SHOULDER DYSTOCIA : OBSTETRICIAN'S NIGHTMARE

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ABSTRACT

Shoulder dystocia is an uncommon complication of delivery. 12 cases of shoulder dystocia are presented. The study suggests that prediction of shoulder dystocia on the basis of clinical profile is difficult. A high index of suspicion is to be maintained in the presence of certain risk factors such as multigravida with large baby having prolonged 1st (decelarative phase) and 2nd stage of labour necessitating instrumental delivery. High neonatal morbidity (brachial palsy 44% and low Apgar score 44%) was found to be associated with shoulder dystocia. Among the manoeuvres used for the delivery of impacted shoulder, no neonatal injuries were associated with successful McRoberts manoeuvre. However, the success rate of the procedure was only 50%. Fundal pressure in absence of other manoeuvres resulted in 100% complication rate, hence should be condemned.

MJAFI 2002; 58 : 111-113

KEY WORDS : Brachial palsy; McRoberts manoeuvre; Shoulder dystocia.

Introduction

Shoulder dystocia does not happen very often but can be catastrophic when it does, leading to very high perinatal morbidity involving both motor and behavioural functions [1]. The incidence of shoulder dystocia could be between 0.15% to 1.1% [2]. The rare occurrence of the condition often catches the obstetricians off their guard. Inability to deliver the shoulder after delivery of the head creates a panic situation in the labour room. One finds it difficult to recall the various manoeuvres described in the text books for the delivery of impacted shoulder and starts pulling the head of the baby with considerable force. As time passes the fear of injuries to the foetus and the chances of subsequent litigation give anxious moments to the obstetrician. Finally, somehow the baby is delivered often with considerable neurological damage. The nightmare for the obstetrician continues till the baby recovers completely which may take months. In the back drop of this real life situation, authors have made an attempt to describe their first hand experience with shoulder dystocia. The two authors personally conducted all these deliveries.

This study is all the more relevant since most of the studies on shoulder dystocia are retrospective, based on data obtained from decades of birth records rather than from first hand practical experience.

Material and Methods

12 cases of shoulder dystocia are analysed. All the cases presented in this study were personally conducted by the two authors in various service hospitals during the period 1985-2000. For the sake of uniformity, shoulder dystocia encountered by other obste-

tricians and nursing staff were not included in this study. The records were analysed for maternal weight, weight of the previous infant, duration of pregnancy, antenatal complications including gestational diabetes, labour pattern, intrapartum complications, instrumentation and the type of manoeuvre used. Weight of the neonate, fetal and maternal complications were also analysed.

True shoulder dystocia was defined as deliveries requiring manoeuvres to deliver the shoulders in addition to downward traction and episiotomy. Prolonged 2nd stage of labour was defined as labour more than one and half-hours for a multipara and more than two hours for primipara. Decelerative phase of labour (labour between 8cm cervical dilatation to full dilatation) was considered prolonged if it lasted more than two hours. Fetal morbidity included one of the following : fractures, neurological damage or Apgar score less than 5 at 5 minutes. Maternal morbidity refers to post partum haemorrhage (PPH), perineal and vaginal tears, shock etc. The newborn was considered macrosomic if the birth weight was 3.5 kgs or more.

Results

Risk factors for shoulder dystocia are described in Table-1. Diabetes was present in 2 patients (17%); both these patients had gestational diabetes. Obesity was present in 4 patients (33%). All the patients in this study except one were multiparous (90%). Only one patient (8%) was postdated and history of previous large baby was present in 2 patients (17%). The neonatal complications are given in Table-2. Neonatal morbidity consisted of 5 cases of brachial palsy (44%). 5 neonates had low Apgar score, including 4 babies with brachial palsy. One baby had respiratory arrest and was successfully resuscitated. 4 patients had maternal morbidity (Table-2). 2 of these 4 patients had PPH requiring blood transfusion.

