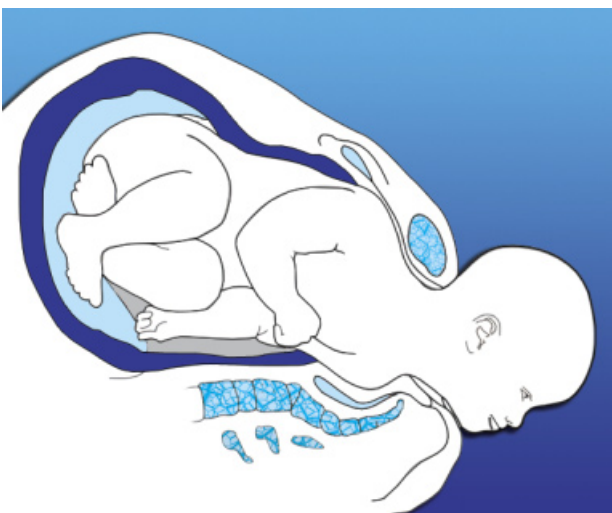


Obstetric emergencies

Shoulder Dystocia

Definition:

Shoulder dystocia is an acute obstetric emergency, which requires immediate, skilled intervention to avoid serious fetal morbidity or mortality. It occurs when the anterior shoulder becomes impacted against the symphysis pubis or the posterior shoulder becomes impacted against the sacral promontory. Anterior impaction tends to be more common, but infrequently, both anterior and posterior impaction can occur. This results in a bony dystocia and any traction that is applied to the baby will only serve to further impact the baby's shoulder(s), impeding efforts to accomplish delivery (Arulkumaran *et al* 2003, Coates 2003, Tiran 2003, RCOG 2005).



Incidence:

True shoulder dystocia (where obstetric manoeuvres are required to facilitate delivery of the shoulders, rather than delivery of the body just being delayed) occurs in approximately 1:200 births (Arulkumaran *et al* 2003).

There can be high perinatal morbidity and mortality associated with the complication, even when it is managed appropriately (Gherman *et al* 1998). Consequently, the Royal College of Obstetricians and Gynaecologists (RCOG) and the Royal College of Midwives (RCM) jointly recommend annual obstetric skills drills, which include training in the management of shoulder dystocia (RCOG, RCM 1999, RCOG 2005).

Causes:

The incidence of shoulder dystocia has reportedly increased over the past few decades; the reasons for this being linked to increased fetal size (macrosomia) along with greater attention to documentation of such occurrences (Leveno *et al* 2007). While increased birth weight is the main cause of shoulder compaction, it is not uncommon in babies of birth weights < 4000g (Arulkumaran *et al* 2003, Leveno *et al* 2007). While it may be possible to be alert to, or anticipate, the possibility of shoulder dystocia where a vaginal birth is planned, management by caesarean section might be considered appropriate in some women (Leveno *et al* 2007). However, diagnosis can only be made at the point where impaction occurs and then urgent and skilled management is required to reduce the likelihood of negative outcomes (Leveno *et al* 2007).

Risk factors linked with shoulder dystocia:

Antenatal

- Post-term pregnancy
- High parity
- Previous history of shoulder dystocia
- Previous large babies

- Maternal obesity (weight > 90kgs at delivery)
- Maternal age over 35 years
- Maternal diabetes and gestational diabetes
- Excessive weight gain in pregnancy
- Clinically large baby/symphysis-fundal height measurement larger than dates
- Fetal growth > 90th centile on ultrasound scan (fetal macrosomia) (Arulkumaran *et al* 2003, Coates 2003, CEMACH 2006).

While these factors have been associated with an increased risk of shoulder dystocia, the poor predictive value of antenatal risk factors has also been identified (Gherman 2002).

