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Original Research Article

Breech extraction in intrauterine fetal demise in modern obstetrics: a 10-year retrospective study from the Bundelkhand region

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ABSTRACT

Background: Breech extraction is a declining obstetric skill in modern practice; however, it continues to have relevance in selected situations such as intrauterine fetal demise (IUD), particularly in resource-limited settings. Proper technique is essential to minimise maternal morbidity.

Methods: This retrospective observational study included cases of intrauterine fetal demise delivered by breech extraction at a tertiary care centre in the Bundelkhand region between January 2016 and December 2025. Maternal demographic data, obstetric characteristics, indication for breech extraction, technique used, and maternal complications were analysed.

Results: A total of 50 cases were included. Breech extraction was successfully performed vaginally in all cases. The procedure was associated with minimal maternal morbidity, with postpartum haemorrhage and genital tract trauma being the most common complications. No maternal mortality was observed.

Conclusions: Breech extraction remains a safe and effective method of delivery in cases of intrauterine fetal demise when performed judiciously by experienced obstetricians, even in modern obstetric practice.

Keywords: Breech extraction, Intrauterine fetal demise, Vaginal delivery, Obstetric skills, Retrospective study

INTRODUCTION

In modern obstetric practice, the role of vaginal operative techniques such as breech extraction has declined significantly due to increasing preference for caesarean delivery and reduced training exposure.¹ However, breech extraction continues to have a defined role in specific clinical scenarios, particularly in cases of intrauterine fetal demise (IUD), where fetal salvage is no longer a consideration and maternal safety becomes the primary objective.^{2,3} In cases of IUD with breech presentation, breech extraction allows for controlled vaginal delivery, avoidance of unnecessary caesarean section, and reduction of operative morbidity.⁴ This is especially relevant in resource-limited regions such as Bundelkhand, where

surgical facilities may be constrained and patients often present late in labour.⁵ Despite its importance, literature focusing on the methodology and technical aspects of breech extraction in IUD cases is limited.⁶ This study aims to describe our institutional experience with breech extraction over a 10-year period, with particular emphasis on the technique employed and associated maternal outcomes.

METHODS

Study design

This was a retrospective observational descriptive study.

Study setting

This study was conducted in the Department of Obstetrics and Gynaecology at MLB Medical College, Jhansi, a tertiary care teaching hospital located in the Bundelkhand region.

Study period

The study was collected and analyzed from January 2016 to December 2025.

Study population

All cases of intrauterine fetal demise delivered by breech extraction during the study period.

Inclusion and exclusion criteria

The study included cases of confirmed intrauterine fetal demise with breech presentation, with gestational age between 24 and 32 weeks, singleton pregnancies, and those delivered vaginally by breech extraction, including patients with a history of one previous caesarean section.

Cases with multiple pregnancies, major uterine anomalies, and those with a history of two or more previous caesarean sections were excluded from the study.

Methodology: technique of breech extraction

All cases were thoroughly evaluated prior to delivery. Diagnosis of intrauterine fetal demise was confirmed by ultrasonography. Pelvic adequacy was assessed clinically. Breech extraction was planned only in cases with a favourable pelvis and no evidence of obstructed labour, in accordance with standard obstetric principles.

Pre-procedure preparation

Written informed consent was obtained, adequate analgesia was provided, and bladder catheterisation was performed. Maternal vital parameters were continuously monitored, and blood products along with uterotonics were kept readily available.

Procedure

Breech extraction was performed under strict aseptic precautions by senior obstetricians or under direct supervision.

Assessment of cervical dilatation: Breech extraction was undertaken after cervical dilatation of 4-5 cm, which included cases of severe Abruption Placentae, severe oligohydramnios, PROM, prolapsed one foot, that is, conditions which lead to uterine inertia.

Grasping of the fetal feet: In cases of frank breech, the legs were gently flexed and brought down. In footling or complete breech, the feet were grasped using the Pinard manoeuvre.

Traction and delivery of trunk: Gentle, steady downward traction was applied along the curve of the pelvis. Excessive force was avoided to prevent genital tract injury.

Delivery of arms: If arms were extended, Lovset's manoeuvre was employed to deliver them sequentially.

Delivery of after-coming head: The after-coming head was delivered using: Mauriceau-Smellie-Veit manoeuvre, Burn-Marshall manoeuvre or Assisted head flexion with suprapubic pressure or Decompressive procedures including craniotomy to facilitate delivery by aspiration of gray matter by giving transverse incision on cervical vertebra f/b drainage of gray matter.