5 patients (41%) had prolonged decelerative phase of labour (cervical dilatation 8-10 cm), 8 patients (66%) had prolonged 2nd stage of labour. All the 5 patients who had prolonged decelerative phase of labour also had prolonged 2nd stage of labour. 8 patients (66%) had instrumental vaginal delivery. Vacuum was more commonly applied (6 patients). 2 patients had forceps delivery. Indication for instrumental delivery in all the cases was prolonged

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TABLE 1

Risk factors for shoulder dystocia

Risk factors	Number of patients	Percentage
Diabetes	2	17
Obesity	4	33
Multiparity	11	90
Post-term	1	8
Previous history of large baby > 3.5 Kg	2	17

TABLE 2

Neonatal and maternal complications of shoulder dystocia

Complications	Number of patients	Percentage
Neonatal		
Low 5 min Apgar score	5	44
Neurological complications	5	44
Maternal		
Perineal tear 3 rd degree	4	33
Post partum hemorrhage	2	17

2nd stage of labour.

McRoberts manoeuvre was used for the delivery of shoulder in 8 cases. It was successful in 4 cases (50%). Cork-screw manoeuvre was attempted in 3 patients and was successful in 2 (66%). Delivery of posterior shoulder was attempted as a secondary procedure in 4 patients and was successful in all (100%). Nonspecific manoeuvres like traction on head of the baby along with suprapubic or fundal pressure were successfully used in 2 patients (Table-3).

Average weight of the newborn was 3.5 Kg (range 3.2-3.9 Kg). 5 babies had brachial palsy. Average weight of the term newborn in our hospital has been 3 Kg. The relationship between manoeuvre

performed and brachial palsy is given in Table-3. There was no neurological deficit associated with successful McRoberts manoeuvre. Brachial palsy was associated with both the cases where traction and fundal and suprapubic pressure were used. 3 cases of brachial palsy occurred in the patients where multiple procedures were used, end procedure being delivery of posterior shoulder.

Discussion

There is no universally accepted definition of shoulder dystocia, therefore, the incidence varies widely. It is difficult to find out true incidence in our study since we have taken only those cases of shoulder dystocia where the delivery was conducted by the authors themselves. However, during the period covered in the study about 12 thousand deliveries were conducted and 24 cases were labelled as shoulder dystocia giving the overall incidence of 0.2%. This is at lower end of reported incidence by various authors [2]. Low incidence of shoulder dystocia in our study could be due to (1) strict selection criteria, (2) tendency among obstetricians to favour Caesarean section over instrumental delivery in modern day obstetrics and (3) liberal use of Caesarean section in primigravida with prolonged 2nd stage of labour. One of the significant factors in favour of this argument is that only one of our 12 patients was a primigravida.

Obesity, diabetes, postdatism, history of previous large baby, were not highly significant factors for prediction of shoulder dystocia, in our study. Previous shoulder dystocia is widely quoted as risk factor for shoulder dystocia [3]. However, none of our patients gave history of recurrent shoulder dystocia.

TABLE 3

Labour abnormalities and birth records

Case no.	Labour abnormalities	Use of vacuum/forceps	Manoeuvres for delivery of shoulders	Weight of the baby in Kg	Injuries to neonate
1.	Prolonged 2 nd stage	Vacuum	Traction on head, fundal pressure	3.4	Brachial palsy
2.	Prolonged 1 st (DP*) & 2 nd stage	Vacuum	Cork screw	3.2	Nil
3.	Nil	Nil	McRoberts	3.4	Nil
4.	Prolonged 1 st (DP) & 2 nd stage	Forceps	Failed McRoberts, delivery of posterior shoulder	3.8	Brachial palsy
5.	Prolonged 1 st (DP) & 2 nd stage	Vacuum	Cork screw	3.5	Nil
6.	Nil	Nil	McRoberts	3.3	Nil
7.	Prolonged 2 nd stage	Vacuum	Failed McRoberts, fundal pressure and traction on head, delivery of posterior shoulder	3.9	Brachial palsy
8.	Prolonged 1 st (DP) and 2 nd stage	Vacuum	Cork screw attempted, failed, delivery of posterior shoulder	3.6	Brachial palsy
9.	Nil	Nil	McRoberts	3.5	Nil
10.	Prolonged 1 st (DP) and 2 nd stage	Forceps	Failed McRoberts, delivery of posterior shoulder	3.7	Nil
11.	Nil	Nil	McRoberts	3.4	Nil
12.	Prolonged 2 nd stage	Vacuum	Failed McRoberts, fundal pressure and traction on head	3.3	Brachial palsy

DP* - decelerative phase of labour

Macrosomia is another risk factor for shoulder dystocia and has been well-documented [4]. Macrosomia was present in only 50% of our cases. It is clear from above that antenatal selection is not going to detect all the babies at risk of shoulder dystocia and the positive predictive value of the risk factors is so low that Caesarean section for all these patients may not be appropriate. However, we would agree with Gibbs 1995 that whenever a large baby is suspected it should be clearly marked on the case sheet to alert the attending staff during labour.

