulder dystocia via marked cephalad rotation of the symphysis pubis and subsequent flattening the sacrum, thus removing the sacral promontory as an obstruction site



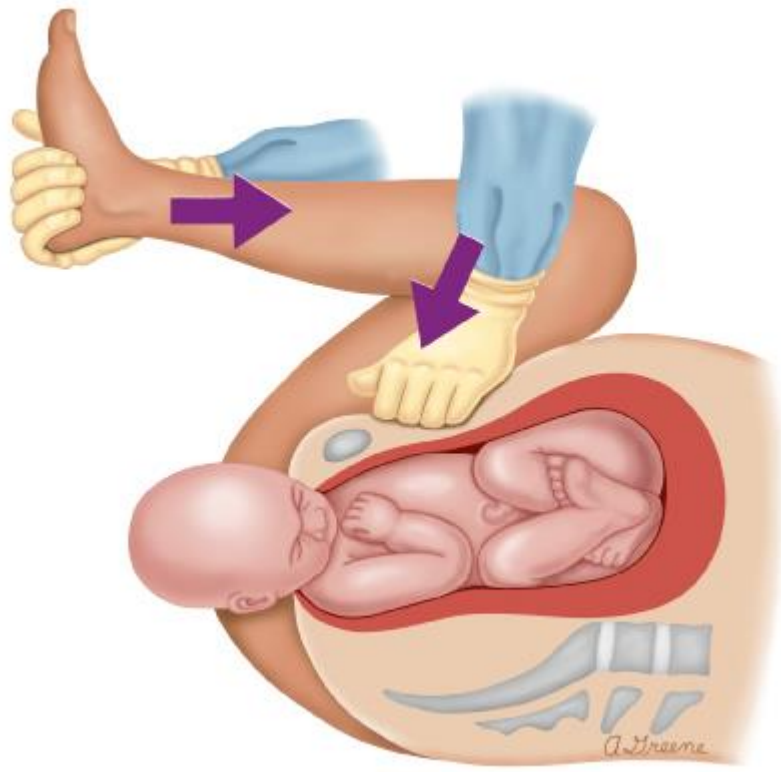
Figure 7.2 McRoberts' position



MANAGEMENT

► Suprapubic pressure

- This maneuver requires use of an assistant to apply pressure suprapubically with the palm or fist, directing the pressure on the anterior shoulder both downward (to below the pubic bone) and laterally (toward the baby's face or sternum) in conjunction with the McRoberts maneuver



