

A CASE REPORT: CEPHALIC REPLACEMENT AND EMERGENCY CAESAREAN SECTION FOR THE RESOLUTION OF SHOULDER DYSTOCIA

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ABSTRACT

Shoulder dystocia is a serious complication of delivery. Various manoeuvres had been described, all aim at achieving shoulder descent and vaginal delivery. We report a case whereby shoulder dystocia was managed by a rather unique technique - the foetal head was replaced in the vagina and baby delivered by emergency Caesarean Section.

Keywords: dystocia, shoulder dystocia, Caesarean section, delivery

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INTRODUCTION

Shoulder dystocia is one of the most frightening, devastating and catastrophic events in modern day delivery rooms. Although anticipation and prevention by Caesarean Section should be practised, shoulder dystocia can still occur unexpectedly. Thus, it is the duty of every birth attendant to be prepared for this unexpected event by developing and memorising a sequence of manoeuvres that he or she will use in this situation.

CASE REPORT

Madam CHK, a 24-year-old Chinese woman, was first referred by a general practitioner on March 16, 1994, during the 31st week of her third pregnancy. She underwent an elective first trimester abortion in 1990 and her second pregnancy in 1991 had resulted in spontaneous abortion at 8th week of gestation.

Physical examination revealed fundal height congruent with period of amenorrhoea. The patient's height was 157.2 cm and she weighed 73.4 kg when first seen and 76.5 kg at the time of delivery on May 23, 1994.

Routine antenatal and blood investigations were normal. Her prenatal course was uneventful.

The patient was admitted to the labour ward at 41⁺² week of gestation with the complaint of leakage of clear fluid per vaginum 1.5 hour earlier. Sterile speculum examination and litmus paper test confirmed the diagnosis of pre-labour spontaneous rupture of membrane (SROM). The cervix was 25% effaced and os 1 cm dilated. The relatively large foetus was presenting by the vertex at the station -2. Uterine contraction was infrequent and painless. Prostin E2 pessary (3 mg) was inserted 1 hour after admission or 2.5 hour after onset of SROM. The patient was kept in the labour ward for continuous monitoring. Foetal heart tracing was obtained by external cardiotocography (CTG) and was noted to be reassuring.

A second prostin E2 pessary (3 mg) was inserted 6 hours after the first prostin. Prior to the insertion of second prostin, cervical os remained at 1 cm dilated and there was no signs of labour.

Labour began about 5 hours after insertion of second prostin, as demonstrated by the presence of regular uterine contractions of 1 in 4 minutes and cervical os dilation of 4 cm. Liquor, however, was light meconium stained at this time. IV ampicillin 1 gm 6 hourly was started.

Three hours later, cervical os was 5 cm dilated and uterine contraction remained at 1 in 4. IV oxytocin infusion was started to augment labour. Labour proceeded progressively, reaching full cervical dilation within 5 hours.

Following 1.5 hours of second stage of labour, the foetal head remained at station +2 with caput 2 plus. There was no moulding noted. CTG at this stage showed variable decelerations up to 90 bpm with normal baseline rate and normal baseline variability. The mother was exhausted at this stage. It was decided to deliver the baby by forceps in the operating theatre (OT) with recourse to Caesarean Section if need arises.

In OT, the patient was positioned in lithotomy. The foetal vertex was in occipito anterior (OA) position. Neville Barnes forceps was applied after catheterisation. Right mediolateral episiotomy was performed under local perineal anaesthesia. The baby's head was delivered with gentle single downward traction. Restitution of the foetal head occurred but no further descent was noted. The base of the infant's head was tightly applied to the maternal vulvar tissue. Standard downward traction was unsuccessful in delivering the anterior shoulder. Two fingers was then inserted into the vagina to try to rotate the posterior shoulder. This was not successful either. The foetal shoulder and maternal tissue was tightly applied to each other. Bilateral shoulder dystocia was evident.

It was decided at this stage to replace the foetal head into the vagina. First the head was manually rotated to direct OA from its right OA position. When the uterus was in relaxation phase, the head was manually flexed and with upward constant pressure applied with the palm of the right hand the head was pushed up into the vagina. Posterior vaginal wall was depressed with the left hand. This manoeuvre was accomplished with relative ease. The foetal head was estimated to have been outside the vagina for about 3 minutes.

Following the replacement of the foetal head into the vagina, an emergency Caesarean Section was performed. A 4,550 grams male infant was delivered without difficulty. The Apgar scores was 9 at one minute and 9 at five minutes. There was no injury or congenital anomalies noted.

After the Caesarean Section, the episiotomy was repaired.