Acker et al [5] have concluded that protracted labour and arrest disorders are significantly associated with shoulder dystocia. Lurie et al [6] in their retrospective analysis of 52 cases of shoulder dystocia did not find protracted labour as a risk factor for shoulder dystocia. Benedetti and Gabbe [7] had identified prolonged 2nd stage of labour and midcavity forceps as an intrapartum risk factor. Significant in our study was prolonged decelerative phase of 1st stage of labour in 41% and prolonged 2nd stage of labour in 66% of the patients. Instrumental delivery was conducted in all the patients with prolonged 2nd stage of labour. Among the instruments vacuum was preferred over forceps. It is evident that prolonged labour warranting instrumental delivery could be a risk factor for shoulder dystocia.

Neonatal morbidity rate (brachial palsy 44% and low Apgar score 44%) was high but not inconsistent with other reports [1,8]. Gherman et al [9] reported lower neonatal morbidity with McRoberts manoeuvres compared to other manoeuvres. In our study too, no neonatal injuries were associated with this procedure. The only drawback of the procedure was low success rate. This manoeuvre is simple to perform, therefore, it can be recommended as the initial technique for disimpaction of the anterior shoulder. Corkscrew and delivery of posterior shoulder were other manoeuvres performed but were associated with higher neonatal morbidity. The fundal pressure in combination with traction was associated with neurological complications in both the cases. This finding would not be unexpected in light of the mechanism of fundal pressure, which further impacts the anterior shoulder into the pubic bone and increases the risk of brachial plexus injury.

Shoulder dystocia is a rare complication of labour

which most obstetricians encounter infrequently. The management of shoulder dystocia is therefore often based on cumulative experience. A high index of suspicion is to be maintained in the presence of certain risk factors eg. multigravida with large baby having prolonged 1st and 2nd stage of labour necessitating instrumental delivery. The present study also suggests that manoeuvres such as McRoberts are easy to perform and safe compared to other procedures. Since shoulder dystocia generally occurs unexpectedly, a practice drill for shoulder dystocia should be performed regularly. The following drill has been suggested by Hopewood [1]. The drill is slightly modified by us to suit our experience.

If shoulder dystocia bring you grief,
McRoberts manoeuvres spells relief.
Extending episiotomy will be your boon
To gain posterior vaginal room
If corkscrew still leaves you colder,
Then gently deliver the posterior shoulder.

References

1. Hopewood HG. Shoulder dystocia : Fifteen years experience in community hospital. *Am J Obstet & Gynecol* 1982;144:162-4.
2. Resnic R. Management of Shoulder Girdle dystocia. *Clin Obstet & Gynecol* 1980;23:559-60.
3. Smith RB, Lane C, Pearson JF. Shoulder dystocia : What happens to next delivery? *Br J Obstet Gynaecol* 1994;101:713-5.
4. Lewis DF, Edwards MS, Asrat T, Adair CD, Brook G, London S. Can Shoulder dystocia be predicted? Preconceptive and prenatal factors. *J Reprod Med* 1998;43(8):654-8.
5. Acker DB, Sachs BP, Freidman EA. Risk factors in shoulder dystocia in average weight infant. *Obstet & Gynecol* 1986;67:164-6.
6. Lurie S, Levy R, Ben-Arie A, Hagay Z. Shoulder dystocia : Could it be deduced from labour partogram? *Am J Perinatol* 1995;12:61-2.
7. Benedetti TJ, Gabbe SG. Shoulder dystocia - A complication of fetal macrosomia and prolonged 2nd stage of labour with midpelvic delivery. *Obstet & Gynecol* 1978;52:556-7.
8. Golditch IM, Kirkman K. The large fetus-management and outcome. *Obstet & Gynecol*;1978;52:26-7.
9. Gherman RB, Goodwin TM, Souter I, Neumann K, Ouzounian JG, Paul RH. McRoberts manoeuvre for alleviation of shoulder dystocia : how successful is it? *Am J Obstet & Gynecol* 1997;176:656-61.