Intrapartum

- Birthing in a semi-recumbent position on a bed can restrict movement of the sacrum and coccyx (McGeown 2001)
- Prolonged labour, notably protracted late first stage (usually between 7–10cm) with a cervix that is loosely applied to the presenting part
- Oxytocin augmentation
- Prolonged second stage
- Mid-pelvic instrumental delivery

Warning signs that are associated with impaction:

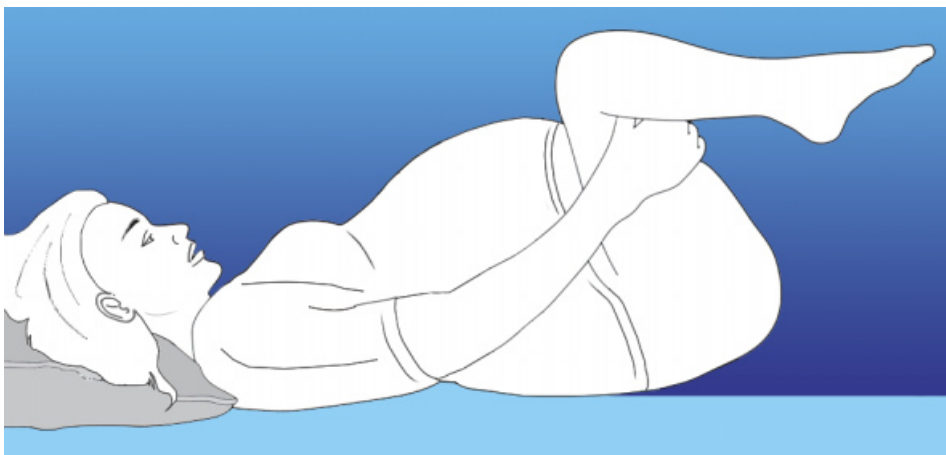
- The fetal head may have advanced slowly
- Difficulty in sweeping the face and chin over the perineum
- Once delivered, the head may give the appearance of trying to return into the vagina (reverse traction or 'Turtle neck' sign)
- Once head delivered, baby's cheeks appear 'rosy and fat', suggesting a large baby (common with maternal diabetes)
- Failure of restitution of the fetal head
- Failure of the presenting shoulder to descend

- Normal birth manoeuvres fail to accomplish delivery of the baby (Arulkumaran *et al* 2003, Coates 2003, RCOG 2005).

Management:

[See Table 1 - The HELPERR mnemonic]

- Call for urgent medical assistance – obstetrician, obstetric anaesthetist, neonatologist, senior midwife.
- Keep calm. Try to explain and reassure the woman and her partner as much as possible, to ensure full cooperation with the manoeuvres that may be needed to deliver.
- Fundal pressure should not be applied, as it is associated with a high incidence of neonatal complications and can result in uterine rupture (RCOG 2005).
- Place the woman in the *McRobert's* position, so that she lies flat with her legs slightly abducted and hyperflexed at 45° to her abdomen– this position will rotate the angle of the symphysis pubis superiorly, helps flatten the sacral promontory, increase the diameter of the pelvic outlet and release pressure on the anterior shoulder. The *McRobert's manoeuvre* is associated with the lowest level of morbidity (Coates 2003) and has a success rate over 40%, which increases to over 50% when suprapubic pressure is also applied (Baxley 2003).
- Apply firm, directed, supra-pubic pressure to the side of the fetal back, pushing towards the fetal chest. This reduces the bi-sacromial diameter, and can help to adduct the shoulders, pushing the anterior shoulder away from the symphysis pubis.
- Evaluate the need for an episiotomy, which can assist manipulations and gain access to the baby without tearing the perineum and vaginal walls (RCOG 2005, Leveno *et al* 2007).
- Apply gentle traction on the fetal head towards the longitudinal axis of the fetus, not strong downward traction which can damage the cervical spinal cord.
- The *Rubin's manoeuvre* can be used, which requires the practitioner to identify the posterior shoulder on vaginal examination. This is then pushed in the direction of the fetal chest,



Where the role of the midwife is to assist those undertaking the above manoeuvres, they should also, where possible, maintain an accurate and detailed record of those in attendance, the manoeuvre(s) used, the time taken and force of traction applied, and the outcome(s) of each manoeuvre attempted. The RCOG have suggested a proforma which can assist

thereby rotating the anterior shoulder away from the symphysis pubis. This manoeuvre reduces the 12cm bi-sacromial diameter.

