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# "Karoshi-Henrich" Technique of Caesarean Assisted Vaginal Breech Delivery

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## Abstract

In this article, two obstetricians from England and Germany report a unique safe technique of overcoming entrapment of after-coming foetal body parts during vaginal breech delivery. They had independently used the same technique, without being aware of any prior reports in the literature before. After meeting at a scientific meeting, they co-wrote a case series of two patients and hope that they can share tips and techniques for practicing obstetricians all over the world.

***Keywords:*** *Karoshi-Henrich" Technique; Caesarean; Vaginal Breech Delivery*

## Context

Foetal head entrapment during vaginal breech delivery may result from an incompletely dilated cervix and a head that lacks time to mold to the maternal pelvis. This occurs in 0 - 8.5% of vaginal breech deliveries [1]. This is a serious obstetric emergency with potential for catastrophic consequences and sometimes beyond the ordinary obstetricians' capabilities to overcome this unique challenge.

In this article, two authors from two European countries describe a new technique of overcoming difficulties in delivery of the after-coming head of the baby during assisted vaginal breech delivery.

Mr. Karoshi (MK) and Prof. Henrich (WH) were attending the symposium on maternity in Buenos Aires (November 2016). During the meal time, over the dinner table whilst discussing the unique experiences, it became apparent that two authors (MK and WH) employed exactly the same technique in 2010 (MK) and 2015 (WH), caesarean assisted vaginal breech delivery to overcome the unique challenge of difficulty in delivering the remaining foetal parts when further delivery through the vaginal route deemed impossible.

## Introduction

A breech birth is when a baby is born bottom first instead of head first. Around 3 - 5% of pregnant women at term (37 - 40 weeks pregnant) have a breech baby.

Most babies in the breech position are born by a caesarean section because it is seen as safer than being born vaginally.

Doctors and midwives in the developed world have lost many of the skills required to safely assist women giving birth to a breech baby vaginally. Delivering all breech babies by caesarean section in developing countries is difficult to implement as there are not always

resources available to provide this service.

Head entrapment is caused by the failure of the fetal head to negotiate the maternal midpelvis. At full term, the fetal bitrochanteric diameter (the distance between the outer points of the hips) is about the same as the biparietal diameter (the transverse diameter of the skull)-simply put the size of the hips are the same as the size of the head. The relatively larger buttocks dilate the cervix as effectively as the head does in the typical head-down presentation. In contrast, the relative head size of a preterm baby is greater than the fetal buttocks.

## Factors influencing the safety

Birth attendant's skill (and experience with breech birth) - The skill of the doctor or midwife and the number of breech births previously assisted is of crucial importance. Many of the dangers in vaginal birth for breech babies come from mistakes made by birth attendants. With the majority of breech babies being delivered by caesarean section there is more risk that birth attendants will lose their skills in delivering breech babies and therefore increase the risk of harm to the baby during a vaginal delivery.

In this article, authors explain about two women who presented in rapidly progressing labour with breech presentation. The labour progressed so rapidly that, authors did not have time preparing these women to go through the labour.

Authors independently, unaware of each other performed exactly the same technique and this uniqueness became apparent only when they met face to face and discussed their worst nightmares in obstetric practice and how they were overcome.

Late diagnosis/late presentation of breech presentation at term remains a challenge in all over the world. Even though caesarean delivery is safe, but, sometimes, the progress of labour can be so fast there is hardly any time to prepare such mothers can be challenging.

Having a back up, i.e. in this case Karoshi-Henrick technique of vaginal breech birth gives an extra layer of security to both doctor and patient.

## Case #1

The first author (MK) attended 34 weeks' primigravid mother with a well grown flexed breech presentation in spontaneous labour.

Progress was rapid. There was no evidence of intrapartum hypoxia (based on foetal cardiotocography) and after discussion with patient and spouse; a decision was made to conduct an assisted vaginal breech delivery. The mother was placed in Lloyd Davis position when 2$^{nd}$ stage was reached in order to facilitate delivery.

The baby delivered spontaneously until the level of mid abdomen (See figure 1). Gentle traction manoeuvres failed to achieve further progress and the author felt a strong resistance of maternal soft tissues.

