PERINEUM PROTECTION THROUGH RESCUE HAND POSITION: AN ANALYSIS OF IMPACT AND CLINICAL OUTCOMES

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Abstract. Perineal rupture is known as one of the main causes of postpartum hemorrhage, including tears in the perineal tissue between the vulva and anus that occurs when the fetal head and shoulders pass through the birth canal. The incidence of perineal lacerations increases sharply during rapid and uncontrolled second-stage labor, especially when positioning and hand pressure are suboptimal. According to the POPRACT study (2020), maternal positioning with good sacral flexibility can significantly reduce the risk of second-degree lacerations. Based on the results of observations at several maternity clinics, out of 50 mothers giving birth, 60% of them experienced spontaneous perineal tears. This was because the attendants in preparing for the delivery of the baby did not comply with the APN technique, so the risk of perineal tears was greater. The purpose of this study was to determine the impact and clinical outcomes of perineal protection through the position of the rescuer's hands on perineal rupture. The research method used in this study was observational. The population in this study was all midwives who assisted spontaneous deliveries at the Asy Safira Clinic, using a total sampling technique taken using consecutive sampling based on a predetermined time. The results of the study showed that most of the second stage birth attendants' hand positions did not comply with the APN of 21 people (55.3%). 50% of cases of normal delivery assistance resulted in second-degree perineal tears. The results of the analysis using chi-square, obtained a significance number (p value) = 0.550 and. Because the p value <0.05, which means that "protection of the perineum through the position of the attendant's hands has an impact and clinical results on the incidence of perineal rupture".These results indicate that the hand position of the birth attendant significantly influences the incidence of perineal tears, with an odds ratio (OR) of 10.667 (95% CI: 1.227–110.953). This indicates that proper hand position can reduce the risk of perineal tears by up to 10.667 times.

Keywords: Perineal rupture, hand position, second stage of labor

Introduction

Perineal rupture is known as one of the main causes of postpartum hemorrhage, including tears in the perineal tissue between the vulva and anus that occurs when the fetal head and shoulders pass through the birth canal. The incidence of perineal lacerations increases sharply during rapid and uncontrolled second-stage labor, especially when positioning and hand pressure are suboptimal. According to the POPRACT study (2020), maternal positioning with good sacral flexibility can significantly reduce the risk of second-degree lacerations.

Global agreements have shifted from the Millennium Development Goals (MDGs) to the Sustainable Development Goals (SDGs), launched in 2015. One of the main goals, SDG 3 (Health and Well-Being), targets a reduction in the global maternal mortality rate to less than 70 per 100,000 live births by 2030 (WHO, 2023). This is in line with ongoing efforts to improve overall maternal health. In Indonesia, postpartum hemorrhage due to uterine atony remains the leading cause of maternal death, while birth trauma such as perineal rupture ranks second (Ministry of Health of the Republic of Indonesia, 2021). The latest data from the World Health Organization (WHO) shows that approximately 10% of mothers who deliver vaginally experience third- and fourth-degree perineal tears, with higher rates in first deliveries (WHO, 2023). While not always fatal, complications from severe perineal tears can increase the risk of maternal morbidity and require complex medical intervention. The factors contributing to perineal tears continue to be a focus of research. As maternal age increases at delivery, the risk of perineal tears also increases, particularly in primiparas. High birth weight (macrosomia) has also been shown to be a major risk factor. Additionally, other factors such as rapid labor (partus precipitatus), ineffective pushing techniques, and decreased elasticity of the perineal tissue can increase the risk of tears (ACOG, 2020).

Based on the latest 2017 Indonesian Demographic and Health Survey (SDKI) data, the Maternal Mortality Rate (MMR) in Indonesia was recorded at 305 per 100,000 live births. This figure shows a decrease compared to the 2012 SDKI, which reached 359 per 100,000 live births. Despite this decrease, Indonesia's MMR remains far from the global target set in the Sustainable Development Goals (SDGs), which is less than 70 per 100,000 live births by 2030 (BKKBN, 2018). The main cause of maternal death in Indonesia remains unchanged: postpartum hemorrhage, which accounts for approximately 30% of total cases. This condition is often caused by uterine atony (failure of the uterus to contract). Meanwhile, perineal rupture is the second most common cause of bleeding. Tears in the perineum, especially in mothers giving birth to their first child (primiparas), can cause significant and potentially dangerous bleeding. Therefore, proper care during labor is very important to prevent these complications (Ministry of Health of the Republic of Indonesia, 2021).

