



CLINICAL GUIDELINE

Shoulder Dystocia, Obstetrics

A guideline is intended to assist healthcare professionals in the choice of disease-specific treatments.

Clinical judgement should be exercised on the applicability of any guideline, influenced by individual patient characteristics. Clinicians should be mindful of the potential for harmful polypharmacy and increased susceptibility to adverse drug reactions in patients with multiple morbidities or frailty.

If, after discussion with the patient or carer, there are good reasons for not following a guideline, it is good practice to record these and communicate them to others involved in the care of the patient.

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Lead Author:	Padma Vanga
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Important Note:

The Intranet version of this document is the only version that is maintained. Any printed copies should therefore be viewed as 'Uncontrolled' and as such, may not necessarily contain the latest updates and amendments.

Greater Glasgow & Clyde Obstetric Guidelines

Shoulder Dystocia

Introduction

Shoulder Dystocia is an unpredictable life-threatening obstetric emergency, with significant risk of harm to the infant if managed inappropriately. Certain risk factors have been identified but their predictive value is low. Consequently birth attendants must be prepared for the possibility of shoulder dystocia in all vaginal deliveries and have a prepared plan of management. Rehearsed protocols markedly enhance such preparation.

Definition

Shoulder dystocia is the failure to deliver the shoulders with routine axial traction, i.e. the same degree of traction as is applied during a normal delivery, applied in line with the fetal spine. (RCOG Guideline no. 42, 2012).

MORBIDITY AND MORTALITY

Maternal complications

- Soft tissue injury e.g. anal sphincter injury (3.8%) vaginal/cervical lacerations, neuropathy
- Postpartum haemorrhage due to trauma or atony (11%)

Fetal and Neonatal complications

- Brachial plexus injury: Erb's Palsy (C5, C6), Klumpke's Palsy (C8, T1). This complicates 2.3% - 16% of such deliveries, though fewer than 10% of brachial plexus injuries result in permanent neurological dysfunction. There is therefore an approximately 1% risk of permanent neurological dysfunction in the event of a shoulder dystocia.
- Fracture of clavicle or humerus
- Hypoxic brain injury
- Pneumothorax
- Stillbirth/Neonatal death.

PREDICTION AND PREVENTION

Conventional risk factor analysis only predicts 16% of shoulder dystocias that result in neonatal morbidity. **Everyone is at risk.** Some patients though are at even higher risk.

Pre-labour risk factors

- Previous shoulder dystocia
- Fetal macrosomia, i.e. estimated fetal weight >4500g
- Diabetes, whether gestational or pre-existing
- Maternal BMI >30kg/m²
- Induction of labour

Intrapartum risk factors

- Prolonged first stage or second stage of labour
- Syntocinon augmentation
- Assisted vaginal delivery. Beware in particular the parous woman requiring this

Fetal Weight

There is a correlation between fetal weight and shoulder dystocia but it is not a reliable one.

- The majority of infants with a birth weight $\geq 4500\text{g}$ do not experience shoulder dystocia
- 50% of shoulder dystocias occur with infants who weigh $< 4000\text{g}$

If risk factor(s) are present, consider performing episiotomy at delivery

Warning signs at delivery

Head tight against the perineum after its delivery
Failure to reconstitute

MANAGEMENT PROTOCOL

Diagnosis

Only employ routine axial traction to the fetal head. If the shoulders do not deliver, this is shoulder dystocia.

Management

Bear in mind throughout that there is a very low rate of hypoxic ischaemic injury if the head-to-body delivery time is < 5 minutes.

Appoint a member of staff to record events to prompt the team as to steps that may have been missed or to move on to the next step. 30 seconds of each attempted manoeuvre is reasonable.

Stop pulling and pushing.

Stop pulling and instruct the patient to stop pushing.

Further efforts will not assist delivery and will expose the baby to the risk of brachial plexus injury.

Communicate with patient

Explain briefly to the patient that the baby's shoulders are stuck and that you are going to need help from quite a few people to assist with delivery.

Call for help

Urgently request help: ensure that the most experienced available obstetrician and midwife are summoned immediately, along with sufficient staff to assist with the following manoeuvres and, **very importantly**, the neonatal team also. Given the significant possibility of associated maternal morbidity, it is prudent to request anaesthetic attendance. Issuing both an obstetric and neonatal emergency call is an effective and efficient way to achieve all of this. Enough help should be summoned so that someone present is able to document event contemporaneously. Documentation should include a clear description of which the fetal shoulder was the anterior one.

Position the patient

The bed should be flattened and lowered, the patient's bottom brought to the edge of the bed to permit

maximum access and her legs removed from stirrups (if present) in order to permit McRoberts' positioning.

McRoberts manoeuvre

Legs should be placed in McRoberts position by assistants: hips maximally flexed with knees a little over shoulder-width apart. Remove legs from stirrups (if present). Once in this position, instruct the patient to push and attempt to deliver with routine axial traction. The majority of shoulder dystocias will resolve at this point; however stop pushing/pulling if there is no progress. **McRoberts' position is a treatment for shoulder dystocia and has no place as a "prophylactic" measure: this only confuses diagnosis and complicates counselling in the event of a future pregnancy.**

Suprapubic pressure.

