

Guideline for the Management of Shoulder Dystocia

INTRODUCTION

Shoulder dystocia is defined as a cephalic delivery that requires additional obstetric manoeuvres to release the shoulders after gentle downward traction has failed.¹ Shoulder dystocia occurs when either the anterior or, **less commonly, the posterior fetal shoulder impacts on the maternal symphysis or sacral promontory.**

It is a life threatening emergency for the baby and must be recognised and treated very quickly to avoid significant morbidity and mortality. Risk factors have been identified but their predictive value is relatively low. There is a wide variation in the reported incidence of shoulder dystocia. Studies involving the largest number of vaginal deliveries (34 800 to 267 228) report incidences between 0.58% and 0.70 %.(2,3,4,5,6,7).

Consequently all birth attendants must be prepared for the possibility of shoulder dystocia in all deliveries.

Although it is accepted that shoulder dystocia can be prevented by caesarean section; it has been estimated that an additional 2345 caesarean births would be required to prevent one permanent injury from shoulder dystocia.(8)

The Royal College of Obstetrics and Gynaecology (RCOG) Green Top Guideline 42 recognises that multi-professional training regarding management of Shoulder dystocia with manoeuvres demonstrated and practiced on a high fidelity mannequin have been associated with improvements in clinical management and neonatal outcomes, and with a reduction in litigation. Teaching used the RCOG algorithm rather than staff being taught mnemonics (e.g. HELPERR) or eponyms (e.g. Rubin's and Woods' screw) which have been removed from this guideline as the names can be confusing. (1)

Risk Factors

Risk factors for shoulder dystocia	
Antenatal	Intrapartum
Fetal macrosomia	Prolonged first stage
Maternal obesity	Prolonged second stage
Diabetes	Assisted vaginal delivery
Increased maternal age	
Previous shoulder dystocia	
Post-term pregnancy	

These risk factors are not independent and have low positive predictive values either singly or in combination.

Infant weight	Rate of shoulder dystocia
<4000 g	0.3%.
4000–4500 g	4.7%
>4500 g	9.4%

Table adapted from [Sandmire \(1988\)](#)

Maternal Complications

- Haemorrhage secondary to uterine atony 11%.
- Soft tissue injury including third/fourth degree tears 3.8%.
- Uterine rupture
- Symphysis separation

Fetal Complications

- Fetal hypoxia and stillbirth.
- Fractures of the humerus and clavicle
- Brachial plexus injuries

Following delivery of the fetal head, the umbilical cord pH drops by 0.04 units per minute. Therefore, within 7 minutes the pH will have dropped by 0.28. Resuscitation becomes more difficult with increasing acidosis, especially once the pH drops below 7. As a result, delay in delivery may result in asphyxia and, if the interval between delivery of head and trunk is prolonged, permanent neurological deficit may occur. Patterson et al reported shoulder dystocia as being responsible for 7.5% of all term infants who suffered neonatal seizures in the first 72 hours of life.

Delay between delivery of the fetal head and body can lead to cord compression and fetal hypoxia. Whilst a healthy fetus will initially compensate, as the head to body delivery interval increases, the risk of severe acidosis and development of hypoxic ischaemic encephalopathy increases. If the fetus is in a good condition before birth, the risk of significant hypoxic injury is small when the head to body delivery interval is less than 5 minutes (9, 10).

The most important neonatal complication is brachial plexus injury. It has been estimated that 1 in 2300 births in the UK are affected by a permanent brachial plexus injury (11).

Erb's palsy is the most common form of brachial plexus injury; the infant is unable to abduct or externally rotate the arm, or supinate the forearm, resulting in a classic

'waiter's tip' appearance. Fortunately, up to 90% of Erb's palsies recover by 12 months of age. (12)

Klumpke's palsy, a lower brachial plexus injury, is less common. This results in a limp hand and the infant being unable to move the fingers. The recovery rate of this injury is much lower, with around 40% resolving by 12 months. (12)

Neonatal BPI is the most common cause for litigation related to shoulder dystocia and the third most litigated obstetric-related complication in the UK. (13)

The NHSLA (NHS Litigation Authority) has reported that 46% of the injuries were associated with substandard care.²¹ However, they also emphasised that not all injuries are due to excess traction by healthcare professionals, and there is a significant body of evidence suggesting that maternal propulsive force may contribute to some of these injuries.(14,15)

MANAGEMENT

Maternity personnel should be familiar with the various steps in the protocol and have attended the in-house educational session with the opportunity to practice the manoeuvres on the SCOTTIE and PROMPT mannequins.

