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The Effectiveness of the Knee-Chest Position in Midwifery Care for Correcting the Position of the Breech Presentation Fetus

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Abstract:
Breech presentation is an abnormal fetal position in which the buttocks or feet are located at the lower part near the birth canal, while the head is positioned above. This condition occurs in 3-4% of pregnancies and can increase the risk of delivery complications. The knee chest position is a non-invasive intervention that can help change the fetal position from breech to vertex (head down) through gravitational mechanisms and changes in pelvic space. This study aims to evaluate the effectiveness of the knee chest position in changing fetal position from breech presentation to vertex presentation in third-trimester pregnancy. This study used a case study approach with documentation of SOAP (Subjective, Objective, Assessment, Plan). The research subject was Mrs. LA at 32-33 weeks of gestational age, diagnosed with breech presentation. The knee chest position intervention was performed thrice daily for 15 minutes over 2 weeks with regular evaluations. After 2 weeks of knee chest position intervention, there was a change in fetal position from breech presentation to vertex presentation. Ultrasonographic evaluation showed successful fetal rotation without complications in either the mother or fetus. This study concludes that the knee chest position proved effective as a non-invasive intervention for managing breech presentation in third-trimester pregnancy. This research adds scientific evidence regarding the effectiveness of the knee chest position as a conservative management alternative before considering other medical interventions.

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INTRODUCTION

Breech presentation, a condition in which the fetus assumes a longitudinal position with the buttocks or lower extremities positioned closest to the birth canal, complicates approximately 3–4% of term pregnancies (Ghesquière et al., 2020). This abnormal fetal position increases the risk of adverse perinatal outcomes compared to cephalic presentation, necessitating timely interventions to mitigate complications for both mother and fetus (Walker et al., 2024). Breech presentation is categorized into three subtypes: Frank breech (hips flexed, knees extended), complete breech (hips and knees flexed), and incomplete breech (one or both feet presenting alongside the buttocks), each influencing the complexity of labor and delivery (Ghesquière et al., 2020). Understanding breech presentation's etiology and clinical implications is critical for developing effective management strategies in midwifery care (Morris et al., 2022).

Several maternal and fetal factors contribute to breech presentation, including multiparity, uterine anomalies, abnormal amniotic fluid volume (oligohydramnios or polyhydramnios), placenta previa, and fetal malformations (Azimirad, 2022). Additionally, breech presentation is more prevalent

in preterm pregnancies due to the fetus's increased mobility within the uterine cavity (Toijonen et al., 2022). These risk factors underscore the importance of routine third-trimester fetal position assessments to enable early intervention and reduce perinatal morbidity (Kekki et al., 2023). Failure to address breech presentation promptly can lead to emergency cesarean delivery, prolonged labor, and increased risks of birth trauma or neonatal asphyxia (Walker et al., 2024).

For mothers, breech presentation is associated with significant physical and psychological challenges (Todić et al., 2024). The risk of obstructed labor, postpartum hemorrhage, and genital tract trauma is heightened due to the difficulty in delivering the fetal head after the smaller presenting parts (Walker et al., 2024). Psychosocial impacts, such as heightened anxiety, depression, and stress, are also common among women diagnosed with breech pregnancies, further complicating the prenatal experience (Schauer et al., 2023). Neonates, meanwhile, face risks of hypoxia, brachial plexus injury, and intracranial hemorrhage, with mortality rates rising sharply if the condition is undetected or mismanaged (Toijonen et al., 2022). These outcomes emphasize the necessity of early diagnosis and intervention.

Diagnosis of breech presentation relies on clinical assessment via Leopold's maneuvers and confirmatory imaging with ultrasonography (USG) (Kenfack et al., 2022). Leopold's maneuvers, a four-step palpation technique, allow midwives to determine fetal lie and presentation, while USG provides precise visualization of fetal positioning and excludes underlying anatomical abnormalities (Kenfack et al., 2022). Accurate diagnosis is pivotal for guiding management decisions, particularly in resource-limited settings where timely access to advanced imaging may be constrained.