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IV ampicillin, which was started during the first stage of labour was continued during the first post-operative day. This was subsequently converted to the oral form for the next 5 days. The patient was afebrile throughout the post-operative stay in hospital and was discharged on the fourth postoperative day.

The infant continued to do well after delivery. Routine septic workout in the neonate ward yielded negative results. He was discharged on the fifth day after delivery.

DISCUSSION

Dr Eugene C Sanberg was the first to describe in 1984⁽¹⁾ a peculiar manoeuvre undertaken by Dr William Zavanalli to deliver a shoulder dystocia baby. This concept of cephalic replacement while conceived in desperation by Dr Zavanalli has instantly converted a situation in which many foetuses have lost their lives or have been severely injured to one no more threatening than a modern Caesarean Section.

In essence, the manoeuvre is the reversal of the delivery process, with the return of the foetal head to its previous intravaginal position and extraction of the foetus by emergency Caesarean Section thereafter. Thus, the Zavanalli manoeuvre is in contrast with the traditional vaginal delivery orientated thinking behind all the previously described manoeuvres in dealing with shoulder dystocia.

Subsequently in 1988, Dr Eugene C Sandberg⁽²⁾ reported a further eight cases of shoulder dystocia whereby this technique was utilised with satisfactory outcome by various obstetricians. In five of the eight with unremediable shoulder dystocia, the head was immediately replaced and Caesarean Section performed 45 to 75 minutes later. The excellent results obtained suggest that once the foetus in vertex presentation has been returned to the vagina, it can remain in this location without serious fear of hypoxia or repeated spontaneous uterine effects at expulsion while preparations are made for emergency Caesarean Section.

In all cases, the manoeuvre was performed with ease and was atraumatic and the Apgar Scores upon delivery were good. Premature placental separation were not encountered in any case.

When shoulder dystocia occurs, the anterior shoulder is usually overriding the anterior aspect of pubic bone. As for posterior shoulder, it can either be held above the level of the sacral promontory or compacted firmly in the hollow of the sacrum.

The foetal head was easily replaced into the vagina in this case and was probably due to the fact that the posterior shoulder remained unengaged. The bilateral shoulder impaction prevented

the head from becoming wedged deep in the pelvis. Tocolytic agent was not used in this case although theoretically, subcutaneous injection of terbutaline 0.25 mg may facilitate the manoeuvre when frequent uterine activity is bothersome.

It should be emphasised that this technique should only be considered when continued persistence of other standard manoeuvres failed to achieve a predictable shoulder descent. In our view, this technique is worthy of further evaluation by critically examining the technical difficulties as well as the maternal and foetal outcome of all the cases performed.

In this case, it can be argued that the prolonged second stage with the clinically large baby should provide a useful warning of shoulder dystocia and Caesarean Section could have been performed earlier instead of proceeding to mid pelvic forceps delivery. Indeed Benedetti and Gabbe⁽³⁾ found that with prolonged second stage resulting in mid pelvic forceps delivery of infants weighing more than 4.0 kg, the incidence of shoulder dystocia was as high as 21%. However, the information in obstetric literature regarding prediction of shoulder dystocia is still controversial. A recent edition of Williams Obstetric concluded that "while there are clearly several risk factors statistically associated with shoulder dystocia, acute identification of individual instances of shoulder dystocia has proven to be extremely difficult, if not impossible"⁽⁴⁾.

Since shoulder dystocia is seldom fully anticipated, every practising obstetrician should familiarise himself with the "shoulder dystocia drill" constituting various manoeuvres so that he can effectively handle this obstetric emergency. To the list of armamentarium available in resolving shoulder dystocia, one may consider adding the Zavanalli Manoeuvre.

REFERENCES

1. Sangberg E. The Zavanalli Maneuver. A potentially revolutionary method for the resolution of shoulder dystocia. *Am J Obstet Gynecol* 1985; 152: 479-83
2. Sangberg E. The Zavanalli Maneuver. Progression of a revolutionary concept. *Am J Obstet Gynecol* 1988; 158: 1347-53
3. Benedetti TJ, Gabbe SG. Shoulder dystocia: A complication of foetal macrosomic and prolonged second stage of labour with midpelvic delivery. *Obstet Gynecol* 1978; 52: 526-31
4. Cunningham FG, MacDonald PC, Gant FN. *Williams Obstetrics* 19th Edition. Prentice Hall Int. Inc., 1993: 509-14
5. O'Leary J, Gumm D. *Shoulder dystocia and birth injury*. USA: Mc Graw Hill, 1992: 137-44.