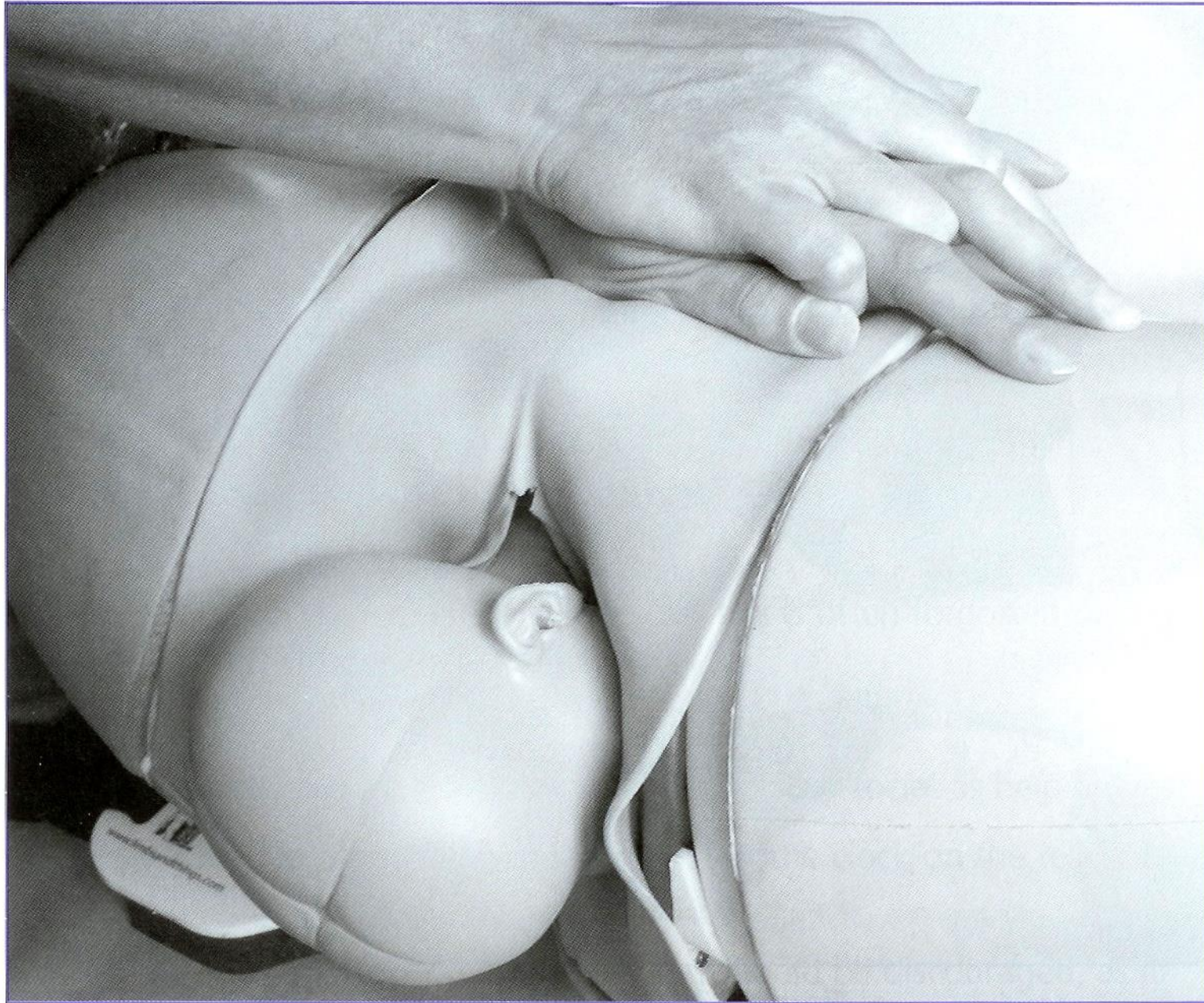


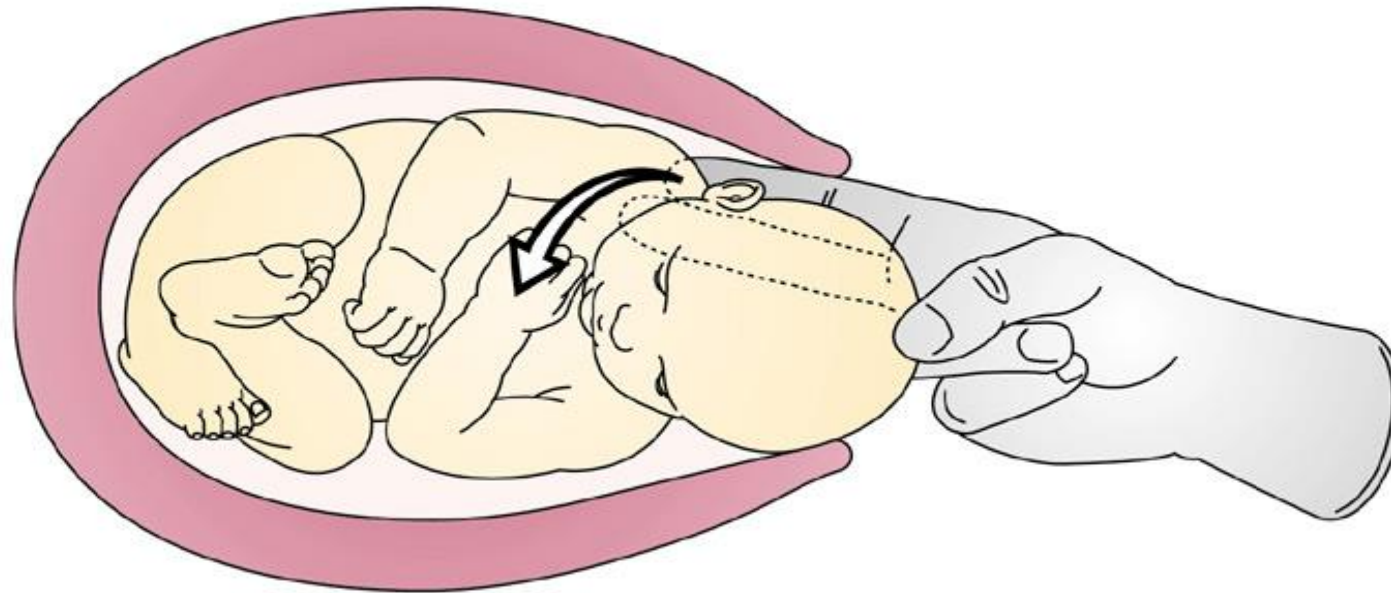
Figure 7.3. Applying suprapubic pressure

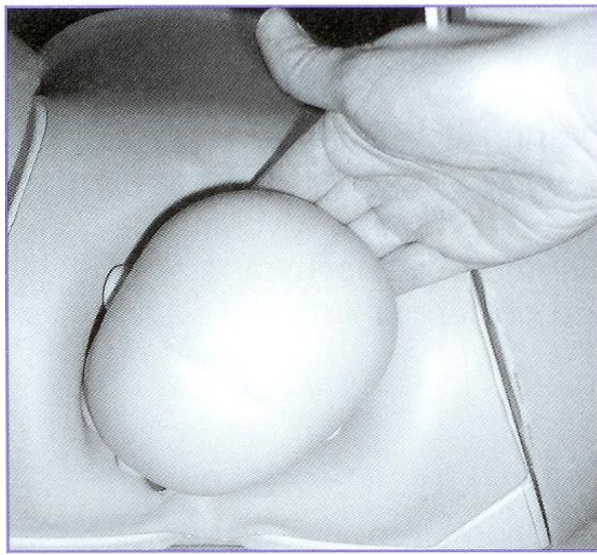
Rubin maneuver

- ▶ The Rubin maneuver causes adduction of the fetal shoulder so that the shoulders are displaced from the anteroposterior diameter of the inlet, thereby allowing the posterior arm to enter the pelvis
- ▶ Under adequate anesthesia, the clinician places one hand in the vagina and on the back surface of the posterior fetal shoulder, and then rotates it anteriorly (towards the fetal face). If the fetal spine is on the maternal left, the operator's right hand is used; the left hand is used if the fetal spine is on the maternal right
- ▶ Alternatively, the Rubin maneuver can be attempted by placing a hand on the back surface of the anterior fetal shoulder, if it is more accessible.