Management strategies for breech presentation include invasive and non-invasive approaches (Liao et al., 2021). External cephalic version (ECV), a manual procedure performed by obstetricians to rotate the fetus to a cephalic position, achieves success rates of up to 60% but carries risks such as placental abruption, umbilical cord prolapses, and fetal bradycardia (Sánchez-Romero et al., 2020). Given these risks, non-invasive alternatives like the knee-chest position have gained attention as safer options for women seeking conservative management. The knee-chest position involves kneeling with the chest lowered to the floor while elevating the hips, a posture hypothesized to leverage gravity and fetal movement to facilitate spontaneous version (Kenfack et al., 2022).

Emerging evidence supports the efficacy of the knee-chest position in correcting breech presentation, particularly when initiated before 34 weeks of gestation. Kenfack et al. (2022) demonstrated a significant reduction in breech incidence among primiparous women who performed the maneuver thrice daily for 15 minutes. This low-cost, non-pharmacological intervention aligns with midwifery principles of promoting physiological birth and minimizing medical interventions (Kenfack et al., 2022). However, further research is needed to standardize protocols and validate their effectiveness across diverse populations.

This case study aims to evaluate the effectiveness of the knee-chest position in correcting breech presentation. Through a structured midwifery care approach using the SOAP format, the study will document clinical outcomes and contribute to evidence-based practices for managing breech presentations. By integrating assessment, intervention, and evaluation, this work seeks to reinforce the role of non-invasive strategies in optimizing maternal and neonatal health outcomes while addressing gaps in current midwifery guidelines.

STUDY DESIGN

This study employed a case study approach using SOAP (Subjective, Objective, Assessment, Plan) documentation to assess the effectiveness of the knee-chest position in managing breech presentation in a 32–33-week pregnant woman, Mrs. LA. The case study design was chosen to

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provide an in-depth understanding of individual responses to the intervention through intensive observation and detailed data collection. The SOAP framework structures clinical data systematically, encompassing patient-reported symptoms (Subjective), clinical examinations (Objective), clinical analysis (Assessment), and intervention planning (Plan). Ethical approval was obtained from the Poltekkes Kemenkes Malang Ethics Committee to ensure compliance with research ethics, including informed consent, confidentiality, and subject safety.

The intervention involved Mrs. LA performing the knee-chest position thrice daily for 15 minutes per session over two weeks. This posture, involving a hands-and-knees position with the chest lowered toward the bed, utilized gravitational forces to encourage fetal rotation to a cephalic presentation. Weekly evaluations were conducted using ultrasonography and abdominal palpation to monitor fetal position changes and maternal clinical parameters. Subjective data included patient feedback on comfort, adherence, and perceived efficacy, while objective data encompassed fetal heart rate, uterine activity, and physical examination results. The Assessment phase integrated subjective and objective findings to evaluate progress, and the Plan outlined the continuation or modification of the intervention based on clinical outcomes.

Data analysis was conducted descriptively using qualitative triangulation, combining clinical records, observations, and patient narratives. Intervention effectiveness was determined by the shift from breech to cephalic presentation, verified weekly via clinical reassessment. Data validity was strengthened through consistent SOAP documentation and verification by healthcare professionals. Ethical considerations, such as monitoring complication risks and respecting the subject's right to discontinue participation, were embedded in the research protocol. While the single-case design limited generalizability, it provided valuable clinical insights into non-invasive breech management. This methodology underscores the importance of integrating empirical evidence with patient-centered care in perinatal research.

PATIENT INFORMATION

Assessment Results on November 12, 2024, Mrs. LA, 33 years old, is pregnant with her second child. Her last menstrual period (LMP) was April 5, 2024, and her first child is 12.

