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Case Report

A Simple Maneuver to Facilitate Delivery in Shoulder Dystocia

Omuz Distosisinde Doğumu Kolaylaştıracak Basit Bir Manevra

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Abstract

Shoulder dystocia is an unpredictable complication of vaginal delivery and it could lead serious adverse maternal and neonatal outcomes. Prompt intervention and appropriate management of this obstetric emergency is essential to reduce the risk of adverse outcome. The maneuvers that had various advantages and disadvantages to alleviate shoulder dystocia have been described previously. In this report, we defined a new, easy to perform and noninvasive maneuver which could be used to relieve shoulder dystocia. This maneuver was successfully implemented in two nulliparous and two multiparous women who had experienced shoulder dystocia during vaginal delivery. After the diagnosis of shoulder dystocia and unsuccessful McRoberts and suprapubic pressure maneuver, the gentle upward traction on the fetal head and neck was performed in the lithotomy position. The posterior shoulder slipped forward in the sacral hollow and brought closer to the introitus with this maneuver. Thus, the anterior and posterior shoulders were no longer in the same antero-posterior plane of the pelvis. Then the gentle downward traction on the fetal head was applied until the anterior shoulder protruded through the perineum and the impacted anterior shoulder dislodged from behind the symphysis pubis. No other maneuver was needed for the completion of the delivery in these four cases, and no maternal or neonatal complication was observed. In conclusion, the presented maneuver is an easy and noninvasive maneuver. It could be easily learned with simulation training and used in the management of shoulder dystocia.

Keywords: Shoulder dystocia; maneuver; delivery

Öz

Omuz distosisi vajinal doğumun öngörülemeyen bir komplikasyonudur, anne ve yenidoğanda ciddi olumsuz sonuçlara yol açabilir. Olumsuz sonuç riskini azaltmak için bu acil obstetrik duruma hızlı müdahale ve uygun yönetim esastır. Omuz distosisini hafifletmeye yönelik çeşitli avantaj ve dezavantajları olan manevralar daha önce tanımlanmıştır. Bu raporda omuz distosisini hafifletmek için kullanılabilecek, uygulaması kolay ve noninvaziv yeni bir manevra tanımladık. Bu manevra, vajinal doğum sırasında omuz distosisi yaşayan iki nullipar ve iki multipar kadında başarıyla uygulandı. Omuz distosisi tanısı konulduktan ve McRoberts ve suprapubik basınç manevrasının başarısız olmasından sonra litotomi pozisyonunda fetal baş ve boyuna hafif yukarı traksiyon uygulandı. Bu manevra ile arka omuz sakral boşlukta öne doğru kayarak introitusa yaklaştırıldı. Böylece ön ve arka omuzlar artık pelvis içinde aynı antero-posterior düzlemde değildi. Daha sonra, obstrukte ön omuz simfiz pubisin arkasından kurtulana ve perineden dışarı çıkana kadar fetal başa hafif aşağı doğru traksiyon uygulandı. Bu dört olguda doğumun tamamlanması için başka bir manevraya ihtiyaç duyulmadı ve anne veya yenidoğanda herhangi bir komplikasyon görülmedi. Sonuç olarak sunulan manevra kolay ve noninvazif bir manevradır. Simülasyon eğitimi ile kolaylıkla öğrenilebilir ve omuz distosisi yönetiminde kullanılabilir.

Anahtar Kelimeler: Omuz distosisi; manevra; doğum

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1. Introduction

Shoulder dystocia is a poorly predictable complication of vaginal delivery. The incidence of this obstetric emergency varies from 0.2% to 3% (1). Although a number of risk factors such as maternal diabetes mellitus, fetal macrosomia, history of dystosia, precipitous or prolonged second stage of labor are known, shoulder dystocia is still unpredictable and unpreventable complication of delivery (1-3). Failed delivery of fetal shoulders after the head emerges could be the reason for serious neonatal and maternal adverse outcomes (4). Appropriate management of dystocia is essential to reduce the risk of these complications and permanent sequels in neonates. Various maneuvers to alleviate shoulder dystocia have been described in the literature previously. McRoberts maneuvers with or without suprapubic pressure is the first-line maneuver recommended by the guidelines (1,5) because it is easy to perform and noninvasive. The reported success rate of the McRoberts maneuver varies between 24–62% (6,7). When the McRoberts maneuver and suprapubic pressure are unsuccessful, second-line maneuvers such as delivery of posterior arm, Wood corkscrews maneuver, Rubin maneuver, or Zavanelli's maneuver may be implemented (5). However, these maneuvers are more complicated, difficult to perform, and invasive. In this report, we defined a new, noninvasive, and easy to perform maneuver that could be used in the management of shoulder dystocia.