If McRoberts' alone has been unsuccessful, pressure should be applied by an assistant just above the pubic symphysis, from the direction on which the fetal back is suspected to lie, while maintaining McRoberts'. Either steady or "rocking" pressure may be applied. If it is not known on which side the fetal back is lying, attempt with pressure first from one side, then from the other. Fundal pressure should **never** be employed as this risks uterine rupture. Once appropriate pressure is established, again attempt delivery and again abandon the attempt if there is no progress.

Evaluate for episiotomy.

Maintain McRoberts' and Suprapubic pressure and attempt internal manoeuvres. If vaginal entry proves impossible, an episiotomy must be cut. This is though both difficult and dangerous to perform at this juncture, hence the recommendation to consider it at the time of delivery.

Internal manoeuvres – Rotation of the shoulders

The options are either to attempt to rotate the fetal shoulders or to deliver the posterior arm. A suggested means of proceeding is to insert your right hand into the vagina if the fetal back is on the right and/or if the baby has, prior to delivery, been ROA/ROT/ROP, and the left hand if left LOA/LOT/LOP. In any event, your hand must be reduced to its smallest size and the *whole hand* (not just two or four fingers) inserted *posteriorly* into the sacral hollow, as this is where there will be most space. It may then be possible, by applying pressure to the anterior aspect of the posterior shoulder, to assist the person applying Suprapubic pressure in facilitating rotation into the oblique diameter and thence delivery. This may be assisted by applying pressure vaginally to the posterior aspect of the anterior shoulder. If there is any progress, instruct the patient to push. If a degree of rotation is achieved but delivery does not result, further rotation in the same direction may be attempted in an effort to make the anterior shoulder the posterior one and vice versa.

Delivery of posterior arm

If this is unsuccessful or if no rotation is possible, search the fetal chest for the posterior wrist and attempt to deliver this by grasping it and pulling it directly in the direction of the introitus. Humeral fracture is an acceptable risk, the rate of this being between 2% and 12%. If it proves difficult to locate the wrist, locate the posterior elbow first by tracing the course of the humerus, then trace the forearm to the wrist. Once the posterior forearm delivers, delivery of the posterior shoulder will follow easily, after which the anterior shoulder will be easily with routine axial traction. An alternative to delivery of the posterior arm is to move your hand up and apply pressure to the anterior aspect of the anterior shoulder, having first instructed the person applying Suprapubic pressure to stop. You can further assist this attempt at rotation by inserting your other hand posteriorly and applying pressure to the posterior aspect of the posterior shoulder. Rotation either to the oblique diameter or further, such that the anterior shoulder becomes posterior, may be successful in effecting delivery.

All fours position

If all this fails and a more experienced obstetrician/midwife has not arrived, assist the patient on to all fours (with hips maximally flexed and knees a little over shoulder width apart) with her bottom at the edge of the bed and go back to Step 7.

Additional manoeuvres.

If all of above fails, more experienced help is not arriving and the time since delivery of the head is over 5 minutes, consider applying pressure to the most accessible fetal clavicle in order to break this with the aim of thereby reducing the bisacromial diameter. The remaining options are the Zavanelli manoeuvre or symphysiotomy. The former – replacement of head in the vagina followed by caesarean section – may be a reasonable course of action if one is already in theatre. Replacement may require a tocolytic such as terbutaline 0.25mg administered subcutaneously. (Contraindications to terbutaline include: significant active cardiac disease, significant hypovolaemia and abruption). Symphysiotomy could be considered under other circumstances but is associated with significant maternal morbidity.

After care

- Obtain cord bloods for pH and base excess
- Anticipate PPH
- Determine extent of and repair maternal trauma
- Baby to be examined by Neonatologist
- Record all events accurately in the shoulder dystocia proforma included below, including which was the anterior shoulder, the manoeuvres used, cord blood results, personnel present and the timing of events, particularly of delivery of head and delivery of trunk, and neonatal condition
- Debrief patient and partner as soon as is reasonably possible. Complete DATIX form
- Patient and partner debrief by consultant before discharge
- Notes to consultant for letter and postnatal review decision.

Shoulder Dystocia Documentation

Mother's Name.....
CHI.....
Date.....Time.....