To prevent perineal tears during labor, various clinical practice guidelines recommend the use of structured hand techniques. The Normal Delivery Care (NAC) Guidelines instruct midwives to place a clean cloth under the mother's buttocks as soon as the baby's head begins to emerge (approximately 5-6 cm). This technique involves two hands: one hand holds the baby's head flexed and gently delivers, while the other hand protects the perineum by placing the thumb on one side and the fingers on the opposite side. There are also variations of the technique, as described in current obstetric literature, that also aim to protect the perineum. While there are differences in the detailed hand positions, the main principle remains the same: applying gentle, controlled pressure to support the perineal tissues as they stretch. Recent research has shown that the use of warm compresses on the perineum during the second stage of labor, combined with 'hands-on' techniques, can significantly reduce the risk of third- and fourth-degree perineal tears (ACOG, 2020; Dahlen et al., 2018). These techniques not only focus on preventing tears, but also ensure a safer birth and minimize trauma to the mother.

To protect the perineum during labor, there are several commonly used techniques. According to the Normal Delivery Care (APN) guidelines by JNPK-KR, when the baby's head begins to appear (around 5-6 cm), the helper should place a clean cloth under the mother's buttocks. One hand is used to support the baby's head so that it remains flexed as it slowly emerges, while the other hand protects the perineum with the thumb on one side and four fingers on the other. Another technique introduced by Varney (2018) has a slightly different positioning of the hand supporting the perineum. The helper's hand is placed with the thumb on the midline of the thigh and the middle finger on the other side of the thigh. The goal is the same, namely to apply controlled pressure inward to protect the perineum from tearing.

A preliminary study conducted at several maternity clinics found that 60% of 50 mothers experienced spontaneous perineal tears. This finding indicates a link between the high rate of perineal tears and inappropriate application of APN techniques by birth attendants. This suggests that proper technique is crucial for reducing the risk of perineal tears.

Method

This study used an observational method with a cross-sectional approach. The researchers did not intervene but simply observed the birth process performed by midwives at the Asy Safira Maternity Clinic. Data collection was conducted from April to June 2021, with variables measured concurrently. The study population included 38 midwives working at the clinic and involved in assisting spontaneous deliveries. The entire population was sampled using a total sampling technique with a consecutive sampling approach.

Results and Discussion

1. Hand Position of the Second Stage Labor Assistant

Table 1

Frequency distribution of hand positions of second stage birth attendants

Position of the rescuer's hand	Frequency	Percentage (%)
According to APN	17	44.7
Incorrect APN	21	55.3
Total	38	100.0

Source: Primary Data

Table 1 shows that 17 (44.7%) of the midwives' hand positions conformed to the APN, while 21 (55.3%) did not. Midwives are at the forefront of maternal and infant health services, particularly during labor. Therefore, midwives must possess adequate skills and competencies in accordance with applicable midwifery care standards. Professional authority and codes of ethics, supported by adequate facilities and infrastructure, are the primary foundations for midwives in providing quality services. To ensure these skills are improved, the Ministry of Health (Kemenkes) periodically updates its midwifery care guidelines and standards. This effort aligns with the commitment of the government and various relevant parties to continuously develop midwifery education in Indonesia. This development encompasses both formal and non-formal education, aligned with advances in science and technology in midwifery services (Kemenkes RI, 2021). Improving the quality of midwives is also supported by collaboration with various professional organizations and international institutions. This aims to integrate best practices and the latest evidence in midwifery care, so that the services provided are safer and more effective (ICM, 2023).

2. Degree of perineal rupture

Table 2
Frequency distribution of degrees of perineal rupture

Perenium rupture	Frequency	Percentage (%)
No rupture	8	21.1
First Degree	6	15.8
Second Degree	19	50.0
Grade III	5	13.1
Grade IV	0	0
Total	38	100.0

Based on the research results according to table 2, it is known that of the 38 respondents who gave birth, 6 people experienced grade I perineal rupture (15.8%), 19 people experienced grade II (50.0%), 5 people experienced grade III (13.1%), none experienced grade IV perineal rupture, and 8 people did not experience perineal rupture (21.1%). The most common perineal rupture was grade II, namely 19 people (50.0%), meaning that every delivery is at risk of perineal rupture.