Call for help – 2222 Obstetric and neonatal emergency.

Activate emergency call for additional midwives, obstetrician, senior neonatologist, neonatal midwife/nurse and anaesthetist. The primary clinician managing the delivery should direct activities of those in the room and an individual should be instructed to keep time and record events. Maternal pushing should be discouraged, as this may lead to further impaction of the shoulders, thereby exacerbating the situation.

McRobert's Manoeuvre

Lie woman flat and move buttocks to the end of the bed. Support her legs in a hyperflexed position – thighs to the abdomen.

This straightens the lumbosacral lordosis and appears to flatten the sacral promontory. This increases the antero-posterior diameter of the inlet. It simultaneously flexes the fetal spine and may push the posterior shoulder into the sacral hollow.

SupraPubic Pressure

Continuous SupraPubic pressure should be applied by an, with the hand in a CPR like grip against the posterior aspect of the anterior shoulder aiming to rotate the baby into an oblique position and dislodge the anterior shoulder from behind the symphysis pubis. The manoeuvre also effectively reduces the bisacromial diameter of the shoulders. At the same time the delivering clinician should continue with gentle traction. If continuous suprapubic pressure fails, a rocking motion can be attempted.

Apply correctly and from side of fetal back

Routine AXIAL Traction

Evaluate for episiotomy

Episiotomy can be considered throughout the management of shoulder dystocia and improves access to the pelvis facilitating internal manoeuvres. An episiotomy should therefore be considered but it is not mandatory. **Confirm you are able to gain access of your whole hand into the sacral hollow.**

Delivery of Posterior Arm - Pringles manoeuvre

Introduce whole hand into sacral hollow. Apply pressure to the anterior aspect (front) of baby's posterior shoulder and simultaneously ask assistant to apply suprapubic pressure from the side of bay's back; rotate shoulders into an oblique diameter.

If unable to reach anterior (front) of posterior shoulder, try applying pressure on either
-the posterior aspect (back) of the posterior shoulder

Or

The anterior aspect of the anterior shoulder

Simultaneous suprapubic pressure from the assistant can be used with both of the above

McRobert's manoeuvre can be continued throughout and may help facilitate success.

Introduce whole hand into sacral hollow and feel for baby's posterior arm. If baby's arms are flexed across chest, grasp wrist of posterior arm and deliver arm in a straight line (as if putting hands up in a class)

If baby's posterior arm is straight, flex at the elbow, then grasp wrist and deliver arm in a straight line (as if putting hands up in a class)

Roll over

Roll the patient over to her hands and knees towards the fetal chest. This manoeuvre requires a mobile compliant woman and may be commonly used by midwives as the first step in the management of shoulder dystocia. In this position the posterior shoulder slips below the sacral promontory allowing delivery. If this does not occur then the internal manoeuvres can be carried out with the woman in this position.



Demonstrating McRoberts' position



Supra-pubic pressure



Teaching hand position for internal manoeuvres (Pringles manoeuvre)



Grasping the wrist of baby's posterior arm to facilitate release of the shoulders

Inappropriate actions

Excessive force/ traction applied to fetal head
Fundal pressure.

Additional Obstetric Manoeuvres

If the above fails, consider trying them again or:

- Cleidotomy (Fracture clavicle)
- Zavanelli manoeuvre – cephalic replacement and caesarean section
- Symphiotomy

Once the baby is delivered, the clinician needs to determine the extent of any maternal trauma and repair it. Postpartum haemorrhage should be anticipated.

Documentation

Persons present

Complete shoulder dystocia documentation proforma

Include:

- Manoeuvres used including sequence and timing
- Time of delivery of head
- Time of delivery of body
- Identification of baby's anterior shoulder in relation to mother prior to birth - this is particularly important for legal cases because damage to a brachial plexus of a posterior shoulder is considered unlikely to be due to action by a healthcare professional
- Staff in attendance
- APGAR score and paired umbilical cord gas sample results.
- The mnemonic HELPERR can be used to facilitate recall of each manoeuvre, however a checklist is recommended in every room. The order in which each or all of the manoeuvres is attempted can be revised. It is essential however to proceed logically and to allow an adequate time on each procedure to facilitate delivery

A full explanation needs to be given to the parents and a datix submitted.

