

Role of Membrane Sweeping for Prevention of Post-Term Pregnancy

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ABSTRACT

Objective: To assess the role of membrane sweeping for prevention of post term pregnancy at 38-40 wks of pregnancy.

Study Design:

Place and Duration of Study: This study was conducted at the Department of Obstetrics and Gynaecology, Divisional Headquarter Hospital, Mirpur Azad Kashmir for a period of six months from 1st May 2016 to 31st December 2016.

Materials and Methods: A randomized control trial carried on 120 pregnant females. The females were randomized into two groups each having 60 participants. Group A was Membrane Stripping group while no sweeping of membrane was done in group B. Stripping was done, between 38 to 40 weeks of gestation, every 48 hours till labor initiated, or upto a maximum of 41 weeks of pregnancy.

Results: Out of total 120 females sharing similar gestational age (38-40 weeks), membrane stripping was performed in 60 females of group A while in control group (group B) no intervention was made. All females were age matched (25-35 years) with a mean age of 29.38 ± 2.96 in group A and a mean age of 28.33 ± 2.94 in group B. Fifty one (85%) females from group A and 40 (66.7%) females from group B underwent natural onset of effort before 41 wks, while 9 females from group A and 20 females from group B did not undergo natural onset of labor before 41 wks. The variance was statistically significant ($P < 0.05$).

Conclusion: Stripping of membranes is an effective and safe technique to minimize the rate of post term pregnancies. There is a need of trials on larger populations with a higher prevalence of post term pregnancies. This would help in evaluating efficacy of membrane stripping in decreasing rate of long gestations.

Key Words: Post term pregnancy, Sweeping of membranes, and labor induction.

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INTRODUCTION

A post term pregnancy, also called as prolonged gestation, is the one that has extended more than 42 weeks. The incidence of stillbirth or infant death (4-7 deaths per 1000 deliveries) is increased in post term. Almost 10% of total pregnancies result in post term. Post term child can develop respiratory problems due to ingestion of meconium while there are also increased risks for mother; such as complications during labor, a rise in injury to the perineum (like labia, vagina, and rectum), and an increased rate of cesarean with its related risks of infection, bleeding and trauma to adjacent organs¹⁻⁴.

Stripping of the membranes are a quite simple method usually achieved as a day case and doesn't need hospitalization⁵ to reduce incidence of post term pregnancy⁶.

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Stripping of the fetal membranes means digital separation of the membranes by finger from the lower uterine segment and the wall of the cervix⁷. There is a significant potential change for the prostaglandin production in late gestation period and gives evidence to fact that amniotomy and digital stripping of membrane often starts the labor⁸. Membrane sweeping causes the cervix to produce the endogenous prostaglandins, needs enough dilation of the cervix so that obstetrician finger can pass through it. While intervals natural onset of labor may be delayed by the sweeping of the membranes^{7, 9-10}.

Although it is effective in bringing on labor but causes some discomfort, bleeding and irregular uterine contractions. Risk of this technique has not been conclusively determined but is likely to be minimal in the absence of placenta praevia⁵. Results on the trials on the effectiveness have been inconsistent due to methodological differences between studies^{11, 12}. A study mentioned that spontaneous onset of labor <41 weeks occurred in 95.89% in patients in which sweeping was done and 81.16% in control group.

MATERIALS AND METHODS

This randomized control trial conducted in Department of Obstetrics and Gynaecology, Divisional Headquarter

Hospital, Mirpur Azad Kashmir for a period of six months from 1st May 2016 to 31st December 2016. After acquiring ethical approval and informed consent 120 pregnant females were included in the study at 38-40 weeks of gestation through non probability purposive sampling technique. Pregnant females (25-35 years of age) with intact membranes at 38-40 weeks of gestation according to last menstrual period were included in the study. The Parity was considered up to para 4 with a bishop score of more than 5. Singleton pregnancy (confirmed by USG) with cephalic presentation (confirmed by USG) and estimated fetal weight 2.5-4 Kg (estimated by USG) were also considered for inclusion criteria. Those females who were having pregnancy related complication or medical disorders i.e. PIH (Diastolic B.P at least 90mm Hg or systolic B.P at least 140 mm Hg recorded on at least two occasions 6 hours or more apart), pre-eclampsia (development of HTN, protein uria or both after 20 week gestation in a female with previously normal B.P where protein uria was measured by dip stick method), essential HTN (persistent HTN before 20 weeks of gestation in absence of hydatidiform mole or persistent HTN beyond 6 weeks post partum), GDM (carbohydrate intolerance of variable severity first diagnosed during pregnancy – diagnosed by GTT) were excluded from the study. Pregnant females with contraindication to vaginal delivery i.e. placenta previa (confirmed by USG), breech presentation (confirmed by USG), CPD (estimated on pelvic examination), transverse lie (confirmed by USG), closed cervical os on vaginal examination and previous caesarean delivery were also excluded from the study.

Patients were randomized in two groups by lottery method. Membrane sweeping was only performed in group 'A'. Sweeping was carried out by maximum separating the lower membranes from its cervical attachments with the examination finger of the researcher. Membrane sweeping was performed after every 48 hours for a week till labor starts. The patients were instructed for labor symptoms like PV leaking, bleeding, labor pains, discomfort, PV spotting. Patients were labeled to have spontaneous onset of labor when there is repeatedly contractions of enough frequency, strength and interval leading to advanced cervical effacement and opening so admitted. Those who fail to go in labor by 41 week were managed according to hospital protocol. The study data was analyzed using SPSS version 15.0. Descriptive statistics of socio-demographic variables were computed. Numerical variables like age of the patients, gestational age was presented as mean and standard deviation. Outcome variable i.e onset of labor in two groups and parity was compared by using Chi-square test. P value equal or less than 0.05 was considered as significant.