CLINICAL FINDINGS

Mrs. LA complained of shortness of breath, feeling like the baby was pressing against her upper abdomen, causing a sensation of fullness, especially when sitting for long periods. The subjective data revealed no history of illnesses or hereditary conditions related to shortness of breath. The objective examination revealed a height of 56 cm and a weight of 61 kg. The vital signs were as follows: blood pressure 120/70 mmHg, temperature 36.6°C, respiratory rate 20 breaths per minute, pulse 80 beats per minute, mid-upper arm circumference (MUAC) 30 cm, and mean arterial pressure (MAP) 86.6. Upon abdominal examination, a linea nigra was present.

Leopold's maneuver I showed the fundal height (TFU) to be three fingerbreadths above the umbilicus, with a round, stiff, mobile mass felt, indicating the fetal head. Leopold II revealed a complex, flat area on the right side of the abdomen, which was identified as the fetal back. Leopold III indicated that the lower part of the fetus was round, soft, non-ballotable, and that the breech had not yet engaged in the pelvic inlet (PAP). The McDonald measurement of TFU was 26 cm, with an estimated fetal weight (EFW) of 2,015 grams. The fetal heart rate (FHR) was 147 beats per minute, regular. The examination findings established the diagnosis as Mrs. LA, G2P1001, 32-33 weeks of gestation with breech presentation.

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THERAPEUTIC INTERVENTION

To address this issue, an intervention was provided, teaching her the knee-chest position. The knee-chest position involves the body being prostrated, with the chest touching the floor or bed, while the buttocks remain elevated. Mrs. LA was recommended to perform this position thrice daily for 15 minutes. (Kenfack et al., 2022). After two weeks of intervention, Mrs. LA was asked to return for a follow-up examination to evaluate the effectiveness of the intervention.

A pregnancy examination was conducted after two weeks of knee and chest position intervention on November 26, 2024. Subjective findings revealed that the patient no longer felt discomfort or fullness in the upper abdomen. Physical examination showed the subject's general condition was good, with alert consciousness. Height was recorded as 156 cm, and current weight was 61 kg. Vital signs showed blood pressure 110/70 mmHg, body temperature 36.6°C, respiratory rate 20 breaths per minute, and pulse rate 86 beats per minute. Mid-upper arm circumference (MUAC) was 30 cm with a mean arterial pressure (MAP) of 83.3. Abdominal inspection revealed the presence of the linea alba without striae albicans or striae lividae. Leopold maneuvers showed fundal height (FH) midway between xiphoid process and umbilicus, with a round, soft, non-ballotable mass indicating breech position; Leopold II revealed a rigid, flat, board-like structure on the left abdomen, indicating fetal back on the left side; Leopold III showed the lowermost fetal part as round, hard, and ballotable (head) that had engaged the pelvis; Leopold IV demonstrated divergent findings. McDonald's fundal height measurement was 26 cm with an estimated fetal weight (EFW) of 2,325 grams. Fetal heart rate (FHR) auscultation showed 130 beats per minute with regular rhythm. No uterine contractions were detected during examination. Ultrasonography confirmed the diagnosis, which showed cephalic presentation with vertex position. The established diagnosis was Mrs. LA G2P1001 at 34 weeks of gestation with a physiological pregnancy.

A subsequent pregnancy examination was conducted three weeks after the December 18, 2024, ultrasound. Physical examination revealed the subject's general condition remained good with alert consciousness. Current weight was 62 kg. Vital signs were stable with blood pressure 100/70 mmHg, body temperature 36°C, respiratory rate 18 breaths per minute, and pulse rate 86 beats per minute. Mid-upper arm circumference (MUAC) was 31 cm with a mean arterial pressure (MAP) of 80. Abdominal inspection showed the presence of linea alba without striae albicans or striae lividae. Leopold maneuvers revealed: Leopold I showed fundal height (FH) three fingers below xiphoid process, round, soft, and non-ballotable, indicating breech position; Leopold II demonstrated a rigid, flat, board-like structure on the left abdomen, signifying fetal back on the left side; Leopold III detected the lowermost fetal part as round and ballotable (head) that had engaged the pelvis; Leopold IV showed divergent findings. McDonald's fundal height measurement was 32 cm with an estimated fetal weight (EFW) of 3,255 grams. Fetal heart rate (FHR) auscultation showed 132 beats per minute with regular rhythm. Uterine contractions were present but infrequent. Laboratory examination showed negative urine protein and a hemoglobin (Hb) level of 13.5 g/dL. These examination results supported the pregnancy diagnosis with vertex presentation at 36-37 weeks of gestation.