2. Case Report

This new maneuver was implemented in two nulliparous and two multiparous women who had experienced shoulder dystocia during vaginal delivery at a tertiary care center. Informed consent was obtained from all women. Shoulder dystocia was diagnosed in the cases when the delivery of the fetal shoulder failed with gentle downward traction on the fetal head. The new maneuver was implemented after the dystocia could not be resolved with the McRoberts maneuver and suprapubic pressure in all women.

The verified steps of the technique are as follows (Figure 1):

1. In the lithotomy position, gentle upward traction on the fetal head and neck was applied firstly. In this step, forceful traction on the fetal head was avoided in order not to cause brachial plexus injury in the posterior arm.

2. Secondly, gentle downward traction on the fetal head was applied until the anterior shoulder protruded through the perineum.

The upward traction on the fetal head and neck enabled the posterior shoulder to slide down in the sacral hollow and to advance to the introitus. So, the shoulders were freed from being in the same anteroposterior plane of the pelvis. Then the impacted anterior shoulder could be dislodged from behind the symphysis pubis by gentle downward traction on the fetal head.

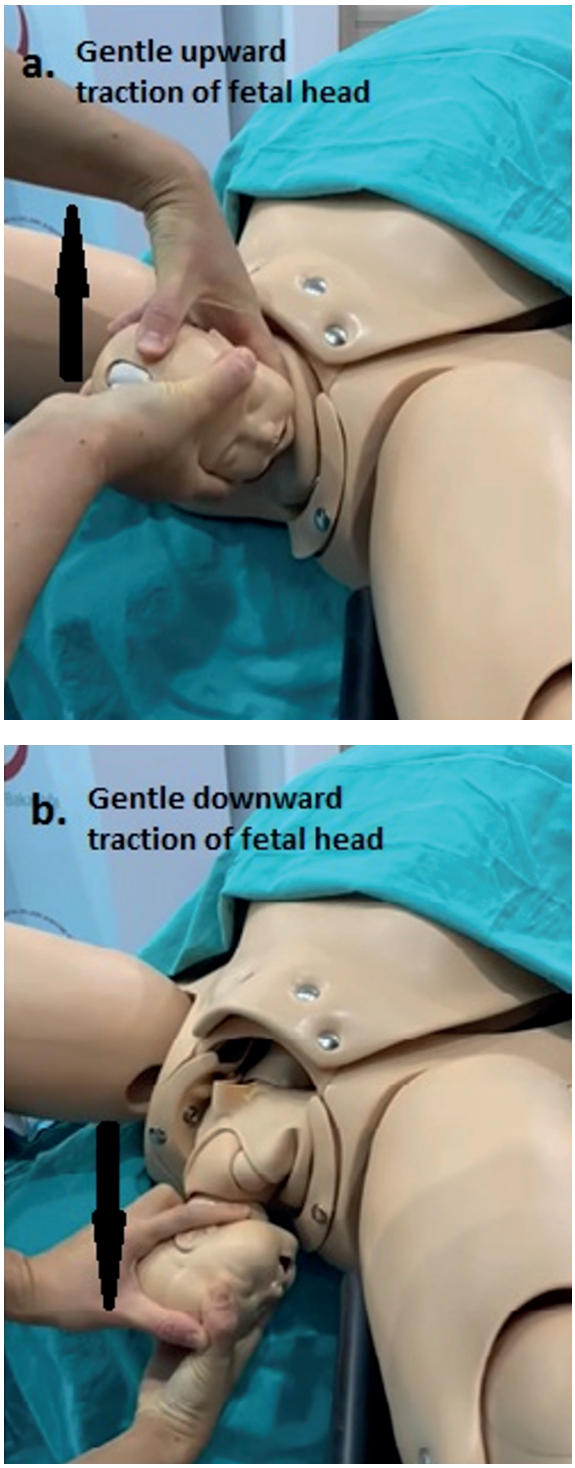

Figure 1. The technique of the new maneuver. The woman is in the lithotomy position. The gentle upward traction (a) and then the gentle downward traction (b) on fetal head were applied, respectively.

The first case was a 20-year old woman, G2P1 with a history of vaginal delivery without any complication. The Body Mass Index (BMI) of woman was 29 kg/m^2, she had no history of fetal

macrosomia or shoulder dysocia in previous delivery. At 37 2/7 weeks of gestation, spontaneous labor was initiated. The first stage of the labor lasted 2 hours and the second stage lasted less than 30 minutes. Mc Roberts maneuver and suprapubic pressure which failed was attempted by obstetrician firstly. Then a gentle upward and downward traction was applied to the fetal head, respectively. The anterior shoulder dislodged behind the symphysis pubis and became visible outside the perineum with this maneuver. Then delivery proceeded without complication. Apgar scores at 1 and 5 minute for the neonate were 9 and 9. The newborn birthweight was 3765 gr. The baby was removed in less than 30 seconds with this maneuver. No maternal and neonatal injuries were occurred.