Post-procedure care

Following delivery, active management of the third stage of labour was carried out. The birth canal was inspected for trauma, and patients were monitored for postpartum haemorrhage. Antibiotic prophylaxis was administered where indicated.

Data collection

Data were obtained from labour room registers, operation theatre records, and patient case files. The variables studied included maternal age and parity, gestational age, type of breech, indication for breech extraction, intra-operative difficulties, maternal complications, blood transfusion requirements, and duration of hospital stay.

Statistical analysis

Data were analysed using SPSS version 25.0. Descriptive statistics were used to summarise the data. Continuous variables were expressed as mean and range, while categorical variables were presented as frequencies and percentages.

RESULTS

A total of 50 cases of intrauterine fetal demise with breech presentation managed by breech extraction were included in the study.

Maternal demographic profile

The majority of patients were between 26–30 years of age (36%), followed by the 20–25-year age group (28%). Most patients were multigravida (76%), while 24% were primigravida (Table 1 and 2). Around half of the cases (52%) were at 24–26 weeks gestation.

Gestation between 26–32 weeks constituted the remaining cases (Table 3). Footling breech was the most commonly encountered (66%), followed by complete breech (34%) (Table 4).

Table 1: Maternal age distribution (n=50).

| Age group (years) | Number of cases | Percentage (%) |
|-------------------|-----------------|----------------|
| <20 | 3 | 6.0 |
| 20–25 | 14 | 28.0 |
| 26–30 | 18 | 36.0 |
| 31–35 | 10 | 20.0 |
| >35 | 5 | 10.0 |
| Total | 50 | 100 |

Table 2: Parity distribution.

| Parity | Number of cases | Percentage (%) |
|--------------|-----------------|----------------|
| Primigravida | 12 | 24.0 |
| Multigravida | 38 | 76.0 |
| Total | 50 | 100 |

Table 3: Gestational age at delivery.

| Gestational age (weeks) | Number of cases | Percentage (%) |
|-------------------------|-----------------|----------------|
| 24–26 | 26 | 52 |
| 26–28 | 17 | 34 |
| 28–30 | 4 | 8 |
| 30–32 | 3 | 6 |
| Total | 50 | 100 |

Table 4: Type of breech presentation.

| Type of breech | Number of cases | Percentage (%) |
|-----------------|-----------------|----------------|
| Frank breech | 0 | 0 |
| Complete breech | 17 | 34 |
| Footling breech | 33 | 66 |
| Total | 50 | 100 |

Indications for breech extraction

Breech extraction in IUD cases was done in cases of drained liquor where vaginal delivery was preferred to avoid unnecessary operative intervention, thereby to preserve fertility. Majority of breech extraction was done in cases of incompletely dilated cervix (4-5 cm) leading to uterine inertia (Table 5).

Technique and manoeuvres used

Breech extraction was successfully completed vaginally in all cases. Despite administration of uterotonics, some cases exhibited inadequate uterine contractions suggestive of uterine inertia. The Pinard manoeuvre was used in 62% of cases for delivery of the legs. Traction was applied on foot to deliver it. The second leg was delivered after first

leg or in leg prolapse cases by traction. Abdomen, thorax and arms were delivered. Lovset's manoeuvre was required for delivery of extended arms in 36% of cases. In cases of incompletely dilated cervix, transverse incision was given on cervical vertebral column, gray matter was drained and head was delivered in 62% cases. The Mauriceau–Smellie–Veit manoeuvre was employed in 20% of cases for delivery of the after-coming head, while assisted head flexion with suprapubic pressure was used in 8% of cases (Table 6).

Table 5: Indications for breech extraction in IUD cases.

| Indication for breech extraction | Number of cases | Percentage (%) |
|---|-----------------|----------------|
| Fully dilated cervix | 5 | 10 |
| Failed induction of labour (prolapsed leg, prom, uterine inertia) | 6 | 12 |
| Prolonged first stage | 35 | 70 |
| Cord prolapses | 4 | 8 |
| Maternal exhaustion | 0 | 0 |
| Total | 50 | 100 |

Table 6: Manoeuvres used during breech extraction.

| Manoeuvre used | Number of cases | Percentage (%) |
|--|-----------------|----------------|
| Pinard manoeuvre (for legs) | 31 | 62.0 |
| Lovset's manoeuvre (for arms) | 18 | 36.0 |
| Craniotomy of fetal head | 31 | 62.0 |
| Mauriceau smellieVeit manoeuvre (for head) | 10 | 20.0 |
| Burns–Marshall manoeuvre (for head) | 5 | 10.0 |
| Assisted head flexion with suprapubic pressure | 4 | 8.0 |

(Multiple manoeuvres used in the same patient).