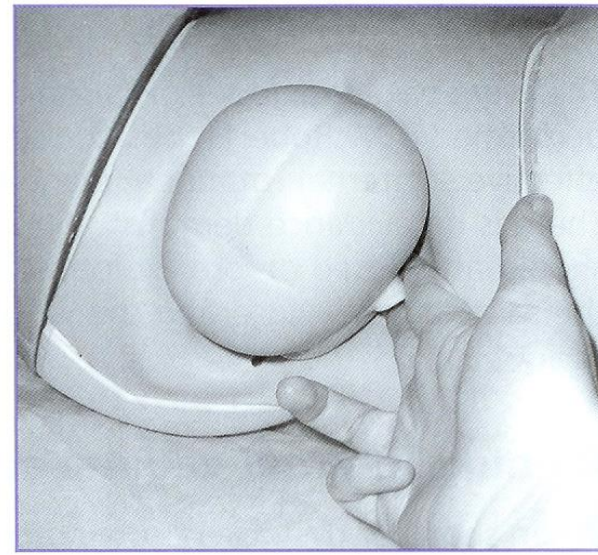
Rubin manoeuvre

1. Rubin manoeuvre (2)

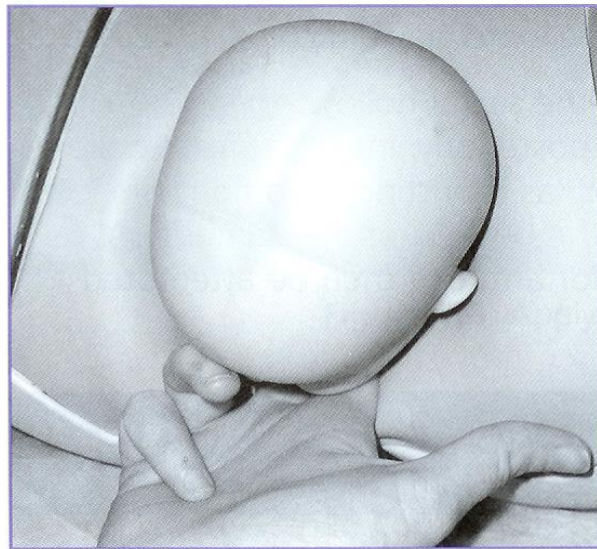




a. Attempting to gain anterior access



b. Attempting to gain lateral access



c. Entering the vagina with two fingers as if performing a routine vaginal examination



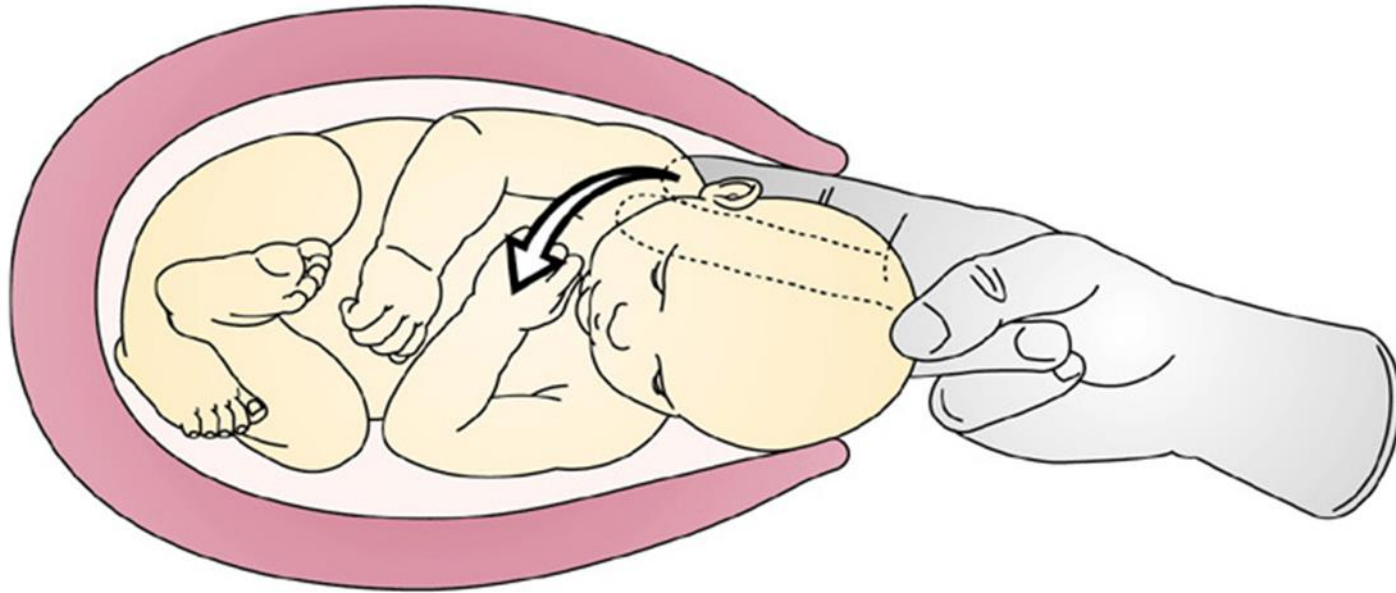
d. Leaving the thumb out of the vagina

Figure 7.4. Incorrect attempts at gaining vaginal access



Figure 7.5. Correct vaginal access

1. Rubin manoeuvre (2)



Woods screw maneuver —

Woods likened shoulder dystocia to the "crossed thread" of a bolt into a nut. Although a bolt cannot be forced into a nut, it goes through easily when turned repeatedly