The second case was a 22-year old woman, G2A1. The BMI was 22 kg/m^2, she had no history of diabetes mellitus. She was at 41 weeks of gestational age when the spontaneous labor was initiated. Labor induction or augmentation was not applied in this women and other cases presented. The labor was progressed normally with a 4-hour first stage and one hour second stage. The anterior shoulder that could not be delivered with Mc Roberts maneuver and suprapubic pressure was dislodged with defined new maneuver. After the anterior shoulder became visible under the symphysis pubis, the delivery was completed without any complication. The newborn birthweight was 3910 gr and the Apgar score at 1 and 5 minute were 9-10. No neonatal injury was occurred. The mediolateral episiotomy was repaired. No other laceration was observed in the postpartum pelvic examination of woman.

The third case was a G1, 19-year old woman. Her BMI was 27 kg/m^2. The spontaneous labor was initiated at 39 4/7 weeks of gestation. The first stage of labor lasted 5 hour and the second stage was 40 minutes. The fetal head was anterior occiput position during descent in this woman and the other three cases. Mc Roberts maneuver and suprapubic pressure were unsuccessful in relieving the shoulder dystocia. The anterior shoulder dislodged with the gentle upward traction and then the downward traction of fetal head. Delivery was completed without maternal and neonatal injury. Apgar scores for the neonate were 9 and 10 at 1 and 5 minute, and the newborn birthweight was 3180 gr.

The fourth case was a 28 year-old woman, G3P2 with the history of two vaginal deliveries. There was no history of shoulder dystocia in previous deliveries. The BMI of woman was 27 kg/m^2. The labor was initiated at 40 5/7 weeks of gestation spontaneously. The first stage of labor was 6 hours and the second stage lasted 15 minutes. The episiotomy was performed in this woman and the other cases. Upward- downward traction of fetal head was applied after the failed Mc Roberts maneuver and suprapubic pressure and the impacted anterior shoulder dislodged the symphysis pubis. No maternal and neonatal injury was observed after the completion of delivery. The newborn birthweight was 3610 gr, and Apgar scores at 1 and 5 minutes were 8 and 10.

3. Discussion

Shoulder dystocia is an unpredictable and unpreventable obstetric complication and various maneuvers were defined for the management up to date. Previous maneuvers have some advantages and disadvantages over each other and none of them have a 100% success rate. The presented maneuver has some advantages over the previously defined maneuvers. One of its advantages is that there is no need for assistance during implementation. One or two assistants are required for the McRoberts maneuver and suprapubic pressure which are the first-line maneuvers in the shoulder dystocia management. Another handicap of the McRoberts maneuver with suprapubic pressure is that it can cause about 10% brachial plexus injury (8). In the presented cases, no maternal or neonatal adverse outcomes were observed. However, results of larger series are required to be able to say that the obstetric complication rate is lower with this maneuver than with the others.

The initial movement of the fetal head and shoulders in the presented maneuver was similar to that in the Gaskin- all fours maneuver. As in the Gaskin-all fours maneuver (9), the fetal head is initially moved toward the symphysis pubis and the posterior shoulder advanced to the introitus with the presented maneuver. The difference between the new maneuver and the Gaskin is that the posterior shoulder does not need to be completely protruded through the perineum at this step. The other difference is that there is no need for a position change during the implementation of the new maneuver. In Gaskin—all fours maneuver, the woman is placed on her hands and knees, and it can mostly be performed in the bed (10). However, this new maneuver was carried out in the lithotomy position, and it could be easily performed both in the bed and on the delivery table without falling danger.

The American College of Obstetricians and Gynecologists recommended the delivery of the posterior arm as the next maneuver when the McRoberts maneuver and suprapubic pressure are unsuccessful (1). The success rate of this maneuver is 84% (10). Delivery of the posterior arm allows the biacromial diameter to be converted to the acromial-axillar diameter. However, the implementation could be difficult in babies with large birthweights and women with constricted pelvic anatomy due to difficulty in reaching the posterior hand. Humerus or

clavicle fracture could occur during attempts. Complete delivery of the posterior arm through the perineum is not required in the maneuver we have been described. The posterior shoulder sliding down in the sacral hollow was sufficient to alleviate the dystocia in the presented cases. Therefore, the risk of bone fracture could be significantly reduced with the new maneuver.

In the authors' experience, the presented maneuver made it easier to catch the posterior hand and delivery of the posterior arm in two cases of shoulder dystocia due to compound presentation (not discussed in this article). During upward traction of the fetal head, the hand at the behind of posterior shoulder protruded from the perineum, and the delivery of posterior arm was easily performed.

In conclusion, the presented maneuver is simple, noninvasive and no assistant required. It could be easily learned with simulation training and used to resolve the shoulder dystocia.

Author contribution

Study conception and design: TK; Draft manuscript preparation: TK and RSK; Revision and supervision: YEÜ. All authors reviewed the results and approved the final version of manuscript.

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Conflict of interest

The authors declare that there is no conflict of interest.

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