Table 7: Maternal complications.

| Complication | Number of cases | Percentage (%) |
|------------------------|-----------------|----------------|
| No complication | 34 | 68.0 |
| Postpartum haemorrhage | 8 | 16.0 |
| Cervical tears | 5 | 10.0 |
| Vaginal/perineal tears | 3 | 6.0 |
| Uterine rupture | 0 | 0 |
| Maternal mortality | 0 | 0 |

Maternal complications

No complications were observed in 68% of patients. Postpartum haemorrhage was the most common

complication (16%), followed by cervical tears (10%) and vaginal/perineal tears (6%). There were no cases of uterine rupture or maternal mortality (Table 7).

Blood transfusion and hospital stay

No cases required blood transfusion despite the occurrence of postpartum haemorrhage. The mean duration of hospital stays. Blood Transfusion and Hospital Stay ranged between 2-3 days (Table 8).

Table 8: Blood transfusion and hospital stay.

| Parameter | Number of cases |
|-----------------------------|-----------------|
| Required blood transfusion | 0 |
| Did not require transfusion | 50 |
| Mean hospital stays | 2–3 days |

DISCUSSION

Breech extraction has become an underutilised obstetric skill in modern practice.⁷ However, in cases of intrauterine fetal demise, it offers significant advantages by avoiding unnecessary operative intervention. Our study demonstrates that with proper case selection and adherence to correct technique, breech extraction can be performed safely with minimal maternal morbidity.^{8,9} The emphasis on controlled traction, timely manoeuvres for arm and head delivery, and avoidance of force were key factors contributing to favourable outcomes. Similar findings have been reported in previous studies, which highlight the importance of maintaining proficiency in vaginal operative techniques, especially in low-resource settings.¹⁰

In the Bundelkhand region, delayed referrals and limited access to surgical facilities further reinforce the relevance of breech extraction as a valuable obstetric skill. The declining use of breech extraction in modern obstetrics has resulted in limited contemporary literature focusing on its technique and outcomes, particularly in cases of intrauterine fetal demise. This retrospective study highlights that breech extraction, when performed with proper case selection and technique, remains a safe option for vaginal delivery.

Maternal profile and parity

In the present study, the majority of patients were multigravida (76%), similar to findings reported by Nwosu et al and Chaudhary et al, where multiparity was associated with a higher likelihood of successful vaginal breech extraction.¹¹ This may be attributed to better pelvic compliance in multiparous women.

Gestational age and breech type

Our study included most cases in the preterm period as compared to observations by Albrechtsen et al, who

reported a predominance of term gestations in IUD cases managed vaginally.² Footling breech was the most common presentation in our study, which may be attributed to the higher incidence of preterm gestation in our cohort.

Indications for breech extraction

Prolonged first stage was the most common indication in our study. Similar indications have been reported in studies by Maheshwari and Borgohain and More et al, emphasizing that advanced labour favours vaginal operative delivery over caesarean section in IUD cases.¹²

Technique and manoeuvres

A key strength of this study is the emphasis on methodology. The frequent use of the Pinard manoeuvre and Mauriceau–Smellie–Veit manoeuvre reflects adherence to standard obstetric principles aimed at controlled delivery and minimisation of maternal trauma.¹³ Studies by Goffinet et al have highlighted that appropriate manoeuvres significantly reduce genital tract injuries.

Maternal complications

Postpartum haemorrhage was the most common complication (16%), comparable to rates reported in other Indian studies ranging from 12–20%.¹⁴ The absence of uterine rupture and maternal mortality in our study underscores the safety of breech extraction when performed by experienced obstetricians.

Relevance in modern obstetrics

In resource-limited regions such as Bundelkhand, where delayed referrals are common and surgical facilities may not always be immediately available, breech extraction continues to play a vital role.¹⁵ Preservation of this obstetric skill is essential to avoid unnecessary caesarean sections and associated morbidity, as also supported by updated international guidelines.¹⁶

Limitations

The study is limited by its retrospective design, single-centre experience, and relatively small sample size.

CONCLUSION

Breech extraction remains a valuable and safe obstetric procedure in cases of intrauterine fetal demise. With proper patient selection, adherence to correct technique, and availability of skilled obstetricians, maternal morbidity can be minimised even in modern obstetric practice.

Training and maintenance of proficiency in breech extraction should continue to be emphasised, particularly in resource-constrained settings.

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