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Emergency, Intra-Uterine Application of Ventouse for Vaginal Delivery of Unexpected Face Presentation of Second Twin. A Case for Reflection and Re-evaluation of Planned Delivery Strategies for Vaginal Birth in Remote Hospital Settings

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Abstract

We report a case of diamniotic, dichorionic twin pregnancy admitted at 37+6 weeks for induction of labour for mild growth restriction of leading twin. Both babies were cephalic at time of admission. The patient had an elective epidural and progressed actively to second stage. The first twin delivered easily, the cord was clamped followed by vaginal examination which determined that the second twin was cephalic, at station -2, with membranes intact. Amniotomy was performed safely. Unexpectedly, the head then failed to descend with directed maternal pushing and instead, extended to an anterior face presentation. Internal manoeuvres to flex the head were unsuccessful as was an attempt to reach the lower limbs and deliver by breech extraction. An emergency alarm for Caesarean section was called. In the interim, the foetal heart became bradycardic and so in this setting, digitally guided cavity application of ventouse to the posterior vertex was attempted. This was successful, followed by controlled traction, which allowed flexion and descent leading to safe vaginal delivery within 2 successive contractions. The baby was born without injury and with normal Apgar's.

Keywords: Dichorionic twin pregnancy; Caesarean section; Reproduction technologies; Prematurity; Emergency management; Syntocinon infusion; Vaginal examination

Introduction

Twin, and higher order, multiple gestations are rare, accounting for only 1 to 2% of all pregnancies [1], though this may be higher with the advent of assisted reproduction technologies and advanced maternal age [2]. Multiple pregnancies are significant because they are associated with a disproportionately high risk of maternal and perinatal harm which may be as much as five times higher than in singleton pregnancies. Whilst this may reflect mechanisms of delivery, it most often sequels complications that arise long before the time of birth. These may include errors of normal placentation, preterm labour and prematurity, or insufficient resource to tolerate the increased demand of pregnancy support leading to restricted growth in one or both of the babies in-utero [3]. None-the-less, mode of delivery is still important, particularly, for the second twin where the risk of intrapartum asphyxia during attempted vaginal delivery can lead to an unduly poor outcome. Evidenced based decision making becomes thus, an essential guide for safe care. Currently, there is consensus that planned vaginal delivery is appropriate when the leading twin presents as vertex. The position of the second tends not to affect this decision, as it may change in up to 20% right up to the time of delivery of the first. If then found to be breech, opinions agree that delivery is best conducted by assisted breech extraction, a procedure that may be preceded by external or internal podalic version when the baby presents initially as transverse. There is

however debate regarding best practice when the second twin is found to be cephalic [1,4], particularly when the presenting part is high as indeed it may be shortly after the birth of the first twin - should the baby be delivered as cephalic or should it be turned prior to amniotomy to allow controlled breech extraction? This case report presents the emergency management of an unexpected and precipitant malposition that occurred during the planned cephalic delivery of a second twin. It highlights current recommendations for best practice and reflects how these should perhaps be best adapted to areas of remote practice where there may be limited access for emergency caesarean section.

Case Report

A 29-year-old, multiparous woman was admitted at 37+6 weeks with a dichorionic, diamniotic twin pregnancy for planned induction of labour and vaginal delivery indicated by reduced growth velocity of the leading twin. The weight discordance between babies was estimated to be less than 500gms shortly before the planned date of delivery. The patient was well informed and previously had enjoyed two successful, normal vaginal deliveries. She was diagnosed with GDM at 28 weeks which was well controlled on diet. Routine, third trimester surveillance demonstrated growth restriction affecting the first twin from 32 weeks. This remained subtle with all other parameters of wellbeing reported as normal.