On January 6, 2025, Mrs. LA, at 39-40 weeks of gestation, experienced labor signs and went to the health center for delivery. At 03:52 AM, Mrs. LA delivered vaginally a healthy female infant with a birth weight of 3,200 grams and length of 57 cm.

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DISCUSSION

Breech presentation is the position of the fetus where its body is oriented vertically, with the buttocks at the lower part, near the birth canal (Lalwani et al., 2023). The fetal head is at the top of the uterus, while the lower part can be the buttocks, legs, or both. In this position, the fetus's body is aligned with the mother's body (Menakaya, 2021). In the Poedji Rochjati Score Card (PRSC), breech's presentation scored 8. The "Poedji Rochjati" scoring system is one of the efforts for the early detection of high-risk pregnant women through healthcare providers. Its purpose is to detect the condition/status of the pregnancy early, whether the pregnancy is considered at risk or not, regardless of whether it falls within the scope of midwifery institutions (Prakasiwi et al., 2023).

In the midwifery care of this pregnancy, focused management was implemented, specifically the knee-chest position. Since 1943, a researcher named Taoka reported that the knee-chest position can help address breech presentation (Shinmura et al., 2023). The results of the knee-chest position intervention showed its success, as the fetus rotated into the physiological position, the head-down position. This aligns with a study that the knee-chest position can enhance fetal rotation, thereby increasing the chances of a standard delivery (Bahmaei et al., 2023).

Another study conducted in Japan used a retrospective cohort study method at a single institution from January 2020 to December 2020. The participants were primiparous women with a singleton pregnancy diagnosed with breech presentation. The study results showed that the knee-chest position significantly reduced the rate of breech presentation in primiparas during the third trimester of pregnancy (Matsushima et al., 2022). Another study conducted in China used a randomized controlled clinical trial between January and December 2022 on 136 primigravida women. The study showed that maternal posture management, including lateral, lateral-prone, hands and knees, open knee-chest positions, and cognitive-behavioral interventions, could improve the outcomes of standard delivery in primigravida women with fetal head malposition (Wan et al., 2024).

A study demonstrating the success of the knee-chest position was also conducted in Japan using an open-label randomized controlled trial method on 200 patients diagnosed with breech presentation through ultrasonography between 28 and 30 weeks of gestation. The study showed that the knee-chest position is safe for managing breech presentation before 36 weeks and can positively impact the management of breech presentations (Shinmura et al., 2025). Another supporting journal conducted in Indonesia involved 54 respondents, divided into two groups of 27 respondents each. The study results showed that pregnant women in the knee-chest position group experienced more repositioning than the yoga intervention group (Eprilla et al., 2021). Based on the discussion, there is no gap between the examination results, intervention, and theory.

LIMITATION OF THE STUDY

A long-term study with many patients must establish yoga and naturopathy as treatment modalities.

CONCLUSION

Midwifery care for Mrs. LA, with the management of the knee-chest position, showed success in the care process. There was no gap between theory and practice in this management, as it was consistent with previous studies. With the effectiveness of the knee-chest position in addressing breech presentation, the author suggests that pregnant women experiencing breech presentation

can perform the knee-chest position three times a day for 15 minutes. The author also suggests that future researchers conduct studies with more respondents and a longer intervention period.

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