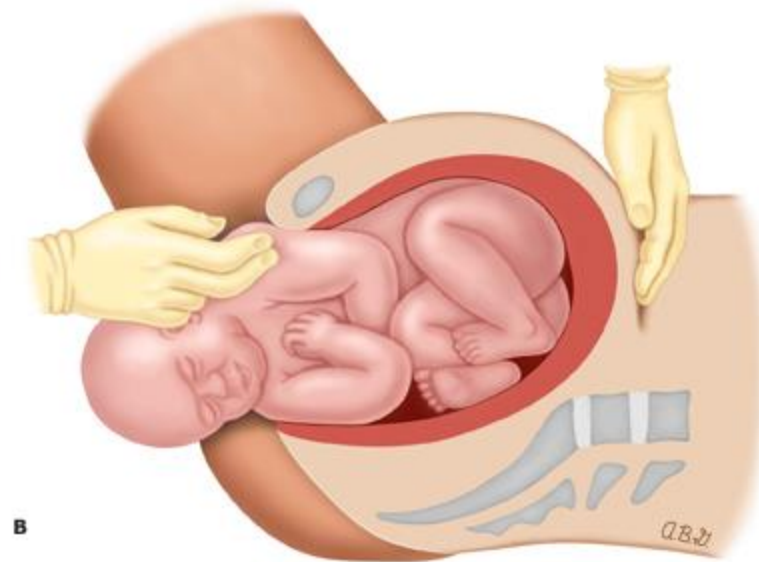
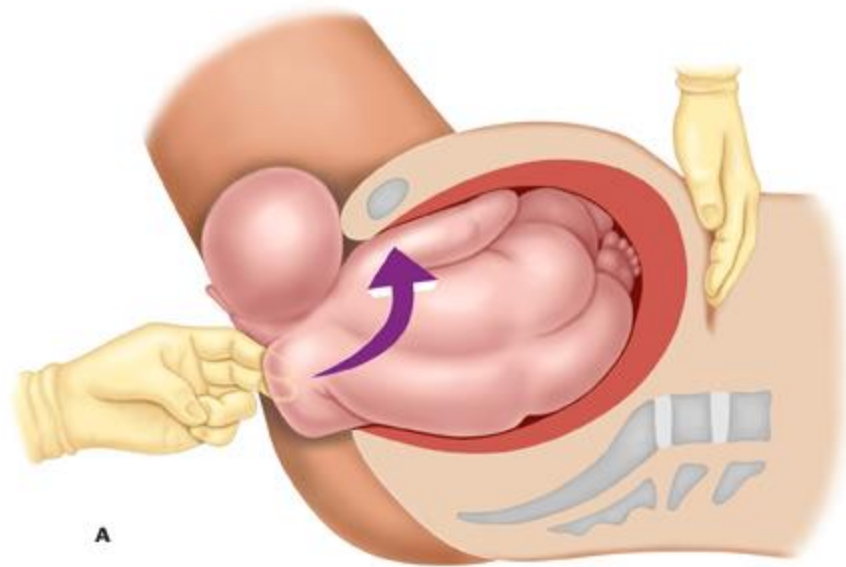
The Woods screw maneuver rotates the fetus by exerting pressure on the anterior, clavicular surface of the posterior shoulder to turn the fetus until the anterior shoulder emerges from behind the maternal symphysis

If the fetal spine is on the maternal left, the operator uses the left hand to push on the clavicle of the posterior arm and rotate the baby 180 degrees in a counterclockwise direction.

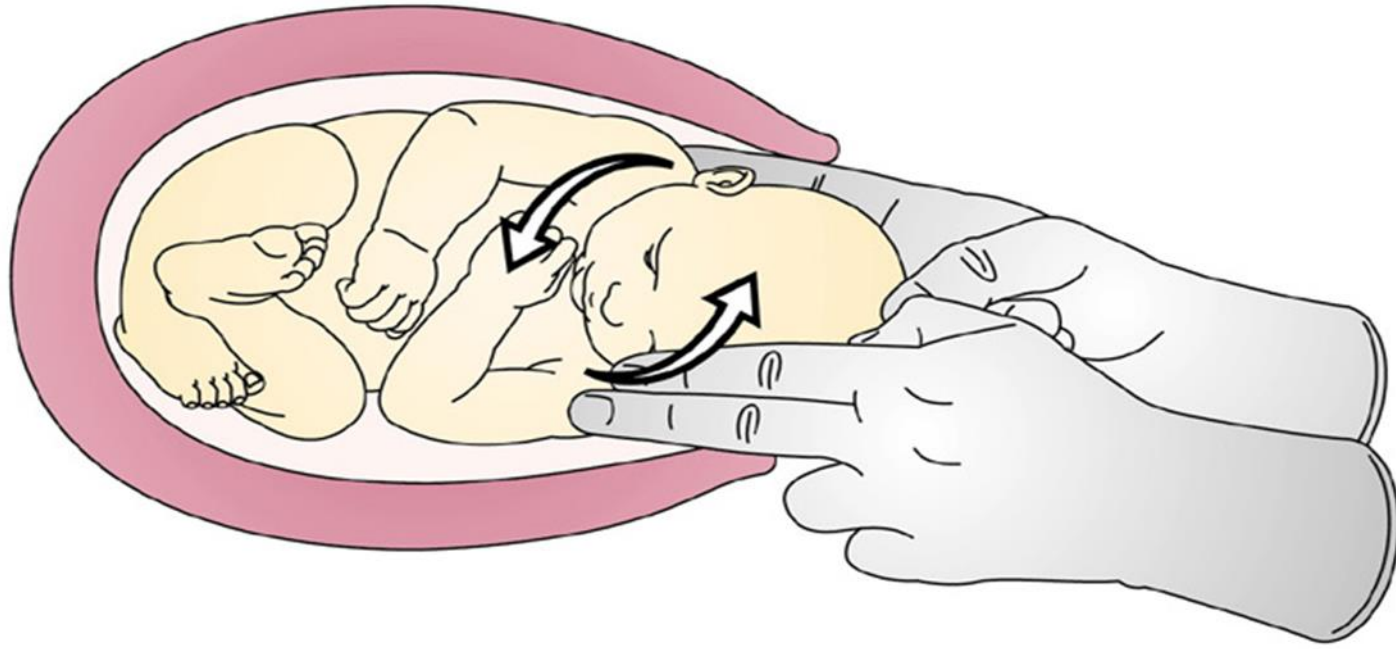
Woods screw maneuver

The fetal head and neck should not be twisted.

the Woods and Rubin maneuvers can be combined so that one shoulder is being pushed from the front and the other shoulder is being pushed from the back in the same clockwise or counterclockwise direction. This increases the rotational force on the shoulders.