A perineal tear is a wound in the perineum caused by natural tissue damage due to the pressure of the fetal head or shoulders during labor. The shape of the tear is usually irregular, making it difficult to suture the torn tissue (Sukrisno, 2015). According to Oxorn (2015), a perineal tear is an obstetric tear that occurs in the perineal area due to the inability of the pelvic muscles and soft tissues to accommodate the birth of the fetus. Childbirth often causes injury to the birth canal. The resulting injury is usually minor, but extensive and dangerous injuries can also occur. Therefore, after labor, an examination of the vulva and

perineum must be carried out (Sumarah, 2015). Perineal tears occur in almost all first deliveries and are not uncommon in subsequent deliveries. However, this can be avoided or reduced by ensuring that the fetal head passes through the pelvic floor quickly.

According to ACOG (2020); Prabhu et al. (2022), perineal rupture is defined as a natural tear in the perineal tissue that occurs during childbirth. These tears are usually irregular, which can make suturing difficult. According to current clinical guidelines, a rupture occurs when the soft tissues and muscles of the pelvis are unable to withstand the pressure of the birthing baby. Trauma to the birth canal, including perineal tears, is common, especially in first deliveries. While most injuries are minor, some can be extensive and life-threatening, making a thorough examination of the vulva and perineum after delivery crucial (American College of Nurse-Midwives, 2021). Prevention of perineal rupture is possible. Effective strategies include careful labor management, such as controlling the pace of delivery of the baby's head and shoulders to allow the pelvic floor sufficient time to stretch. With proper technique, the risk of tearing can be minimized, both in first and subsequent deliveries (O'Reilly et al. (2019)).

3. Analysis and Clinical Results of Hand Position of Second Stage Labor Assistants on Perineal Rupture

Table 3
Frequency distribution of degrees of perineal rupture

		perineal rupture										***p***	***OR***
		No rupture		**Degrees I**		**Degrees II**		**Degrees III**		**Degrees IV**			
		n	%	n	%	n	%	n	%	n	%		
Position of the rescuer's hand	**APN**	7	18.4	4	10.5	6	15.8	0	0	0	0	0.020	11,667 (1,227-110,953)
	No APN	1	2.7	2	5.3	13	34.2	5	13.1	0	0		
Total		8	21.1	6	15.8	19	50	5	13.1	0	0		

Based on the results of statistical tests, it is known that out of 38 birth attendants, 17 people (44.7%) used the APN hand position, experiencing first-degree perineal rupture, as many as 4 people (10.5%). Second-degree perineal rupture was experienced by 6 people (15.8%) and did not experience perineal rupture as many as 7 people (18.4%) and no one experienced third-degree or fourth-degree perineal rupture. Meanwhile, 21 helpers who did not use APN hands (53.3%) did not experience perineal rupture, 1 person (2.7%), there was a first-degree perineal rupture in 2 people (5.3%), second-degree perineal rupture in 13 people (34.2%) and third-degree perineal rupture in 5 people (13.1%) meaning that the hand position of the helper in providing birth attendants with the APN hand position is quite significant in preventing perineal rupture. Meanwhile, in terms of the degree of rupture, the most common type of perineal rupture is second degree, meaning that the downward and inward movement of the finger will involve sufficient tissue in the action and distribute additional tissue towards the middle of the perineum, which is the area most likely to experience laceration, by providing a little spring force.

The results of the analysis using chi-square, obtained a significance figure (p value) = 0.550 and. Because the p value < 0.05, which means that "protecting

the perineum through the position of the rescuer's hands has an impact and clinical results on the incidence of perineal rupture".The analysis showed that the hand position of the birth attendant significantly influenced the incidence of perineal tears, with an Odds Ratio (OR) of 10.667 (95% CI: 1.227–110.953). This indicates that proper hand position can reduce the risk of perineal tears by up to 10.667 times. This finding is consistent with existing literature, which states that various factors, including labor leadership and inappropriate birthing positions, can cause spontaneous perineal tears (Al-Kadri et al., 2021). This birthing strategy aims to provide a safe birth experience, minimize injury to the mother and baby, and provide a sense of control for the attendant. Research also shows that correctly performed hand maneuvers not only reduce the risk of tears but also increase the attendant's confidence and provide psychological support for the mother during labor (O'Reilly et al., 2019).