On admission, the cervix was favourable, both twins were confirmed cephalic by bed side ultrasound and amniotomy was performed. A Syntocinon infusion was commenced following standard protocol and an elective epidural put in place shortly before active labour established. Both twins were monitored continuously by CTG. Progress ensued uneventfully with the first twin delivered normally with Apgar's 9 and 9 at 1 and 5 minutes respectively. The baby weighed 2820 grams. The cord was clamped and the placenta left in-situ. Immediate bedside ultrasound confirmed cephalic presentation of the second twin. Vaginal examination showed station-2 with no palpable cord. Controlled AROM was performed. The accoucheur remained in position to confirm descent during the next contraction in synchrony with maternal pushing. Unexpectedly, the head remained high and deflexed to a forward facing, face presentation. An immediate attempt to correct position by forward flexion was unsuccessful and was followed by efforts to reach the buttocks and lower limbs for internal podalic version. This was also unsuccessful. An emergency buzzer was sounded and theatre notified for immediate Caesarean delivery. In the meantime, the foetal heart became bradycardic to 100 BPM. The accoucheur, still in position, carefully eased a kiwi ventouse cup into the uterine cavity and placed it as close as possible to the vertex which remained against the maternal back. Suction was applied, position checked to ensure well away from facial structures. Traction then followed with slow steady descent of the head leading to safe vaginal delivery. A live female baby was delivered with Apgar's 6 and 9 at 1 and 5 minutes respectively. She weighed 2400 grams and cried at birth. The paediatric team were in attendance. A small chignon was noted between the anterior and posterior fontanelles. There was no facial injury, no nuchal cord and the perineum was intact with estimated blood loss 600ml.

Discussion

Obstetric Clinical Guidelines recommend that safe vaginal delivery of a leading cephalic twin should be the norm in the absence of antecedent or emergent complications. Delivery of the second however, is somewhat more ambiguous. There is consensus that it should occur soon after the first, but if the heart rate is normal, there is no need to rush. For safe delivery, it is important to perform early abdominal and vaginal examination, including bedside USS if required, to confidently determine presentation and lie. Where this is cephalic and longitudinal, amniotomy can be considered followed by guided maternal pushes to encourage descent. External rotation may be necessary to correct an abnormal transverse lie, or alternatively and more commonly, an internal podalic version to breech presentation to allow assisted extraction. In each instance, the waters should be left intact until vaginal descent is required. This best ensures the success of each manoeuvre and, as far as possible, mitigates the risk of an undesired encounter with the descent of a prolapsed cord. The CTG should be monitored throughout and if for any reason, concerns arise, birth expedited by instrumental delivery, breech extraction or emergency caesarean section [5].

As noted, the mode of birth for the second twin during vaginal delivery is open to dialogue with no clear recommendation of how best to ensure safe outcome. Whilst most agree that it is safe, provided of course that the recommendations of clinical guidelines are met, such as expected fetal weight being greater than 1500gm, gestational age of at least 32 weeks and that any growth disparity between itself and the leading twin is less than 500gm [6]; there is very little consensus to tell us what to do when it presents as cephalic. Now this of course seems surprising, particularly as it has usually been the non-cephalic presentation that garners attention for discussion. Our case report demonstrates that whilst cephalic presentation is usually synonymous with expectations of successful vaginal delivery, it can also allow the advent of unexpected sequalae which may suddenly propel an otherwise benign delivery towards a much less certain outcome.

There is accord that breech extraction, with or without initial internal podalic version is recommended for non-vertex presentation [7-11]. The question of what to do when the position is cephalic, and unengaged remains contentious. If the head has dropped into the pelvis, a spontaneous vaginal delivery is likely. If, however, it remains high, the question of what to do is more vexing. Should we consider emergency caesarean, or convert to breech and perform a controlled assisted delivery where risk of complication is low despite the complexity of initial internal manoeuvres, or do we perform controlled amniotomy with slow