2. Wood screw manoeuvre



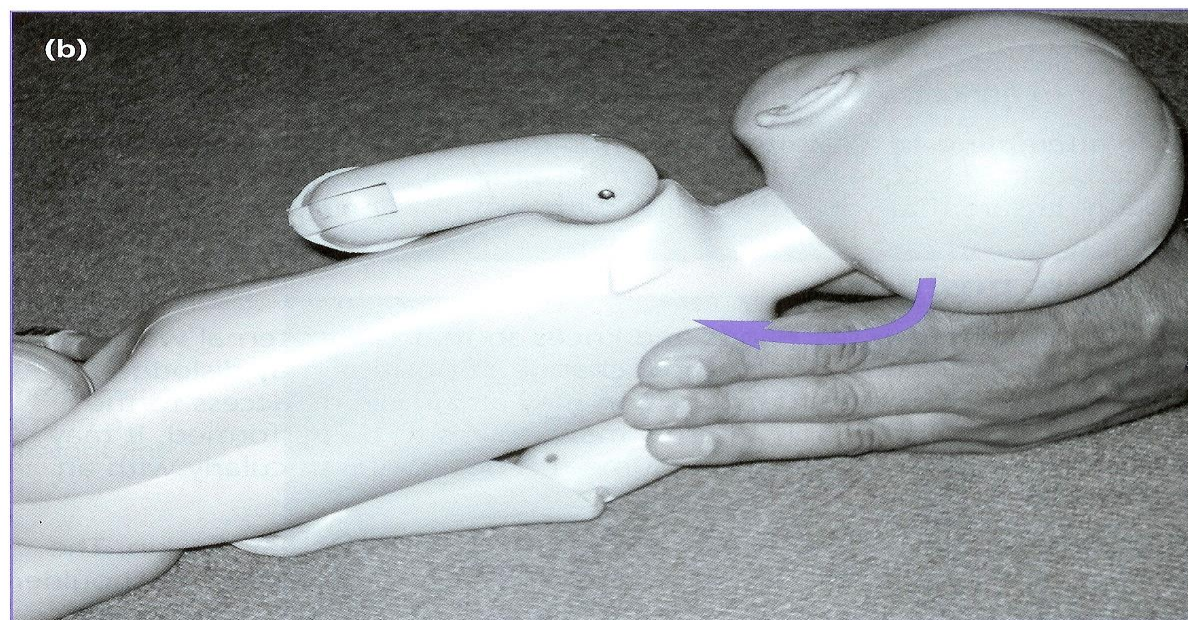
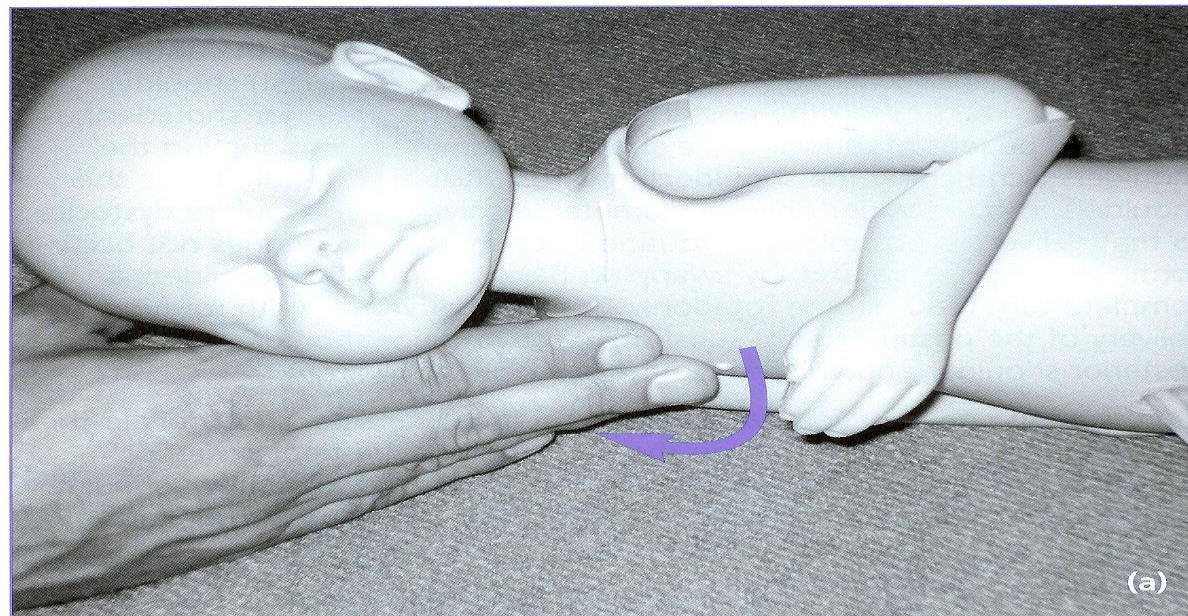
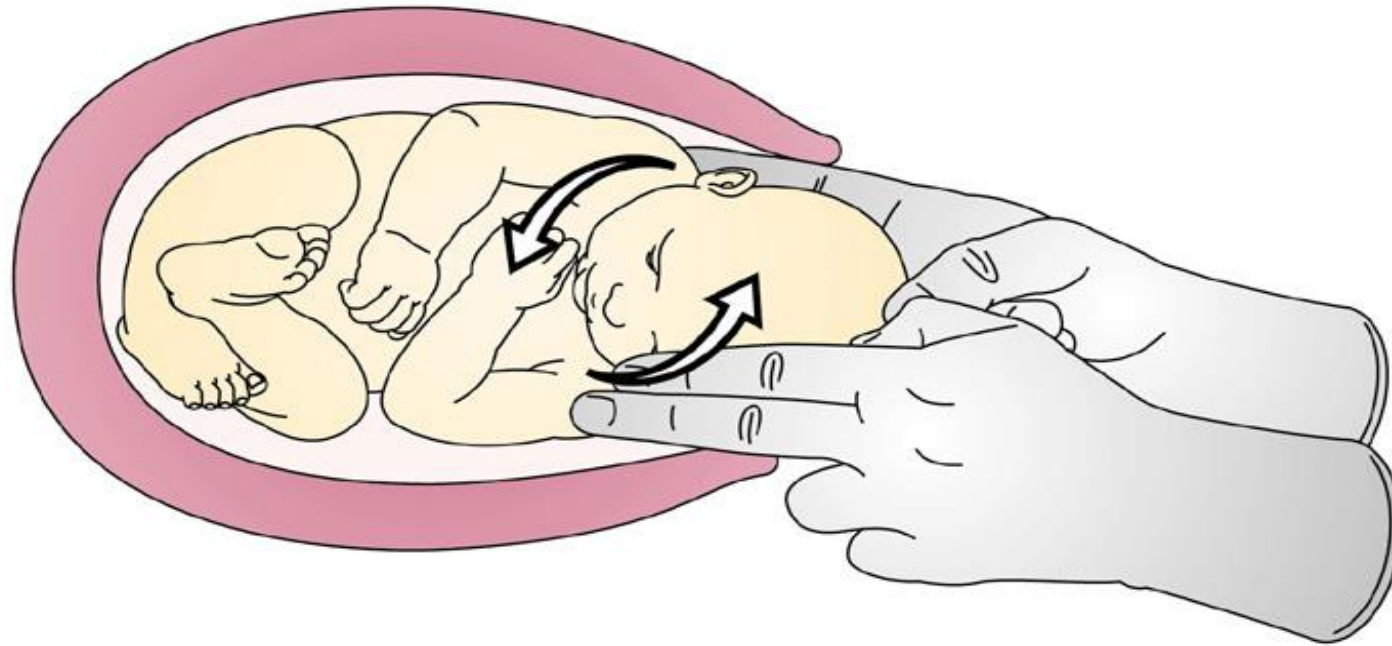