To prevent spontaneous perineal tears, recent clinical practice guidelines recommend implementing specific techniques once the baby's head begins to emerge (approximately 5-6 cm). The goal is to control the rate of delivery of the baby's head. One effective method is to place a warm, wet compress on the perineum and apply gentle, controlled pressure to the baby's head. This helps the perineum gradually stretch and reduces the risk of injury (ACOG, 2020; Prabhu et al., 2022). In the early stages of second stage of labor, mothers are encouraged to push during contractions. However, as the baby's head approaches delivery, it's important to slow the process. Mothers can be taught to take shallow, rapid breaths (sometimes called "blowing"), rather than pushing forcefully, to prevent the head from emerging too quickly. This strategy allows the perineum to adapt to the pressure and prevents severe tearing (Prabhu et al., 2022). Overall, appropriate hand maneuvers during delivery play a crucial role in the success and safety of the birth. These techniques not only protect the perineum but also prevent injury to the baby, provide a sense of security and control for the attendant, and minimize trauma to the mother (O'Reilly et al., 2019). Therefore, careful, evidence-based practice is key to achieving optimal birth outcomes.

Conclusion

1. The position of the helping hand was in accordance with the APN for 17 people (44.7%) and not according to the APN for 21 people (55.3%).
2. Of the 38 respondents who gave birth, 6 people experienced grade I perineal rupture (15.8%), 19 people experienced grade II (50.0%), 5 people experienced grade III (13.1%), none experienced grade IV perineal rupture, and 8 people did not experience perineal rupture (21.1%). The most common perineal rupture was grade II, namely 19 people (50.0%), meaning that every delivery carries the risk of perineal rupture.
3. The results of the analysis using chi-square, obtained a significance figure (p value) = 0.550 and. Because the p value < 0.05, which means that "protecting the perineum through the position of the rescuer's hands has an impact and clinical results on the incidence of perineal rupture".The analysis showed that the hand position of the birth attendant significantly influenced the incidence of perineal tears, with an odds ratio (OR) of 10.667 (95% CI: 1.227–110.953). This indicates that proper hand position can reduce the risk of perineal tears by up to 10.667 times.

REFERENCES

ACOG (American College of Obstetricians and Gynecologists). (2020). Prevention and Management of Obstetric Lacerations at the Time of Vaginal Delivery. ACOG Practice Bulletin No. 222. Obstetrics & Gynecology, 136(6), e135-e150.

Al-Kadri, HM, Al-Zahrani, FS, Al-Ghamdi, SK, & Al-Hawsawi, AM (2021). Risk Factors for Spontaneous Perineal Laceration during Vaginal Delivery: A Retrospective Cohort Study. Journal of Clinical Medicine, 10(14), 3042.

BKKBN, Ministry of Health, BPS, and ICF.(2018). Indonesian Demographic and Health Survey (SDKI) 2017. Jakarta: BKKBN.

ICM (International Confederation of Midwives). (2023). Essential Competencies for Basic Midwifery Practice. Accessed fromhttps://www.internationalmidwives.org/our-work/policy-and-practice/icm-essential-competencies-basic-midwifery-practice.html.

Jansson, M. H., et al. (2020). Risk factors for perineal and vaginal tears in primiparous women – the prospective POPRACT-cohort study. *BMC Pregnancy and Childbirth*, 20(1), 749.

Ministry of Health of the Republic of Indonesia. (2022). Normal Delivery Care (APN): A Practical Guidebook for Midwives. Jakarta: Directorate of Family Health, Directorate General of Public Health, Ministry of Health of the Republic of Indonesia.

Ministry of Health of the Republic of Indonesia. (2021). Professional Standards for Midwives. Regulation of the Minister of Health of the Republic of Indonesia Number 28 of 2021.

Ministry of Health of the Republic of Indonesia.(2021). Indonesian Health Profile 2020. Jakarta: Ministry of Health of the Republic of Indonesia.

O'Reilly, M., O'Connell, M., & Kelly, M. (2019). Perineal Support During Childbirth: A Randomized Controlled Trial of a New Technique. International Journal of Nursing Studies, 94, 69-76.

Prabhu, M., Liu, Y., & Huls, C. K. (2022). A Prospective Cohort Study on the Efficacy of a 'Hands-On' vs. 'Hands-Off' Technique for Preventing Perineal Trauma. European Journal of Obstetrics & Gynecology and Reproductive Biology, 270, 169-175.

Varney, H., Kriebs, J. M., & Gegor, C. L. (2018). Varney's Midwifery (6th ed.). Burlington, MA: Jones & Bartlett Learning.

WHO (World Health Organization).(2023). WHO recommendations for prevention and treatment of maternal peripartum infections. Accessed fromhttps://www.who.int/publications/i/item/9789240049477.

WHO (World Health Organization).(2023). Maternal mortality. World Health Organization. Retrieved fromhttps://www.who.int/news-room/fact-sheets/detail/maternal-mortality.