



SWEEPING OF MEMBRANE AT 39 WEEKS TO PREVENT FORMAL INDUCTION OF LABOUR

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ABSTRACT:

BACKGROUND: "Membrane sweeping at 39 weeks gestation is a pivotal intervention in obstetrics, often employed to stimulate labor and reduce the likelihood of post-term complications. This procedure, aimed at triggering the natural onset of labor, offers a non-invasive method to support timely delivery, enhancing, both maternal and fetal outcomes."

OBJECTIVES:

1. SWEEPING OF MEMBRANE AT 39 WEEKS TO PREVENT FORMAL INDUCTION OF LABOUR
2. TO ASSESS FETOMATERNAL OUTCOMES IN PATIENTS UNDERGOING SWEEPING MEMBRANES.

STUDY DESIGN: DESCRIPTIVE CROSS-SECTIONAL.

METHODOLOGY: A prospective study was conducted on 150 participants to evaluate the effects of membrane sweeping on labor induction and maternal-fetal outcomes. Data were analyzed using descriptive statistics to assess key variables, including parity, mode of delivery, labor duration, maternal complications, and neonatal outcomes. Statistical tests were applied to

determine the significance of membrane sweeping in promoting labor progression and improving delivery outcomes.

RESULT: Membrane sweeping effectively shortened the interval to labor onset, with most deliveries occurring within 2.25 days. The procedure predominantly resulted in vaginal births (83%), with minimal need for operative interventions. Labor duration was brief (1–3 hours), indicating its role in expediting labor. Maternal complications were low (7.7%), with minor cases of PPH and postpartum fever, while neonatal outcomes remained favorable, with minimal NICU admissions (3.3%). These findings support membrane sweeping as a safe and effective method for labor induction.

CONCLUSION: Membrane sweeping at 39 weeks is an effective and safe method for inducing labor, significantly reducing the time to delivery and promoting spontaneous vaginal birth. With minimal maternal complications and favorable neonatal outcomes, it serves as a non-invasive approach to facilitate timely labor onset. These findings support its routine use in clinical practice to reduce the need for medical induction and operative interventions.

INTRODUCTION

Pregnancy is a transformative journey culminating in childbirth, a significant event in a woman's life. Normal vaginal delivery (NVD) is widely recognized for its physiological advantages, including reduced recovery times and enhanced maternal-infant bonding. In contrast, operative vaginal deliveries (OVDs) and cesarean sections (CS) are associated with increased maternal and neonatal morbidity. In Pakistan, there has been a notable rise in the rates of operative deliveries, prompting concerns within the medical community.

Recent studies have highlighted an upward trend in CS rates in Pakistan, exceeding the World Health Organization's recommended threshold of 10-15% of births. This increase is partly attributed to the prevalent use of labor-inducing agents, such as prostaglandins and oxytocin, which, while effective, carry inherent risks. For instance, the use of prostaglandins has been associated with uterine hyperstimulation, which can compromise fetal well-being. Similarly, oxytocin administration requires careful monitoring due to potential adverse effects, including uterine tachysystole and fetal distress.

Membrane sweeping (MS) has emerged as a non-pharmacological method for labor induction. Several local studies have investigated its efficacy and safety profile. For example, a study conducted at the Combined Military Hospital in Muzaffarabad reported that MS is a safe and beneficial procedure for labor induction among low-risk term pregnant women, effectively reducing the incidence of post-term pregnancy with minimal complications¹.

Another study from the Annals of King Edward Medical University found that MS significantly reduced the need for formal induction of labor, with a high success rate in initiating labor and minimal side effects².