***Figure 1***


Consideration was made immediately to deliver the baby through the abdominal route (caesarean delivery). After entering the uterine cavity, it was apparent, that baby had an extended neck and nuchal arms. Initial attempts to "lift" the baby out of the pelvis by "hooking" both axillae with the author's fingers were not successful. At this stage, it was considered that, further attempts would risk fracturing the baby's ribs and dislocating its' shoulder. It became evident that the likely cause of obstruction were the baby's nuchal arms and extension of the baby's head. At this stage, author (MK), decided to change to vaginal route as it was felt that, correction of the baby's problems through caesarean wound may facilitate vaginal delivery. The author's left hand then proceeded to flex the foetal arms and baby's head. Following these two manoeuvres, the baby was delivered vaginally with gentle traction with Apgars of 7 and 9.

## Case #2

A 30 year old primigravid patient presented at 39thweek of pregnancy in labour with regular contractions at 3cms of cervix dilatation. The baby was in breech presentation. During the antenatal care, which took place in another hospital, all options for the management of breech in pregnancy including a planned caesarean section were discussed and a decision made to allow a trial of vaginal breech delivery. The mode of delivery was again discussed on admission and the plan for vaginal breech delivery confirmed. Labour progressed quickly with the cervix becoming fully dilated within 1 hour from admission. At this time, the baby's feet were presenting at the introitus and a decision was made to continue the vaginal breech delivery. Here, the patient was placed in the Lloyd Davis position. Two senior obstetricians were then present to perform the delivery. With maternal effort, the baby could then be delivered up to the level of the shoulder blades without assistance. The foetal arms were not delivered spontaneously and an attempt at arm delivery with the use of the "Bickenbach" technique was successfully performed [2]. The head however, did not deliver spontaneously and attempts with the Burns Marshall technique [3] and then the "Veit Smellie" technique [2], both with supra-pubic pressure were not successful. A cervical incision [4] (Dührssen Incision) was then made in an attempt to create more space for the head delivery. This was also unsuccessful.

At this point, despite it being in the middle of the night, WH, the on call consultant and director of the clinical services received a phone call from the operating theatre about the situation.

(The description was that, two of his experienced senior residents were attempting to perform vaginal assisted breech delivery of a term baby and they were successful up to the delivery of the baby's neck and further gentle attempts to deliver the baby's head were not successful. Because of this unique challenge in the middle of the night, 2nd author (WH) senior residents contacted him at his residence through telephone call).

WH suggested to his senior residents to perform a caesarean delivery and attempt the delivery and made his way to the hospital.

This patient was informed of the decision and agreed to proceed. The caesarean was performed under general anaesthetic. Intra-operatively, it was evident that, the foetal head was found to be extended above the sacral promontory. One resident then lifted the baby's head from its obstruction point and achieved flexion of the head and applied gentle downward pressure. This manoeuvre allowed the head to descend through the vaginal canal. The second resident then successfully delivered the after-coming head of the breech baby. When WH arrived, his residents had already completed the delivery of the baby and were at the final steps of the closure of caesarean wound. The baby was delivered with Apgar scores of 1 at 1 minute, 2 at 5 minutes and 5 at 10 minutes with an umbilical artery pH of 7.26. The newborn successfully resuscitated and was admitted to the neonatal unit for further observation. The baby was then discharged 5 days later without any evidence of hypoxic injury. The mother then had an uneventful recovery postnatally and was debriefed regarding the delivery before discharge from hospital.

## Conclusion

In this article, two senior authors from two European countries, i.e. England and Germany, have performed caesarean delivery to overcome the difficulty encountered in the assisted vaginal breech delivery. Authors are not aware of any previously published studies in the scientific literature before.

In 1994, Landy., *et al.* [5] have described caesarean being performed for the entrapped after coming head in vaginal breech delivery of the baby. But, authors describe, use of vacuum extractor for the aftercoming head. By doing this, they delivered the baby through the abdominal route.

Authors (MK and WH) also feel that, if the Karoshi-Henrich technique employed correctly and appropriately in time, the potential to offer vaginal breech delivery to women increases and also obstetricians become more confident to perform vaginal breech delivery as trained obstetricians are well accustomed with caesarean delivery techniques.

