

A NEW MANOEUVRE FOR DELIVERY OF AN IMPACTED SHOULDER, BASED ON A MECHANICAL ANALYSIS

M. S. HOLMAN, T.D., M.B., B.S., D.T.M. & H. (LOND.)

Medical Superintendent, Alexandra Health Centre and University Clinic, Johannesburg

The present accepted primary method for delivery of an impacted shoulder is to deliver the impacted shoulder first.

This is often very difficult and not infrequently ends in a permanent Erb's palsy (29%) or death (17%) of the foetus.¹ The problem, therefore, is a serious one. If the primary approach fails, various other methods are described and these include traction on the posterior axilla, or extraction of the posterior arm; with either being generally followed by delivery of the anterior shoulder. Other means are rotation and delivery of the turned posterior shoulder as an anterior shoulder, and cleidotomy.

Nearly all authorities use traction of the head towards the perineum, contrary to de Lee's recommendation.² This would seem to be due to the difficulty of delivering the anterior shoulder by the standard method.

Figs. 1 and 2 are diagrammatic representations of the standard method and the described manoeuvre, respectively. The two sketches illustrate the advantage of using the described manoeuvre. Fig. 3 gives a diagrammatic picture of the sequences in the manoeuvre—full details are in the accompanying legend.

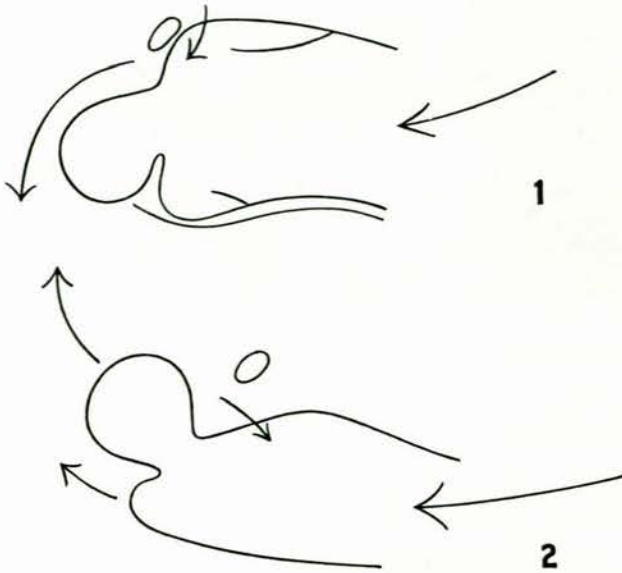


Fig. 1. Standard method of delivery of impacted shoulders.
Fig. 2. Described manoeuvre for delivery of impacted shoulders.

Standard Method (Fig. 1)

Place a recently born infant on its side. Compression of the shoulders in the bisacromial diameter meets with considerable resistance. Turn the bisacromial diameter so that the anterior shoulder moves towards the baby's head and is 'delivered'. This brings a succession of body planes into the narrowest lower antero-posterior (AP) pelvic

diameter, but does not effect much body narrowing for an appreciable amount of turning.

The posterior shoulder in this method acts as a fulcrum and remains hard against the bony pelvis. The foetal movement during the most difficult part of the extraction is against the natural axis of the pelvis, making delivery still more difficult. Even with the assistance of suprapubic pressure, considerable traction on the head towards the perineum may be required to free the anterior shoulder. The force exerted is likely to stretch and injure the brachial plexus.

From consideration of these points one must conclude that the method is mechanically wrong. The ideal is to:

1. Reduce the transverse width of the body so that it will be no more than the AP dimension of the pelvis.
2. Avoid traction on the brachial plexus.
3. Deliver in the line of the natural path—the pelvic axis.

Described Manoeuvre (Fig. 2)

Again place the baby on its side (oblique when intra-pelvic).

1. Do an episiotomy or, exerting moderate traction on the head in the body line, stretch the perineum by pressing backwards with the fingers of the other hand.
2. Draw the posterior shoulder along the pelvic axis by a finger in the axilla—as far as it will comfortably go—and assist by fundal pressure. A very narrowed part of the body then passes through the shortest AP line of the lower pelvis.