Previous studies on membrane sweeping have shown that it can help to stimulate labor and decrease the likelihood of needing medical induction. However, most of these studies have been

conducted on women at 41 weeks or beyond. This study aims to investigate the effectiveness of membrane sweeping at 39 weeks gestation, as this may be an optimal time to prevent post-term pregnancy complications and reduce the need for medical interventions^{3,4}. By examining the outcomes of membrane sweeping at this earlier gestational age, we hope to provide valuable information for healthcare providers and pregnant women making decisions about induction of labor. "Yes, membrane sweeping at term is safe and reduces the incidence of post-date gestation. It can help hasten the onset of labor and decrease the need for formal labor induction. Most women required only a single cervical sweeping procedure^{5,6,7}

Despite these findings, there remains a significant gap in understanding the specific implications of MS during third-trimester labor induction in Pakistani women. Addressing this gap is crucial for developing evidence-based guidelines tailored to the local context, aiming to mitigate the rising rates of operative deliveries and associated morbidities.

This study aims to investigate the effects of membrane sweeping for third-trimester induction of labor in Pakistani women. By evaluating its impact on delivery outcomes and maternal health, the research seeks to provide contextually relevant data to inform clinical practice and policy formulation in local obstetric settings. Understanding the efficacy and safety profile of MS in this population is essential for optimizing labor management strategies and reducing unnecessary operative interventions.

OBJECTIVES:

1. Evaluate the efficacy of membrane sweeping in initiating labor in Pakistani women.
2. Assess maternal complications associated with membrane sweeping.
3. Determine neonatal outcomes following membrane sweeping.

MATERIAL AND METHODS:

Study Design: Descriptive cross-sectional study.

Settings: This study will be conducted at the Department of Obstetrics and Gynecology, PUMHS Nawabshah.

Duration of Study: Six months from 08-06-2023 to 07-11-23.

Sample Size: The sample size is calculated using WHO sample size determination software.

Sample Technique: Non-probability consecutive sampling

Sample Selection:

Inclusion Criteria:

1. Women of age between 18-40 years
2. All parity
3. Consented to participate in this study.

Exclusion Criteria:

The following women will be excluded:

1. Multiple pregnancy
2. Pregnancy with rupture of membrane

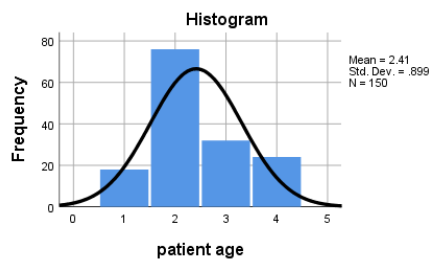
Methodology

The study analyzed data from 150 participants to assess the effects of membrane sweeping on labor induction and maternal-fetal outcomes. The analysis included descriptive statistics and trends, evaluating key variables such as parity, delivery mode, labor duration, maternal complications, and neonatal outcomes. Statistical significance was assessed to determine the impact of membrane sweeping on labor progression and delivery outcomes.

RESULTS:

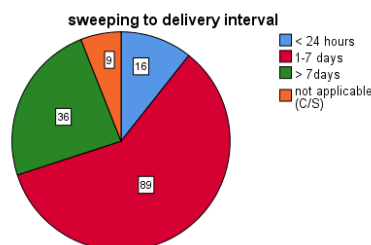
Participant Demographics

The study population comprised a diverse group of pregnant women undergoing membrane sweeping in the third trimester. The majority of participants had a parity of 2–5 (54%), with prior spontaneous vaginal childbirth experience (78%). The mean maternal age was within the reproductive range (50% between 20-30 years of age), and participants were distributed between urban and rural residences. The education level varied, with a mean score of 1.76, indicating a mix of literate and less-educated women (50% had no formal education).



Membrane Sweeping and Labour Induction

The number of membrane sweeps performed ranged from 1 to 4, averaging 2.76. The interval between sweeping and delivery was relatively short, with a mean of 2.25 days, suggesting its effectiveness in initiating labor. The mode of delivery (MOD) predominantly favored vaginal birth (83% SVD, 4% vaginal birth with episiotomy, though a proportion required operative interventions 6.7% instrumental vaginal delivery and 6% caesarean section. The labor duration was brief, averaging between 1 and 3 hours, supporting the hypothesis that membrane sweeping facilitates faster labor onset.