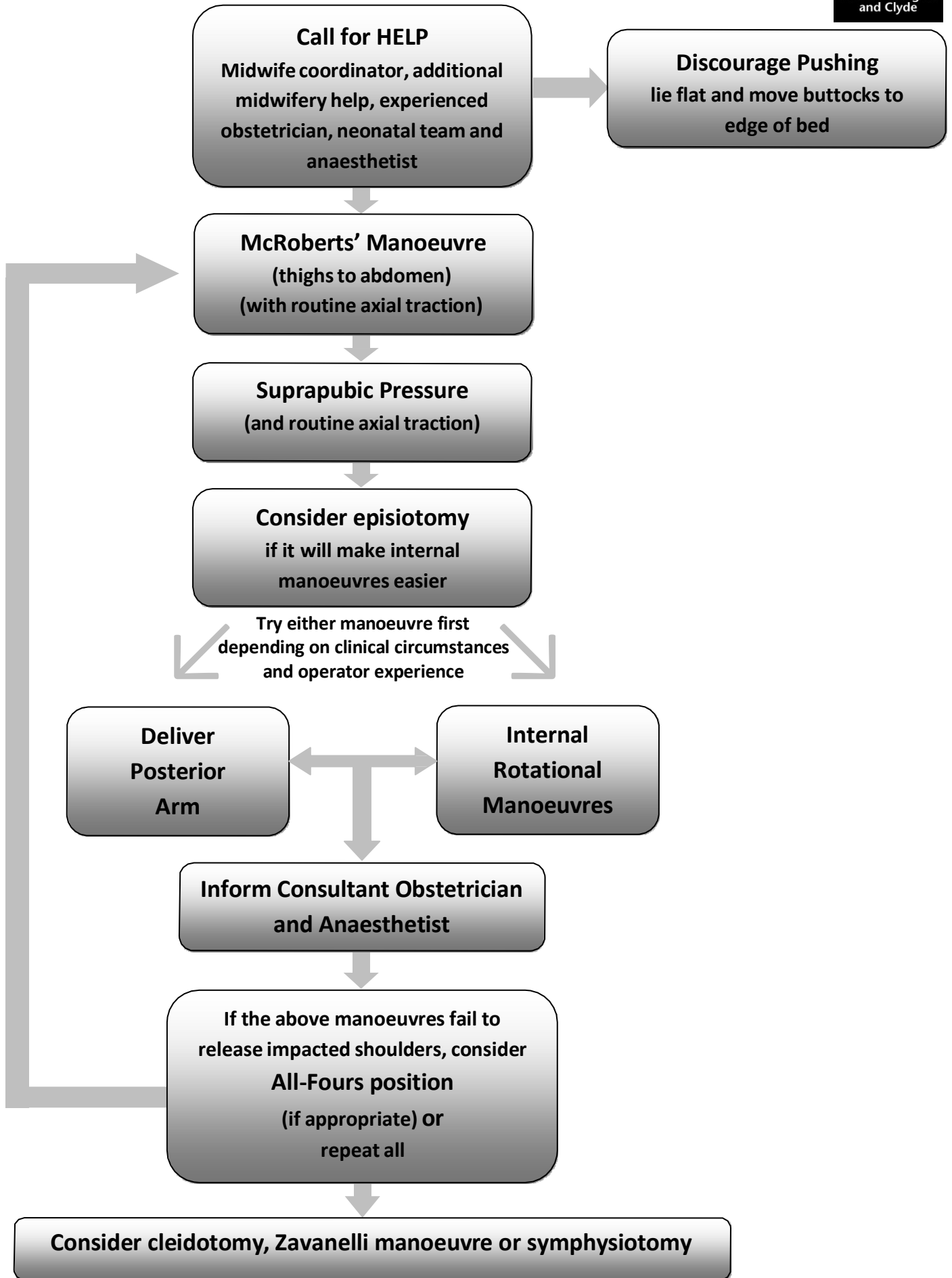
Person Completing Form.....
Designation.....
Signature.....

Obstetric and Neonatal emergency call at				
Staff at delivery of head		Staff attending emergency		
Name	Role	Name	Role	Arrival Time

Manoeuvres used to assist delivery	By Whom	Start time	Finish Time	Reasons if not performed
McRoberts position				
Suprapubic pressure				
Episiotomy	Already performed at delivery/not safe due to limited access/perineal repair			
Internal rotation				
Delivery of posterior arm				
All fours position				
Other manoeuvres				
Description of traction				

Mode of Delivery of foetal head		Spontaneous		Assisted Forceps/Vacuum	
Position of foetal head at shoulder dystocia	Foetal head facing maternal left Left shoulder is anterior	Foetal head facing maternal left Left shoulder is anterior	Foetal head facing maternal right Right shoulder is anterior		
Time of delivery of head:		Body:		Head to body delivery interval:	
Birth weight:	Apgar score at 1 min:	5 min:		10 min:	
Cord gases:	Arterial pH:	BE:	Venous pH:	BE:	
Any signs of Neonatal injury:			Arm weakness Potential bony fracture Admission to NNU		
Explanation to parents:		Yes	No	By:	
DATIX completed:		Yes	No	By:	

Shoulder dystocia



Baby to be reviewed by Midwife/Neonatologist after birth and referred for Consultant neonatal review if any concerns

Document all actions in case notes and complete clinical incident form / Datix

Shoulder dystocia



Try either manoeuvre first depending on clinical circumstances and operator experience. Use the Pringle manoeuvre



Internal Rotational Manoeuvres

Deliver Posterior Arm



All-Fours position

Call for HELP

McRoberts' Manoeuvre

Suprapubic Pressure

Consider episiotomy

REFERENCES

Shoulder Dystocia, Green-top Guideline No. 42, 2nd Edition 1 March 2012, RCOG

PROMPT Course Manual, 2nd Edition, August 2012, edited by Winter et al, Cambridge University Press

Authors: Dr Padma Vanga and Dr Adam Archibald

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