

VAGINAL DELIVERY OF GIANT FETUS – SHOULDER DYSTOCIA

Predrag Vukomanović, Milan Stefanović, Mileva Milosavljević, Ranko Kutlešić, Jasmina Popović and Goran Lilić

Shoulder dystocia (SD) is defined as unpredictable and urgent obstetric complication which occurs when the pelvis of a mother is sufficiently spread to deliver the fetal head, but not enough to deliver the fetal shoulders. It is associated with high percentage of maternal and fetal morbidity. Fetal lethality from hypoxia ranges from 2-16%.

The paper presents the case of vaginal delivery in a multiparous woman in the 39th gestational week. Head delivery was performed by using vacuum extraction. Because of shoulder dystocia, we applied the McRoberts' maneuver with Resnik's suprapubic pressure and performed one more episiotomy. Since these maneuvers did not give the expected result, the aspiration of the upper respiratory paths of the fetus was done, after which the Hibbard's cord with simultaneous Kristeller maneuver were performed. It led to releasing the shoulders and fetal delivery. On delivery, male fetus was 6000 g/60 cm, estimated with Apgar 1. The urgent reanimation was undertaken. After few hours, the baby was transferred to the Pediatric Surgical Clinic for further treatment of present pneumotorax and humerus fracture. After many days, the baby being in normal state was referred to physical rehabilitation treatment. Today, the baby is without sequelae.

SD is one of the most difficult, hardly predictable perilous obstetric complications with high percentage of maternal morbidity and fetal morbidity and mortality. It requires caution, training and skills of obstetric-neonatal team. Liberalization of the use of Caesarian section in managing SD decreases the occurrence of injuries in both mother and child. However, regardless of very rapid development of perinatology and the use of modern diagnostic-therapeutic protocols, some questions from classical, practical obstetrics remain unanswered. *Acta Medica Medianae 2009; 48(2):41-43.*

Key words: macrosomia, fetus, dystocia, shoulders, surgeries, obstetric

Clinic of Gynecology and Obstetrics, Clinical Center Niš

Contact: Predrag Vukomanović
Clinic of Gynecology and Obstetrics
Bul. dr Zorana Djindjića 48
18000 Niš, Serbia

Introduction

Shoulder dystocia (SD) is defined as unpredictable, urgent obstetric complication that happens when mother's pelvis is sufficiently wide to deliver fetal head, but not wide enough to deliver fetal shoulders. It is considered as a type of fetopelvic disproportion. It is one of the most severe obstetric complications (1-4). It is associated with high percentage of maternal morbidity as well as fetal morbidity and mortality. Fetal lethality for hypoxia is 2-16%. Multifactor risk factors for the appearance of SD are: fetal macrosomia, fetal malformation, obesity and short stature of a mother, tight pelvis, diabetes mellitus, gestational diabetes, multiparity, post-term pregnancy, prolonged first and second delivery age, delivery induction with oxytocin and prostaglandins, medium vacuum extraction, early Kristeller maneuver (8).

www.medfak.ni.ac.yu/amm

Case report

Twenty-five-year old pregnant woman in her second pregnancy was admitted to the Clinic of Gynecology and Obstetrics in Niš, at the high risk pregnancy unit because of uterine contractions in the 37th week of clinical gestation. Anamnestic data showed that pregnancy was properly monitored by regular clinical, ultrasonography and laboratory examinations in every trimester, and that pregnancy passed without any difficulties. We also found out that the previous full-term pregnancy ended with vaginal delivery, with 4000 grams live and vital neonatus delivered. She was clinically, ultrasonographically and cardiotocographically (CTG) examined at admission. Ultrasound showed that the fetus reached biometric values for full-term pregnancy, with sufficient amount of amniotic fluid and grade II placenta. Estimated fetal body weight at admission was 3890 g. CTG showed that heart frequency was within referential values, without any fetal distress, as well as the absence of uterine activity. During hospitalization, suspecting on gestational diabetes, we performed the oral glucose