Shoulder Dystocia: Clinical Checklist

		Time	✓
Call for Help	Activate emergency bell		
	Ask for senior obstetrician, senior midwife and neonatologist		
McRoberts' position	Lie woman flat and move buttocks to end of bed		
	Support woman's legs in hyper---flexed position – thighs to abdomen (or All---fours McRoberts' if lone birth attendant)		
Supra---pubic pressure	Applied correctly and from the side of fetal back		
Routine Axial traction	ONLY applies routine traction in an AXIAL direction		
Evaluation for episiotomy	Confirm able to gain access of whole hand into sacral hollow		
Delivery of posterior arm	'Pringles Manoeuvre' --- Introduce whole hand into sacral hollow and feel for baby's posterior arm		
	If baby's arms flexed across chest, grasp wrist of posterior arm and deliver arm in straight line (as if putting hand up in class)		
	If baby's posterior arm straight, maybe able to flex at the elbow, then grasp wrist and deliver arm in straight line (as if putting hand up in class)		
Internal rotational manoeuvres	'Pringles Manoeuvre' --- Introduce whole hand into sacral hollow		
	Apply pressure to the anterior (front) or posterior (back) aspect of baby's posterior (bottom) shoulder to rotate the shoulders into the oblique diameter.		
	If rotation is difficult, asks assistant to apply supra---pubic pressure in the appropriate direction.		
Inappropriate actions	Excessive force/traction applied to fetal head		
	Traction in downward direction		
	Fundal pressure		
Documentation	Persons present		
	Complete Shoulder dystocia documentation pro forma		
	Include: manoeuvres used, head---to---body delivery time, identification of baby's anterior shoulder in relation to mother prior to birth		



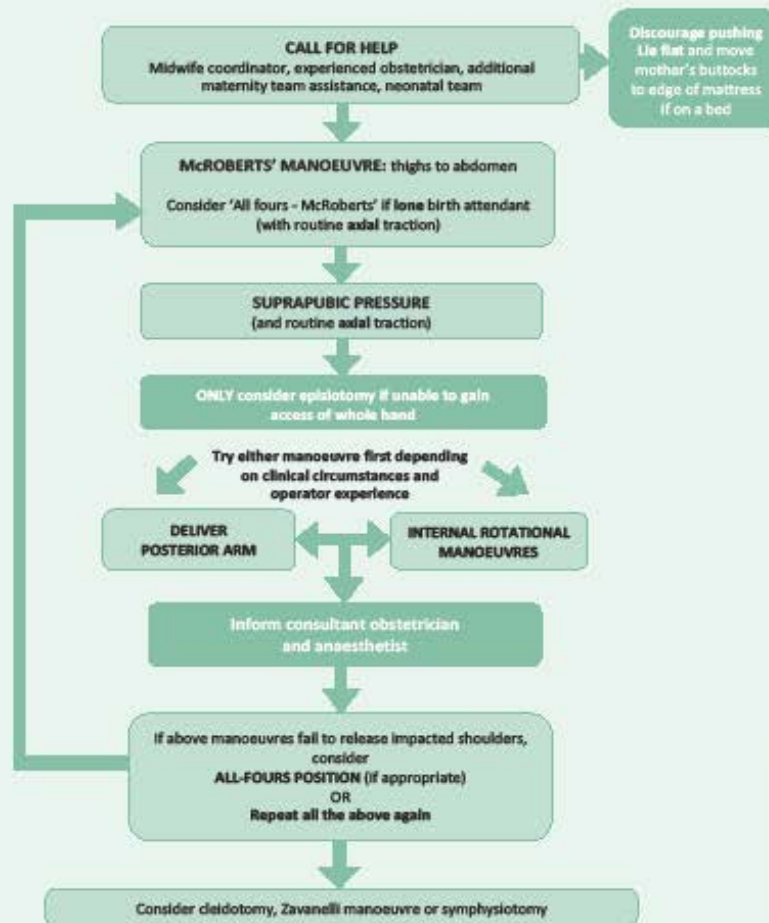
1. Lie flat and hold legs in McRoberts



2. Supra-pubic pressure from side of baby's back



3. For internal manoeuvres insert whole hand



Baby to be reviewed by midwife/neonatologist after birth and referred for consultant neonatal review if any concerns

DOCUMENT ALL ACTIONS ON PRO FORMA AND COMPLETE CLINICAL INCIDENT REPORTING FORM

After each manoeuvre apply *gentle, routine axial* traction to the baby's head to feel if the shoulders have been released (avoid downward traction). If the shoulders remain trapped, *do not keep pulling*, move on to the next step



4. Reach for posterior arm



5. Grasp wrist of posterior hand and deliver arm in straight line



6. Internal rotation of shoulders



7. Press on the front or the back of the baby's bottom shoulder to achieve rotation

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