- The *Wood's (screw) manoeuvre* can be applied to rotate the baby's body so that the posterior shoulder moves anteriorly. This requires the practitioner to insert their hand into the woman's vagina and identify the fetal chest. By applying pressure onto the posterior fetal shoulder, rotation is achieved. The *Wood's manoeuvre* will abduct the shoulders, but enables them to rotate into a more favourable diameter for delivery. Delivery on all-fours may make delivery of an impacted shoulder easier (Arulkumaran *et al* 2003).
- Delivery of the posterior arm and shoulder can be attempted by inserting the hand into the small space created by the hollow of the sacrum. This allows the practitioner to flex the posterior arm at the elbow and then sweep the forearm over the baby's chest. Once the posterior arm has been brought down, space becomes available and the anterior shoulder slips behind the symphysis pubis enabling delivery.
- Should all of these manoeuvres fail to accomplish delivery, the obstetrician may consider using the *Zavanelli manoeuvre* as an all-out attempt to deliver a live baby. This manoeuvre requires the reversal of the mechanisms of delivery so far and reinsertion of the fetal head into the vagina. Prompt delivery by caesarean section is then required; however this manoeuvre has a variable success rate (Arulkumaran *et al* 2003, Coates 2003, Tiran 2003).

with this (Coates 2003, RCOG 2005). The RCOG suggest recording the following details:

- Time of delivery of the head
- Direction of head after restitution
- Time of delivery of the body
- Condition of infant (APGAR, paired cord blood pH recordings)
- What time attending staff arrived, including names and designation

Maternal complications:

- Postpartum haemorrhage (approximately two-thirds will have a blood loss >1000 ml) (Benedetti & Gabbe 1978)
- Soft tissue trauma
- Third or fourth degree perineal tears (extension of episiotomy)

Fetal and neonatal complications:

- Fetal hypoxia or neonatal asphyxia – potential for neurological damage
- Brachial plexus injury – Erb's Palsy/Klumpke's paralysis (Tiran 2003)
- Fractures to the clavicle or humerus
- Intrapartum fetal death (Coates 2003).

Post birth:

After the birth, the procedures/manoeuvres used and the delivery outcome should be explained to both parents, allowing them time to discuss the birth. Where the likely cause for the dystocia has been determined, this should also be explained to the parents along with any potential risk of its re-occurrence in future pregnancies (Leveno *et al* 2007). Should there be complications, such as nerve damage or fetal hypoxia, additional follow-up counselling and support to the couple should be provided, especially regarding future pregnancies and the management of the birth (Arulkumaran *et al* 2003). Where relevant, there should be appropriate referral to specialist practitioners in the multidisciplinary team, including obstetric, neonatology and physiotherapy services (Department of Health 2004), as well as specialist family and child support groups, eg The Erb's Palsy Group (www.erbspalsygroup.co.uk).

Implications for practice:

The Confidential Enquiry into Stillbirths and Deaths in Infancy (CESDI) 5th annual report recommended '*a high level of awareness and training for all birth attendants*' (Maternal and Child Health Research Consortium 1998). As previously mentioned, the Royal College of Obstetricians and Gynaecologists (RCOG) and the Royal College of Midwives (RCM) jointly recommend annual intrapartum skill drills, which includes shoulder dystocia (RCOG, RCM 1999). Table 1 shows a mnemonic for shoulder dystocia that is commonly used in such training, which may assist the midwife in managing this emergency situation.

(Table 1) The HELPERR mnemonic

H	Call for help
E	Evaluate for episiotomy
L	Legs (the McRobert's manoeuvre)
P	Suprapubic pressure
E	Enter manoeuvres (internal rotation)
R	Remove the posterior arm
R	Roll the woman/rotate onto 'all fours'

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