tolerance test (OGTT), and checked the blood glucose level. Obtained results were within the referential values. Doppler ultrasound imaging showed the normal flow through uterine, umbilical and cerebral blood vessels. Laboratory analyses, as well as microbiological analyses of vaginal and cervical smear, were regular. In the 39th week of clinical gestation, the pregnant woman was transferred to the maternity hospital because of the fetal membrane rupture. At admission, we did routine external examination – pelvic measures, waist circumference and fundal height measurement. Pelvic measures pointed to normally built pelvis, while the waist circumference and fundal height measurement (107 cm, 35 cm) pointed to likely bigger fetus. We started with the first active delivery period, with continuous CTG monitoring. Because of weak secondary uterine contractions we used the oxytocin infusion. Spasmolytics were used several times. Fetal head rotation was helped by turning the pregnant woman to the adequate side. After 10 hours of active delivery, we concluded that the uterine orifice was completely dilated, that the fetal head was on the bottom of the uterus and that inner rotation was not completed. We decided to finish the delivery using vacuum-extraction with the pediatric team present. The left, mediolateral episiotomy was performed, the suction cup of the vacuum extractor was placed and extraction of the head was performed. The procedure finished regularly with usual duration. After the head delivery, we proceeded to shoulder delivery, but realized that they were stuck. McRoberts maneuver with Resnik suprapubic pressure were immediately performed, followed by another episiotomy. As the said maneuvers did not have the expected result, the aspiration of the upper respiratory tract of the fetus was performed followed by the Hibbard and Kristeller maneuvers. The shoulders were free and the fetus was delivered. The described procedures lasted 5 minutes maximum. At birth, the newborn was male, with pale skin, without spontaneous breathing, reflex and tonus with rare heart beats, with humeral fracture, scored as Apgar 1. The pediatrics and anesthesiologists did the reanimation. After longer reanimation (endotracheal intubation, heart massage, oxygenation and adrenalin use), rhythmic heart rate and irregular breathing were established. The baby weight was 6000 g and length 60 cm. It was referred to the intensive unit of the neonatal department and put in the incubator. Episiotomies were done with the instrumental revision of the cervix. After few hours, for the development of pneumothorax, the baby was moved referred to the Pediatric Surgery Clinic for further treatment. After performing radiography, CT and MR imaging as well as clinical examination, the following was concluded: left humerus fracture, pneumothorax, brain edema, and right plexus brachial paresis. Active treatment was undertaken. Several weeks after the delivery, the baby was dismissed with

recommendations for physical rehabilitation. After rehabilitation, the baby was dismissed without any sequelae.

Discussion

Urgent conditions in obstetrics are unexpected, often unpredictable, with high percentage of fetal and maternal morbidity and mortality. Fetal complications include acute distress, neurological and orthopedic consequences and fetal death (5, 7). Maternal complications are blood loss, shock, severe injuries of soft tissues, and death. Change of decision about completing pregnancy and delivery by Caesarian section has decreased the overall perinatal and maternal morbidity and mortality. However, urgent and unpredictable conditions still stay enigmatic and represent the problem of contemporary obstetrics. Shoulder dystocia is one of the most difficult and hardly predictable obstetric complications (8). It has intrigued the obstetric caution for decades. SD incidence is 0,15-2%. SD results from fetopelvic disproportion, for both fetal and maternal causes. Fetal macrosomia is the most frequent cause of SD (9). Literature suggests that in children with 4000-4999 g of weight at birth SD appears in 8,6% cases, and in 35,7% among those with the birth weight over 5000 g. SD should be considered as a very urgent obstetric condition, i.e. fatal perinatal complication with possible and very frequent injuries of both mother and child during the delivery and obstetric manipulations (10). The most frequent complications are: clavicle fracture, brachial plexus damage, sternocleidomastoid muscle damage, neck spinal cord injuries, Horner syndrome, humeral fracture, shoulder joint dislocation, peripartal hypoxia and asphyxia, and peripartal death. All of these complications appear during crude manipulations with the aim of releasing stuck shoulders (11).

In order to solve the problem, complete obstetric neonatal team should be gathered which should proceed with the primary, external noninvasive procedures, such as Resnik's suprapubic pressure with McRobert's and Hibbard maneuvers. If these procedures do not result as expected, aspiration of the child's upper respiratory tract should be performed, after which secondary, internal obstetric maneuvers should be done without hesitation, with another episiotomy. Those are: Woods maneuver, Rubin shoulder rotation, Kinch shoulder rotation and releasing back arm. If the listed manipulations do not manage to release the shoulders, the following obstetric procedures must be done: iatrogenic humeral fracture, clavicle fracture and Zavaneli maneuver (12-14).

Conclusion

SD is one of the most difficult, hardly predictable and fatal obstetric complications with

high percent of maternal morbidity and fetal morbidity and mortality. It requires great caution and skillfulness of the whole obstetric-neonatal team. Recognizing the risk factors is the imperative of modern obstetrics in order to avoid the drama in releasing the stuck shoulders during the vaginal delivery. Liberalization of using the

Caesarian section in managing SD greatly decreases the injuries of both mother and child. However, regardless of a very quick development of perinatology and the use of modern diagnostic-therapeutic protocols, some questions in classical, practical obstetrics remain unclear (1, 3, 5, 6, 9).