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release of fluid to allow the head to drop safely into the pelvis? In our case, the latter was chosen but was complicated by an unexpected malposition of the vertex to face presentation. This was unforeseen, and has rarely been described in other case reports and may occur in as little as 0.2% of all deliveries. Much of the available literature reports the events of singleton pregnancy where they wreak notoriety to all but few deliveries [12,13]. In this setting, the presenting part is the chin or mentum. It typically occurs because of abnormal, hyperextension of the neck instead of flexion which then forces the occiput towards the foetal back thus presenting wider diameter of the foetal to the maternal pelvis. The diagnosis is usually made during the second stage of labour when the head has deeply engaged. This is significant, because it makes rescue manoeuvres difficult. Attempts to forcibly flex and convert to vertex, or to rotate the chin to an anterior position are fraught with risk and are thus rarely advocated. It is only when the chin pushes up against the maternal symphysis, that a vaginal delivery is possible [14-17]. How this might extrapolate however, to recommendations of best practice when it is the second of a twin pregnancy that presents as face, is insufficiently evidenced to guide with confidence. We can speculate that in our case, because the findings occurred at a station much higher and more mobile, we had the opportunity to attempt manoeuvres that are not otherwise possible or safe, in singleton labour. None—the-less, with falling foetal heart rate, it was a situation of surmounting difficulty to rescue. The waters were broken and thus internal manoeuvres to convert to breech were thwarted and recourse to theatre for emergency surgical delivery were delayed by the difficulties of re-calling overnight on-call staff. Upon reflection, one may ask how to best respond to such an event? Since our aim is always to do no harm, or at least, to create no greater harm, an immediate answer would be to conduct all such deliveries in a manner that incurs least possible uncertainty, or in other words, least possible known risk. What are our options? We could do elective Caesarean for all patients. This would certainly eliminate the unknown, particularly in rural practice where access to theatre in emergency situations may be difficult, especially at night or after normal working hours. But there is cost to this, not just in terms of surgical risk, but the subtler mitigation of freedoms by an overly constrictive model of medical care. A more prudent approach might be to have theatre available on-site, whenever a difficult delivery is likely to occur but unfortunately this is not always possible as difficulties with staffing, and sustaining availability for other acuities, rarely allows such freedom. Let us instead, consider the expectation of safe vaginal delivery, how can we best safeguard this hope when the second twin presents as cephalic. Should we routinely perform internal version for breech extraction or should we proceed expectantly with the hope of continued vaginal descent? Had we done the former, the complication we encountered would not have occurred, but what we don't know is what else might have happened, what other risks may have ensued by performing an alternative procedure that the operator may or may have been familiar with, such as abruption, foetal or uterine trauma including head entrapment, or a cord accident [18]. Reassuringly, however, that these are rare sequalae and patients with nonvertex deliveries can expect to have comparable, if not higher, rates of successful relative to their cephalic counterparts [4,19]. Similarly, studies of vaginal delivery when the second twin was high, showed that cephalic delivery was just as safe as breech extraction suggesting that neither the anticipation of risk associated with expectant care, nor the interventions required to deliver as breech, led to any demonstrable change in outcome. There is however, one important caveat, and that is that for either procedure, the accoucheur is well trained and familiar with the techniques involved whether that be through recent experience or by comprehensive simulation training [18,20,21].

Conclusion

We present this case to bring to attention, the constraints and limitations of remote obstetric practice. Whilst ours is not the only report of successful instrumental delivery to safely birth a high presenting cephalic second twin, ours appears to the first where ventouse has been successfully applied as an innovative, emergency procedure to correct a face malpresentation. We acknowledge that this was not an ideal nor indeed, a desired outcome and we would not care to encounter it again. With this caution, we asked the question of how best to deliver twins in remote hospital setting. We concurred that vaginal delivery is a preferred and safe option when conditions of best practice are met. We then asked whether internal podalic version for breech extraction should be recommended routinely for the delivery of the second twin regardless of its' presentation? Whilst there is no simple answer, we acknowledge the importance of environmental congnizance, that is, of planning deliveries in a manner that is congruent with the capabilities of the service provider and practitioner, and of the availability and accessibility of the ancillary resources it holds. Our case report demonstrates an innovative procedure that was used to rescue a baby during the delay that ensued while waiting for emergency surgery. The practitioner eased a kiwi ventouse cup into the uterine cavity and placed it as close as possible to the vertex to correct a malpresentation and allow controlled delivery of the baby. Although this procedure is not cited by other reports, we present it as a lifesaving innovation of technique performed in a critical setting of risk to foetal wellbeing. We emphasise that should this be undertaken by other practitioners; the procedure must be performed with extreme care to avoid foetal and maternal pelvic injury. We therefore advocate the absolute necessity of upskilling, simulation practice and access to written resources such as this, to familiarize practitioners with the techniques available to them, some known and others perhaps less familiar, that empower them to perform safely, the procedures embedded to routine and emergency assisted obstetric practice. Given these conditions, we posit that the manoeuvre could also be offered with appropriate consent, as a trial in theatre prior to proceeding to perform C/S for patients who desire vaginal delivery.

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