Authors suggest that there is a potential to use Karoshi-Henrich Technique for all the mothers in whom vaginal breech delivery is attempted.

The actual vaginal breech delivery should be performed in the operating theatre with good analgesia such as epidural or spinal.

Patient should be placed in the Lloyd- Davies position with legs being supported in the stirrups.

Bladder should be emptied with indwelling catheter.

If time permits, patient should be prepped and draped for both routes of access, i.e. patient should be prepped for caesarean in the eventuality of baby's body parts being found to be difficult to deliver through the vaginal route. Both instrument trays (abdominal and vaginal) for delivery should be opened. The scrub nurse should have checked and opened the caesarean instrument tray. By doing this, time taken to open the abdomen and enter the uterine cavity safely will be minimized.

Appropriate team briefing should happen.

There should be minimum gentle manipulation of the baby whilst vaginal delivery of the breech presenting baby being attempted.

Once decision to perform caesarean delivery is taken, baby's body parts should be covered in a moist warm saline gauze or a swab and one assistant can stay at the vaginal end supporting the baby's body parts which are already outside the vagina.

Authors also suggest, not to cut the umbilical cord till the completion of delivery of all the body parts of the baby. If the cord is found to be occluded by the maternal tissues, then gentle manipulation can be attempted to relieve the obstruction. But, not too much time should be spent on this.

The usual reasons for arrest of foetal body parts being delivered through the vaginal route are, extension of foetal arm/s, extension of the foetal head. Head being stuck and extended at the maternal sacral promontory.

No attempt to deliver baby through the abdominal route should be performed. In other words, it is authors findings that, it is easier to push down the baby's body parts through the vaginal canal in the downward direction than pulling the baby up through the caesarean opening.

To make sure all the surgical cuts are appropriately dealt with (If episiotomy performed, it should be closed and caesarean opening to be closed in the standard manner.

Authors do not propose symphysiotomy as they feel that, obstetricians are accustomed to performing caesarean and symphysiotomy is so rarely used in modern obstetrics, it is hard to find anyone being trained appropriately to perform this surgical procedure in the developed and in some developing countries.

### Counselling techniques for some mothers who want to try vaginal mode of breech birth at term

Authors propose following counselling techniques to be employed when dealing with uncomplicated breech presentation

Plan A- External cephalic version of breech presentation close to term gestation.

Plan B - Elective caesarean for breech at term

Plan C - Vaginal breech delivery

Plan D - Karoshi-Henrich Technique for the entrapped foetal trunk or foetal head (Caesarean assisted vaginal breech delivery)

If mother prefers to have vaginal delivery, then the accoucheur should make use of above described Karoshi- Henrich technique. If mother comes in late stages of breech presentation in labour, then patient should be delivered in the operating theatre with immediate recourse to K-H technique facilitating vaginal breech delivery.

## Final Conclusions

First of all, in both the cases (mother and baby) i.e. patient from United Kingdom and Germany did not experience any untoward complications. In fact, a potentially serious complications for mother and baby were avoided by timely recourse to ultra emergency caesarean delivery. The situations obstetricians were challenged with would not have been suitable to perform forceps delivery for after coming head. As the foetal descent got arrested at the level of thorax in both cases. The only other option was to use excessive force on the baby, which would have caused serious morbidity to the baby and mother (extended episiotomy).

One also needs to be aware that, there is paucity of skills in conducting vaginal delivery of breech babies. But, once in a while, an obstetrician will be faced with challenging situation of already progressing vaginal breech delivery (beyond obstetrician's control), such conditions include late diagnosis of breech presentation in already started home birth or missed diagnosis of breech presentation and obstetrician has been asked to deal with the emergency.

In such situations, where there is arrest of further descent of foetal parts after the breech birth has commenced vaginally, rather than continuing with to more traumatic modes of virginal breech to complete the process, we propose, at this stage, to consider caesarean assisted vaginal birth as an option. Also, some mothers who are so fond of attempting natural childbirth knowing that, this can be done, gives obstetrician and patient a choice and a positive hope. By no means we want to promote our technique to be used routinely in vaginal breech births.

Also, the procedure we are proposing is nothing new to learn, just small modifications to the technique of caesarean and just being aware that such an option exists in crunch time.

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