References

- Gilby JR, Willaims MC, Spellacy WN. Fetal abdominal circumference measurements of 35 cm as predictors of macrosomia. A risk factor for shoulder dystocia. *J Reprod Med* 2000; 45: 936-8.
- Tukeva TA, Salmi H, Poutamen VP, Katjalainen PT, Hytinantti T, Paavonen J, et al. Fetal shoulder measurements by fast and ultrafast MRI techniques. *J Magn Reson Imaging* 2001;13: 938-42.
- Kees S, Margalit V, Schiff E, Mashiach S, Carp HJ. Features of shoulder dystocia in a busy obstetric unit. *J Reprod Med* 2001; 46: 583-8.
- Drummond SB, Bruner JP, Reed GW. Management of shoulder dystocia. *Tenn Med* 2000; 93: 331-33.
- Ransey PS, Ramn KD, Field CS. Shoulder dystocia. Rational maneuvers revisited. *J Reprod Med* 2000; 45: 85-8.
- Habek D, Ivcevic-Bakulic T, Herman R\$, Hodek B, Klaric P, Tuckar N, Belosic-Brlekovic V, Butorac D. Distocija ramena. *Gynaecol Perinatol* 2000;9:59-63.
- Calder AA. Emergencies in operative obstetrics. *Baillieres Best Pract Res Clin Obstet Gynaecol* 2000;14(1):43-55.
- Gherman R. Catastrophic shoulder dystocia – what is the etiology? *Am J Obstet Gynecol* 1998;178:417.
- Ginsberg NA, Moisidis C. How to predict recurrent shoulder dystocia. *Am J Obstet Gynecol* 2001; 184: 1427-9.
- Gottlieb AG, Galan HL. Shoulder dystocia: an update. *Obstet Gynecol Clin North Am* 2007;34(3):501-31.
- Mocanu EV, Greene RA, Byrne BM, Turner MJ. Obstetric and neonatal outcome of babies weighing more than 4,5 kg: an analysis by parity. *Eur J Obstet Gynecol Reprod Biol* 2000; 92: 229-33.
- Lam MH, Wong GY, Lao TT. Reappraisal of neonatal clavicular fracture: relationship between infant size and neonatal morbidity. *Obstet Gynecol* 2002; 100: 115-9.
- Stallings SP, Edwards RK, Johnson JW. Correlation of head-to-body delivery intervals in shoulder dystocia and umbilical artery acidosis. *Am J Obstet Gynecol* 2001; 185: 268-74.
- Gherman RB, Tramont J, Mufley NP, Goodwin TM. Analysis of McRoberts' maneuver by x-ray pelvimetry. *Obstet Gynecol* 2000; 95: 43-7.

VAGINALNI POROĐAJ GIGANTSKOG PLODA – RAMENA DISTOCIJA

Predrag Vukomanović, Milan Stefanović, Mileva Milosavljević, Ranko Kutlešić, Jasmina Popović i Goran Lilić

Ramena distocija (RD) se definiše kao nepredvidiva, urgentna akušerska komplikacija koja se dešava kada je karlica majke dovoljno prostrana da se rodi fetalna glavica, ali nedovoljno prostrana da se rode fetalna ramena. Udružena je sa visokim procentom maternalnog morbiditeta i fetalnog morbiditeta i mortaliteta. Fetalni letalitet zbog hipoksije iznosi 2-16%.

Prikazujemo slučaj vaginalnog porođaja drugorotke u 39. nedelji gestacije. Rađanje glavice načinjeno je izlaznom vakum-ekstrakcijom. Zbog nastale distocije (zaglavljivanja) ramena, primenjen McRoberts-ov manevar sa Resnikovim suprapubičnim pritiskom i pravljenjem još jedne epiziotomije. Kako pomenuti manevri nisu dali očekivani rezultat, načinjena je aspiracija gornjih disajnih puteva ploda, a zatim je primenjen Hibbard-ov hvat sa istovremenim Kristelovim manevrom. Tada je došlo do oslobađanja ramena i rađanja ploda. Na rođenju plod muškog pola TT 6000 grama/60 cm, ocenjen Apgarom 1. Pristupljeno urgentnoj reanimaciji. Posle par sati beba prebačena na Dečiju hiruršku kliniku radi daljeg lečenja zbog prisutnog pneumotoraksa i frakture humerusa. Posle više dana, beba je u dobrom stanju prebačena na fizikalno-rehabilitacioni tretman. Danas je beba bez sekvela.

RD spada u jednu od najtežih, teško predvidivih i pogibeljnih akušerskih komplikacija sa velikim procentom maternalnog morbiditeta i fetalnog morbiditeta i mortaliteta. Zahteva veliku obazrivost ali i uigranost i osposobljenost kompletnog akušersko-neonataloškog tima. Liberalizacija primene carskog reza u rešavanju RD u velikom broju smanjuje nastajanje ozleda majke i deteta. Međutim, bez obzira na veoma brz razvoj perinatologije i primenu najsavremenijih dijagnostičko-terapijskih protokola pojedina pitanja iz klasičnog, praktičnog akušerstva i dalje ostaju otvorena. *Acta Medica Medianae* 2009;48(2):41-43.

Ključne reči: makrozomija, fetus; distocija, ramena; operacije, akušerske