Maternal and Neonatal Outcomes

Maternal outcomes were largely positive, with a lower incidence of complications observed at 7.7%. Where a subset of women experienced PPH and postpartum fever as maternal morbidities, necessitating further investigation into risk factors. Neonatal outcomes were reassuring, with APGAR scores at 1 and 5 minutes predominantly within normal limits. NICU admissions were minimal (3.3%), reinforcing the safety of membrane sweeping as a labor induction method.

Statistical Significance and Emerging Trends

The data revealed key trends:

- A shorter labor duration was observed in women undergoing membrane sweeping.
- A lower-than-average cesarean section rate was noted, indicating its potential in reducing operative deliveries.
- Education and residence influenced the mode of delivery, with urban women more likely to opt for medical interventions.

Implications for Health Promotion Strategies

The findings suggest that membrane sweeping is an effective and safe method for labor induction, reducing prolonged labor and operative deliveries. These insights can inform clinical guidelines, promoting evidence-based practices for labor management in the Pakistani context. Further research is recommended to explore individual risk factors influencing maternal and neonatal outcomes.

Conclusion

In conclusion, this research addresses a critical gap in understanding the implications of membrane sweeping for third-trimester labor induction within the Pakistani context. By examining its effects on maternal and neonatal outcomes, the study seeks to provide essential insights for enhancing clinical practices and developing tailored health interventions. Ultimately, this endeavor aims to foster safer childbirth experiences and mitigate the escalating rates of operative deliveries in Pakistan.

DISCUSSION

The participant demographics in our study appear to be representative of the broader population of pregnant women undergoing membrane sweeping and show comparable results with studies conducted by Ehikioya E et al and others considering parity, maternal age, and education levels^{8,9,10,11}

The number of membrane sweeps performed in our study, averaging 2.76, is consistent with the typical practice of single or repeated membrane sweeping reported in the literature^{8,12,6,14,15}.

The optimal frequency of membrane sweeping is also unclear, with some studies suggesting that twice-weekly sweeping may be more effective than once-weekly sweeping in preventing post-term pregnancy, without added adverse events¹¹.

The short interval between membrane sweeping and delivery, with a mean of 2.25 days, aligns with the findings from other studies that have demonstrated the effectiveness of membrane sweeping in initiating labor^{8,9,10,12,14,15}.

The predominance of vaginal deliveries, including spontaneous vaginal births and those with episiotomy, in your study is consistent with the existing evidence on the safety and efficacy of membrane sweeping in facilitating labor^{8,9,10,16,17}.

The relatively brief labor duration observed in our study, averaging between 1 and 3 hours, further supports the hypothesis that membrane sweeping can help expedite the onset of labor^{8,10,15}.

Regarding maternal outcomes, the lower incidence of complications (7.7%) in our study is, in line with the findings from other research, which have generally reported membrane sweeping, to be a safe intervention^{8,9,10}.

The reassuring neonatal outcomes, with minimal NICU admissions (3.3%), also corroborate the existing evidence on the safety of membrane sweeping for both the mother and the infant^{8,9,10}.

The evidence on the effectiveness of membrane sweeping in preventing post-term pregnancy is mixed. Some studies have found it, to be advantageous in promoting spontaneous labor and reducing the need for formal induction¹⁹, whereas the rest have not found a significant clinical effect on the duration of pregnancy²⁰.

There is a need for further research, including health economic analyses, to better inform clinical practice and health policy regarding the use of membrane sweeping for the prevention of post-term pregnancy²¹.

Overall, the results of our study appear to be consistent with the broader body of research on the effectiveness and safety of membrane sweeping in reducing the need for formal labor induction and promoting spontaneous labor in post-term pregnancies. The similarities in participant characteristics, intervention protocols, and maternal and neonatal outcomes strengthen confidence in the conclusions drawn from your study.

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