Figure 7.9. Internal rotational manoeuvres: (a) pressure on the anterior aspect of the posterior shoulder to achieve rotation; (b) pressure on posterior aspect of posterior shoulder to achieve rotation

Wood screw manoeuvre

2. Wood screw manoeuvre



Delivery of the posterior arm

- ▶ Delivery of the posterior arm almost always relieves impaction of the anterior shoulder and resolves the dystocia.
- ▶ It is an appropriate second maneuver if the less technically demanding and often successful McRoberts maneuver and suprapubic pressure fail
- ▶ The maneuver, which is best performed under adequate anesthesia, requires introducing a hand into the vagina to locate the posterior shoulder and arm.

Delivery of the posterior arm

- ▶ If the fetal abdomen faces the maternal right, the operator's left hand should be used; if the fetal abdomen faces the maternal left, the right hand is used
- ▶ The posterior arm should be identified and followed to the elbow. If the elbow is flexed, the operator can grasp the forearm and hand and pull out the arm. If it is extended, pressure is applied in the antecubital fossa.

Delivery of the posterior arm

- ▶ This flexes the elbow across the fetal chest and allows the forearm or hand to be grasped. The arm is then pulled out of the vagina, which also delivers the posterior shoulder and reduces the shoulder diameter by 2 to 3 cm as the 13 cm bisacromial diameter becomes a 10 to 11 cm axilloacromial diameter
- ▶ If the anterior shoulder cannot be delivered at this point, the fetus can be rotated and the procedure repeated for the anterior (now posterior) arm.

