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The occasional shoulder dystocia

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Introduction

You are the only physician in a rural hospital on a Sunday afternoon when Mrs. Smith presents. She's a G5P4 with precipitous births, so it is going to be you who will be delivering. She's now crowning, but after the head is delivered it "turtles" and nothing else happens (Fig. 1). The shoulder is stuck!

Although cases of shoulder dystocia are associated with increased risk of fetal injury or death, reduction of the impacted shoulder can be effected calmly, by a series of manoeuvres, and with excellent outcomes.

If you are in a hurry, skip to the bolded parts.

In 1%–2% of pregnancies the delivery of the body is delayed for more than a minute after delivery of the head.[1,2] Risk factors for shoulder dystocia include previous shoulder dystocia, instrumental delivery, large babies, small mums, maternal diabetes, and increased parity. However, these risk factors are poor predictors since over 80% of "high risk" women deliver normally.[1] Many, if not most, shoulder dystocias occur in "low risk" pregnancies with normal sized babies.[3,4]

When the shoulder is stuck, time may be of the essence. If fetal blood flow is compromised pH will drop as much as 0.14 per minute.[5] However, there is usually plenty of time to do what needs to be done. In a series of 134 shoulder dystocias, all were delivered in under 8 minutes and less than 2% had a pH under 7.00.[2]

Shoulder Dystocia Procedure

Step 1

The first thing to do is to call for help. Most rural doctors should be able to get additional nursing or medical staff to help with the delivery of the infant.

Step 2

Don't apply traction to the fetal head as this will just jam the shoulders further and may increase the risk of fetal brachial plexus injury.[6] What you should do next is a matter of personal preference. The order of manoeuvres is not as important as the ability to recognize, in 30–60 seconds, that the manoeuvre is not working and to proceed to try something else.

Procedure Summary

- Call for help
- Don't pull
- Try something for 60 seconds and move on
- Hyperflex mum's thighs
- Suprapubic pressure on fetal scapula
- Mum on all fours
- Intravaginal pressure on fetal scapula
- Woods' screw
- Sweep posterior arm out
- Symphysiotomy or Zavanelli

Step 3

The McRoberts' manoeuvre is simple, and a good place to start (Fig. 2). Have your assistant(s) help the mother hyperflex her thighs onto her abdomen to rotate her pelvis. This improves the useful diameter of the pelvis. This manoeuvre alone may be effective in 42% of cases.[7]

Step 4

Simple addition of suprapubic pressure delivered laterally against the fetal scapula (Rubin I) can be done at the same time. This increases success rates to 58%[8] (Fig. 3).

Step 5

Some would advocate the Gaskin manoeuvre at this point. If the mother can move to all fours, up to 83% will deliver[9] (Fig. 4).

The vast majority of remaining women will deliver by 1 of the other 3 internal techniques (i.e., Steps 6 to 8) listed here.

Step 6

Rubin's second manoeuvre (i.e., Rubin II) is to place 2 fingers behind the occiput inside the vagina and try to rotate the anterior shoulder into the oblique (Fig. 5).

Step 7

Alternately, rotate the posterior shoulder by placing your fingers on the posterior scapula and rotating forward — the Woods' screw manoeuvre (Fig. 6).

Step 8

Delivery of the posterior arm can be done by sweeping the fetus's posterior forearm across the chest and out past the occiput. Although episiotomy does not reduce shoulder dystocia, this may be considered for this manoeuvre to ease entry of the operator's hand into the vagina. Delivery of the posterior arm can be associated with a fractured clavicle or humerus, which heal quickly in the newborn (Fig. 7).

Symphysiotomy and the Zavanelli manoeuvre

These remaining 2 techniques, symphysiotomy and the Zavanelli manoeuvre, are rarely used in North America. Because they are invasive they should be contemplated only when other techniques have failed, but when the fetus is still likely to be intact. Usually this would mean at about 4 to 8 minutes after the head delivers.

I have come across 2 rural doctors who have had experience with symphysiotomy, and only one who used it in Canada. The technique is used widely in the developing world where it is considered easy to do. It is associated with good fetal and maternal outcomes.[10]

Symphysiotomy

Equipment:

- 10% povidone-iodine prep
- 2% lidocaine and syringe
- 25 gauge needles 15 and 40 mm
- 20 gauge needle to draw up anesthetic
- Dressing tray and drapes
- #21 scalpel blade and #4 handle
- Sterile drapes
- Sterile gloves

Step A: The technique starts with freezing the supra pubic space.

Step B: Next, insert a foley and use your finger intravaginally to displace the foley and the urethra laterally to prevent urinary injury.

Step C: Using a scalpel (say a number 21 blade on a number 4 handle) incise through the supra pubic fat and divide the symphysis pubis until the pelvis falls open, releasing the fetal shoulder. The pelvis can be strapped with a wide belt until it heals or the symphysis can be reapproximated with internal fixation.

Zavanelli manoeuvre

The Zavanelli manoeuvre[11] involves replacing the fetus into the pelvis under tocolysis (say nitroglycerine patch) and proceeding to cesarean section. The literature describes its use in settings where a cesarean can be quickly effected.

Conclusion

In summary, shoulder dystocia is not reliably predictable, and any birth attendant should be prepared for it. The McRoberts' manoeuvre and suprapubic pressure will deliver the infant in most cases, and additional manoeuvres, if calmly and sequentially applied in a timely fashion, will also result in good outcomes.

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