Step 2 should be repeated in the course of step 3.

Until further experience is gained it is still probably desirable to do an episiotomy.

If a skilled assistant is available he can exert steady posterior axillary traction while the operator presses and rocks the anterior shoulder caudally and backwards into the sacrum, and pulls the head in the direction of the pelvic axis.

3. Maintaining steady traction on the head in the foetal body line, insert two fingers* underneath the pubic arch and press and rock on the anterior shoulder. The shoulder can be readily tilted caudally and at the same time pressed towards the hollow of the sacrum. This can reduce the body width to the narrowest AP diameter *without damage to the brachial plexus*. Since the anterior shoulder is then in contact with the soft foetal chest wall, well away from the apex of the chest, considerable compression without damage is easily obtained. The clavicles, now being oblique in relation to the spine, do not interfere with compression.

The total described manoeuvre can readily reduce the width of the body passing through the narrowest AP line by 20%, i.e. about 1 inch. Delivery assisted by fundal pressure is then continued in the normal axis of the pelvis, swinging the anterior shoulder in a curve from behind to under and around the symphysis instead of forcing it through the AP plane.

This manoeuvre conforms to the applied mechanics required by analysis and is therefore a theoretically pre-

* It may be easier to insert them supinated.

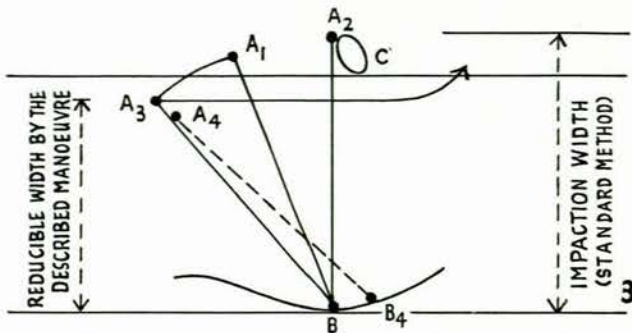


Fig. 3. Diagrammatic representation of the sequences in the described manoeuvre (scale: 1 to 3). A = anterior shoulder, B = posterior shoulder, C = symphysis pubis. Line A₁B represents the bisacromial diameter.

Explanation of Fig. 3

1. As B becomes arrested against the sacrum, A₁ swings to A₂ and A₂ becomes impacted against the pubis (C). Compression in the line A₂B is transacromial and is difficult. Strong head traction towards the perineum is often used for furthering the disimpaction of A₂; in 29% of cases this produces an Erb's palsy.¹

2. If A₁ moves to A₂ the foetal width becomes less instead of more, and still less as B moves to B₁. A₁B₁ is therefore the required position, not A₂B. Owing to the practicability of turning the anterior shoulder round the back of the pubis and then sliding it out, the full A₂B position is not essential, however.

(Byvoegsel — Suid-Afrikaanse Tydskrif vir Obstetrie en Ginekologie)

ferred method to one which is contrary to all mechanical requirements.

Comment

Of the last two severely impacted foetuses seen here, the first was delivered more in accordance with the standard method. The extraction was very difficult and an Erb's palsy occurred. The second was an 11 lb. baby. The head had been delivered 5 minutes previously by experienced midwives and traction by them was ineffective. When seen the shoulder was well impacted. The described manoeuvre was then used. Delivery was quickly effected without undue difficulty, without episiotomy and without a tear. Anaesthesia was not required.

In support of this having been a very difficult case, the child when born was in respiratory and cardiac arrest. It was revived by being placed head downwards on an inclined plane and given external cardiac massage, mouth-to-mouth breathing, suction and lobeline.

CONCLUSION

This new manoeuvre, based on an analysis of mechanical requirements, can be readily implemented. It should avoid most of the present frequent complications.

REFERENCES

1. Swartz, D. P. (1960): *Obstet. and Gynec.*, **15**, 194.
2. de Lee, J. B. (1938): *Principles and Practice of Obstetrics*. Philadelphia: Saunders.