Figure 7.6.
Location of
the posterior
arm



Figure 7.7.
Grasp the
wrist of the
posterior arm

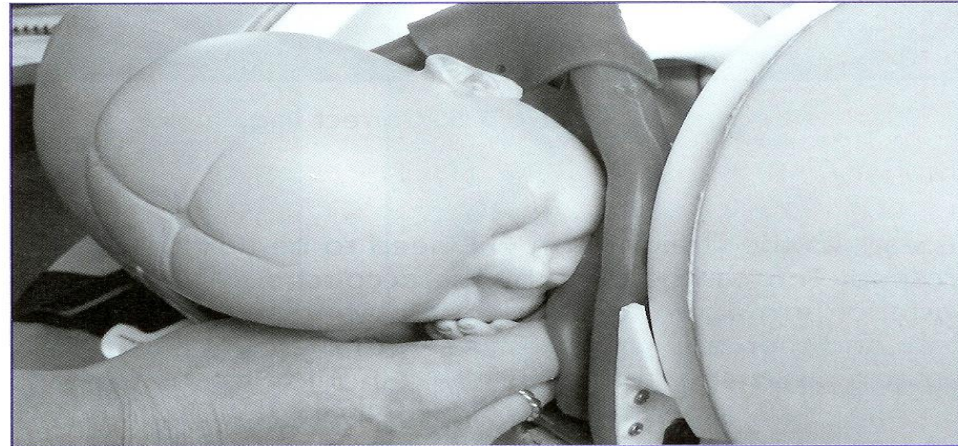
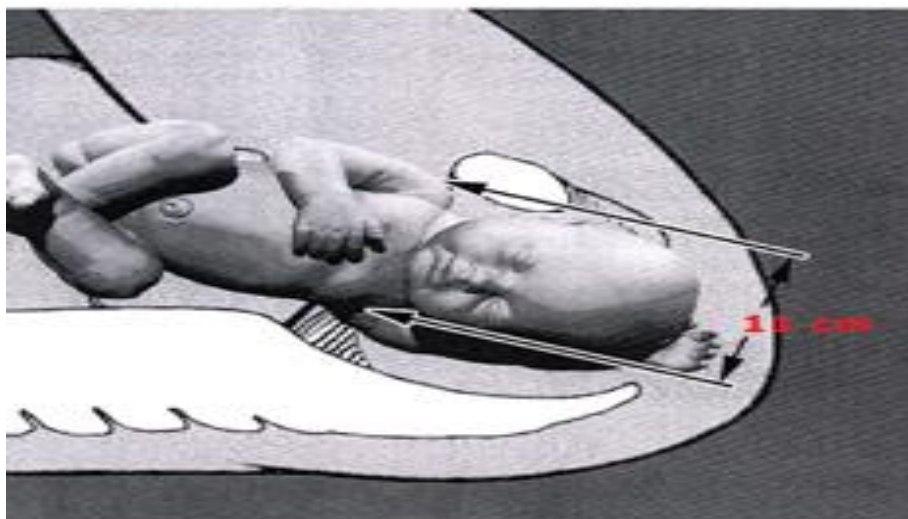
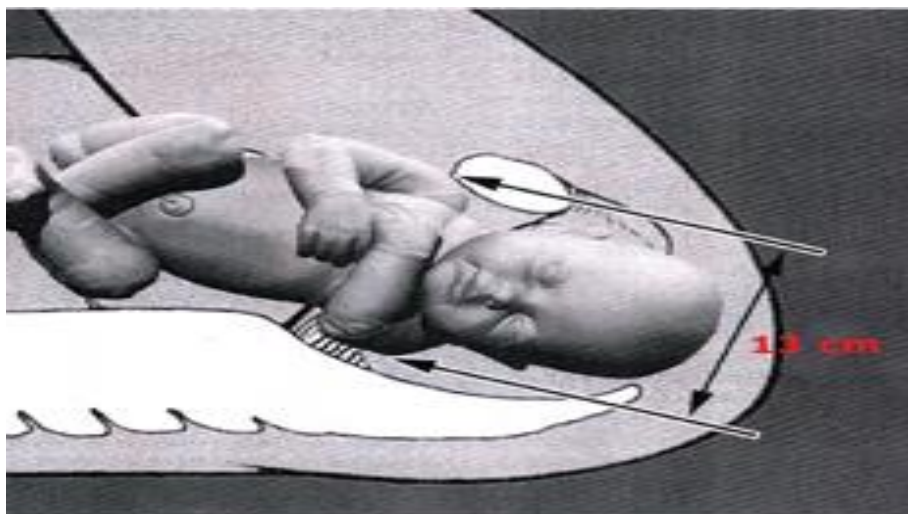


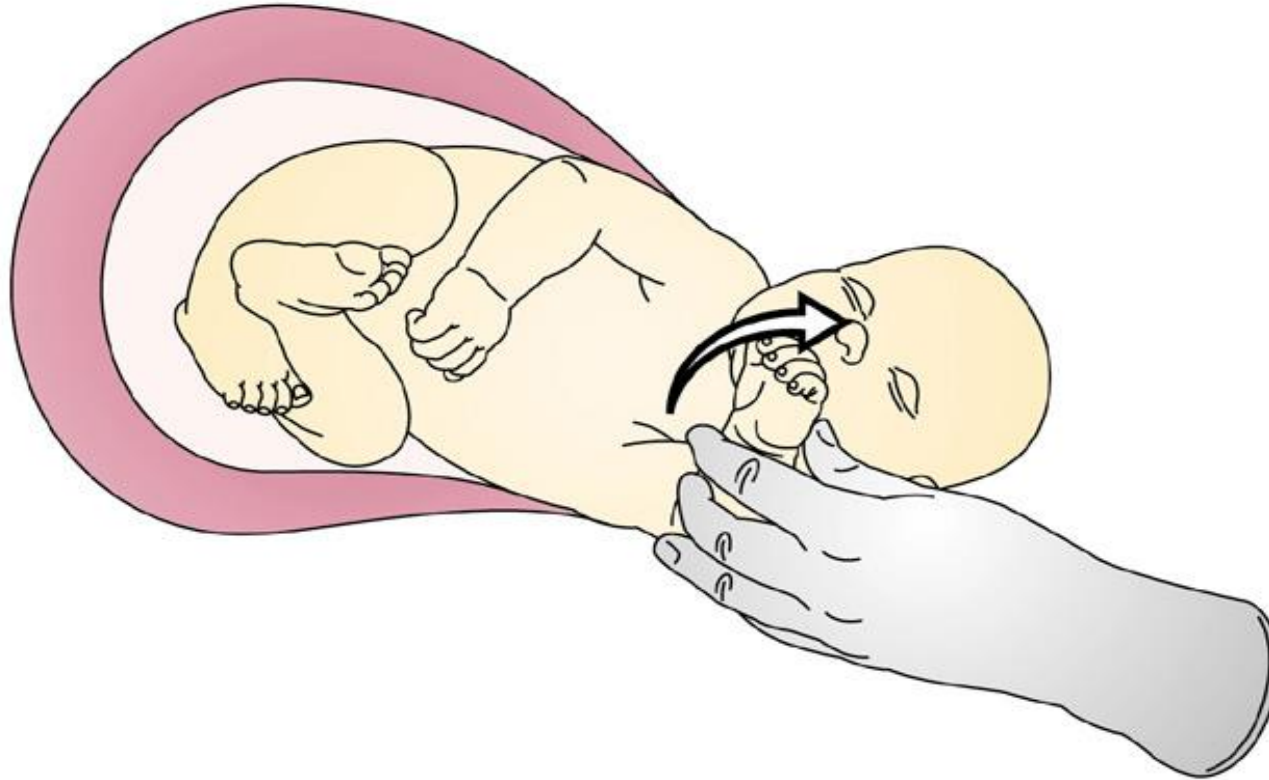
Figure 7.8.
Gentle
traction on
the posterior
arm in a
straight line