RESULTS

The study included total 120 females both nulliparous and multiparous at 38-40 weeks of gestation. Maternal age of cases (mean age 29.38 ± 2.96) designated as group 'A' while, that of controls (mean age 28.33 ± 2.94) designated as group 'B'. Both were in similar age group [25-35 years] (Table 1). In membrane sweeping group (A), 26 females were nulliparous while 34 were multiparous. Similarly in control group (B), 31 were nulliparous and 29 were multiparous. Majority of females in group A and B were multiparous. Most of the pregnant females were having 39th week of their gestation. Fifty one (85%) females from group A and 40 (66.7%) females from group B underwent natural onset of labor before 41 weeks, while 9 females from group A and 20 females from group B did not undergo natural onset of labor before 41 weeks (Table 2). The difference between the two groups was statistically significant ($P < 0.05$). Those females, who did not go into labor by 41 weeks, were induced by formal methods.

Table No.1: Distribution of Age in group A and B

Age	Group A (n=60)		Group B (n=60)	
	No.	%	No.	%
25 – 27	25	41.7	25	41.7
28 – 30	24	40.0	24	40.0
31 – 33	5	8.3	6	10.0
34 – 35	6	10.0	5	8.3
Mean $\pm$ SD	29.38 $\pm$ 2.96		28.33 $\pm$ 2.94	

Table No. 2: Distribution of gestation age in both groups

Group	Group A (n=60)		Group B (n=60)		Total	
	No.	%	No.	%	No.	%
Labor Onset before 41 weeks						
Yes	51	85.0	40	66.7	91	75.8
No	9	15.0	20	33.3	29	24.2

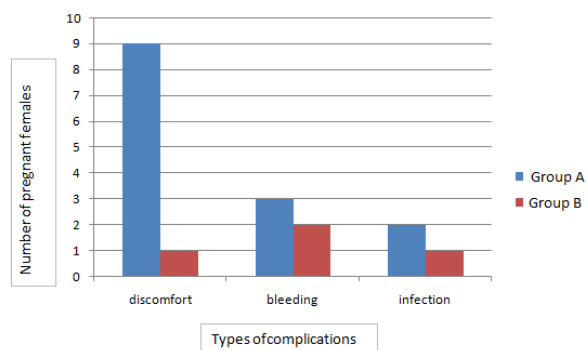


Figure 1: Comparison of various complications in Sweeping Group A and B

Complications like discomfort, bleeding and infection were also recorded in two groups. Nine (15%), 3(5%) and 2(3.3%) pregnant females in group A complaint discomfort, bleeding and caught infection respectively. Whereas in Group B 1(1.6%), 2(3.3%) and 1(1.6%) showed discomfort and had bleeding and infection respectively (Figure1).

DISCUSSION

Post term pregnancy one of the common obstetrics difficulty that is linked with raised fetal and new born mortality and morbidity risks due to uteroplacental failure in onset labor with increasing pregnancy duration. From the list of various interventions the simplest one is mechanical onset of labor. Induction of labor has been a very common method of interventions since long ¹³. Various reasons influence clinicians' decision for inducing labor before 41 week of gestational age ¹⁴. The physiological basis of membrane sweeping which causes induction of labor is the release of prostaglandins, phospholipase A3 and oxytocin. Release of prostaglandins last for up to six hours^{1,15} membrane sweeping also increases the frequency of uterine contractions.

The current study was conducted to see the role of membrane stripping at 38-40 weeks of gestation and its role in prevention of post term pregnancies. In this study females of both groups were age matched (25-35 years of age) and included nulliparous and multiparous females. Similar has been reported elsewhere ¹⁶. Most of the females were in 39th week of their pregnancy when they were mechanically induced for onset of labor. This seems to be the most appropriate gestational age and have been reported in different studies.¹⁷⁻¹⁸

This study showed that 85% of females who underwent spontaneous onset of labor by stripping of membrane delivered before 41 weeks of gestation, comparing it with non intervening group where only 66.7% females had spontaneous onset of labor. Similar has also been reported in earlier studies⁶. Research reveals that membrane sweeping was linked with earlier delivery and reduce incidence of post term gestation.^{5,19}

In present study frequency of bleeding and chance of infection was not significantly related with membrane sweeping as it was also noticed in few control cases as well. However there ratio was still higher in membrane sweeping group (Figure 1) than control group. Research reveals that women undergoing membrane sweeping does complain more about discomfort and bleeding during a vaginal examination than one who are not undergoing mechanical induction of labor.²⁰

Overall it can be elaborated the fact that membrane sweeping is a safe method for onset of delivery, decreasing rate of post term complications for both mother and child.

CONCLUSION

Membrane sweeping is an efficient, simpler and easier method for labor initiation with minimal complications. It also reduces the need of formal methods for induction.

Author's Contribution:

Concept & Design of Study:	Hina Zubair
Drafting:	Saima Perveen and Maryam Zubair
Data Analysis:	Saima Perveen and Maryam Zubair
Revisiting Critically:	Hina Zubair, Saima Perveen and Maryam Zubair
Final Approval of version:	Hina Zubair

Conflict of Interest: The study has no conflict of interest to declare by any author.

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