Delivery of posterior arm

4. Delivery of the posterior arm



Delivery of the posterior shoulder (Menticoglou maneuver)

- ▶ If it is not possible to reach the elbow or forearm, it may be possible to deliver the posterior shoulder before delivering the arm
- ▶ After an assistant gently flexes the fetal head toward the anterior shoulder, the obstetrician places his/her right middle finger into the fetus' posterior axilla from the left side of the pelvis and the left middle finger into the posterior axilla from the right side of the pelvis. The two middle fingers in the axilla are then used to pull the posterior shoulder downward along the curve of the sacrum. Once the shoulder has been brought down sufficiently, the posterior arm can be grasped and delivered. These maneuvers are associated with an increased risk of fracture, but not brachial plexus injury.



All-fours maneuver —

- ▶ This maneuver, first introduced by Ina May Gaskin, CPM, places the mother on her hands and knees but not in the knee-chest position. An alternative is a racing start or "sprinter" position. The infant is delivered from this position by gentle downward traction on the posterior shoulder (the shoulder against the maternal sacrum) or upward traction on the anterior shoulder (the shoulder against the maternal symphysis). This may be a good choice for the initial management of the mother in a birthing bed with only local or pudendal anesthesia.

- ▶ Clavicular fracture – The clavicle can be intentionally fractured to shorten the biacromial diameter. This is done by pulling the anterior clavicle outward. However, intentional clavicular fracture can be difficult to perform and can lead to injury of underlying vascular and pulmonary structures.

- ▶ Zavanelli maneuver — This procedure, also known as the Gunn-Zavanelli-O'Leary maneuver, requires replacement of the fetal head in the pelvis, followed by cesarean delivery

Box 7.2. Perinatal morbidity and mortality

Perinatal

Stillbirth

Hypoxia

Brachial plexus injury

Fractures (humeral and clavicular)

Maternal

Postpartum haemorrhage

Third- and fourth-degree tears

Uterine rupture

Psychological distress

Shoulder dystocia is an unpredictable obstetric emergency

Problem	Clearly state the problem
Paediatrician	Immediately call the paediatrician/neonatologist
Pressure	Suprapubic (NOT FUNDAL) pressure
Posterior	Vaginal access gained posteriorly
Pringle®	Get the whole hand in
Pull	Don't keep pulling if a manoeuvre has not worked
Pro forma	Documentation should be clear and concise
Parents	Communication is essential

SHOULDER DYSTOCIA DOCUMENTATION

Date

Time

Person completing form

Signature

Mother's name

Date of birth

Hospital number

Consultant

Called for help at:		Emergency call via switchboard at:		
Staff present at delivery of head:		Additional staff attending		
Name	Grade	Name	Grade	Time arrived

Procedures used to assist delivery	By whom	Time	Order	Details	Reason if not performed
McRoberts' position					
Suprapubic pressure				From maternal left / right	
Episiotomy				Enough access / tear present / already performed	
Delivery of posterior arm					
Internal rotational manoeuvre					
Description of rotation					
Description of traction	Routine	Other:		Reason if not routine:	
Other manoeuvres used					

				Head to body	
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Procedures used to assist delivery	By whom	Time	Order	Details	Reason if not performed
McRoberts' position					
Suprapubic pressure				From maternal left / right	
Episiotomy				Enough access / tear present / already performed	
Delivery of posterior arm					
Internal rotational manoeuvre					
Description of rotation					
Description of traction	Routine	Other:		Reason if not routine:	
Other manoeuvres used					

Time of delivery of head			Time of delivery of baby			Head-to-body delivery interval			
Fetal position during dystocia		Head facing maternal left				Head facing maternal right			
Birth weight	kg	Apgar score	1 minute:		5 minutes:		10 minutes:		
Cord gases		Art pH :		Art BE:		Venous pH :		Venous BE :	
Explanation to parents		Yes		No		Incident form completed		Yes	No

Figure 7.10. An example of a shoulder dystocia documentation pro forma

Conclusion

- ▶ Shoulder dystocia is an acute obstetric emergency
- ▶ Cannot predict when and in whom this can occur
- ▶ Risk factors can be identified
- ▶ Staff need to be ready and aware through regular education and training sessions and drills
- ▶ Incident Reporting forms (IR form)

A photograph of a single pink rose in a white, textured ceramic vase. The vase is decorated with a light pink ribbon tied in a bow around its neck. The rose has several green leaves and is in full bloom. The vase sits on a dark, reflective surface. To the left of the vase is a stack of three cream-colored envelopes. The background is softly blurred, showing a window with light pink curtains and a framed picture on the wall. The overall mood is warm and appreciative.

Thank you