

Study of Efficacy of Membrane Sweeping in an Unfavourable Cervix at 38 Weeks and its Outcome in Primi Gravida

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ABSTRACT

To determine the effectiveness of membrane sweeping at term pregnancy for induction of labour. Hence, membrane sweeping seemed to increase normal vaginal delivery outcome, reduced post-dated deliveries significantly when frequently performed with minimal to no complications for both mother and fetus. Membrane sweeping is therefore an efficacious, facile and economical procedure to aid for commencement of labour. In conclusion, membrane sweeping is regarded as a relatively incomplex, secure and cost-effective intervention on an OPD basis that may increase the incidence of normal vaginal deliveries without over-running the expected date of confinement. It also decreases incidence of post-dated deliveries and its complications. Though it is an age old procedure, its advantages outweighs the disadvantages as far as the induction of labour is concerned.

Keywords: labour, pregnancy, prostaglandins and sweepings.

1.INTRODUCTION

Most women get into labour spontaneously and deliver vaginally at or near term. Some of them fail to deliver and continue the pregnancy to become postdated or even post-term. Prolonged or post-term pregnancy is basically one that exceeds 42 0/7 weeks, namely, 294 days or more from the first day of the last menstrual period.¹⁻³ It is associated with increased perinatal morbidity and mortality. Its incidence ranges from 4 to 18%. Due to medical and obstetric complications of pregnancy, there is often a need for initiating labour which should be similar to the physiological process of spontaneous ripening and labour as much as possible. Proper selection of cases for induction will be safe and desirable. Any method of induction done carelessly or by unqualified persons in inadequately equipped institutions are potential dangers. Careful selection of patients and intelligent management can eradicate the dangers of selective induction of labour.^{4,5}

There are many methods of labour commencement that are practiced throughout the world. One such procedure is the sweeping of membranes. It is an ancient and easy procedure for inducing

labour, often to prevent post-term pregnancy, but its efficacy and frequency are still unclear.⁶ Since it is a conservative and non-invasive approach, it can also be performed in the situations where labour induction is not immediate. It causes an increased prostaglandin levels local as well as in circulation, which ripens cervix. The studies on its effectiveness have been inconsistent because of dissimilar methods. Regular membrane sweeping starting at 38 weeks might be useful in most women.⁷⁻⁹

2.MATERIALS AND METHODS

STUDY DESIGN: Comparative clinical study

PERIOD OF STUDY: 18 months: August 2017 – February2019

PLACE OF STUDY: OBG Department, Sree Balaji Medical College and Hospital, Chromepet, Chennai.

SAMPLE SIZE:150

Control group (n) :50 Group A (n) :50

Group B (n) :50

- **INCLUSIONCRITERIA:**

1. Singletonpregnancy
2. 20-35 years ofage
3. Reliable and excellentdates
4. 38 weeks gestation with an unfavorablecervix
5. Cephalicpresentation
6. Normally placedplacenta
7. Modified Bishop's score<6
8. No riskfactors

- **EXCLUSIONCRITERIA:**

1. Multiplepregnancy
2. <20 years &>35 years ofage
3. Unreliabledates
4. Women below 38weeks
5. Abnormalpresentation
6. Placentaprevia
7. Modified Bishop’s score>6
8. Pregnancies associated with riskfactors

3.RESULTS

The women are distributed according to age group between 20-25 years was 13(26%) in control group, 19(38%) in Group A, 15(30%) in Group B; 25 -30 years was 14(28%) in control group, 19(38%) in Group A, 17(34%) in Group B; 31- 35 years was 23(46%) in control group, 12(24%) in Group A, 18(36%) in Group B. There was no statistically significant difference among groups.

TABLE 1 : AGE DISTRIBUTION

AGE DISTRIBUTION			Group			Total
			Control	Group A	Group B	
Age	20-25 Years	No. of Cases	13	19	15	47
		%	26.0	38.0	30.0	31.3
	26-30 Years	No. of Cases	14	19	17	50
		%	28.0	38.0	34.0	33.3

31-35 Years	No. of Cases	23	12	18	53
	%	46.0	24.0	36.0	35.3

Pearson Chi-Square=5.385 p=0.250

The education distribution among women with high school education was 10% in control group, 34% in group A, 30% in group B; Diploma was 34% in control group, 42% in group A, 38% in group B; Graduates was 44% in control group, 22% in group A, 24% in group B; Professionals was 12% in control group, 2% in group A, 8% in group B. There was no significant impact of their education on the groups.

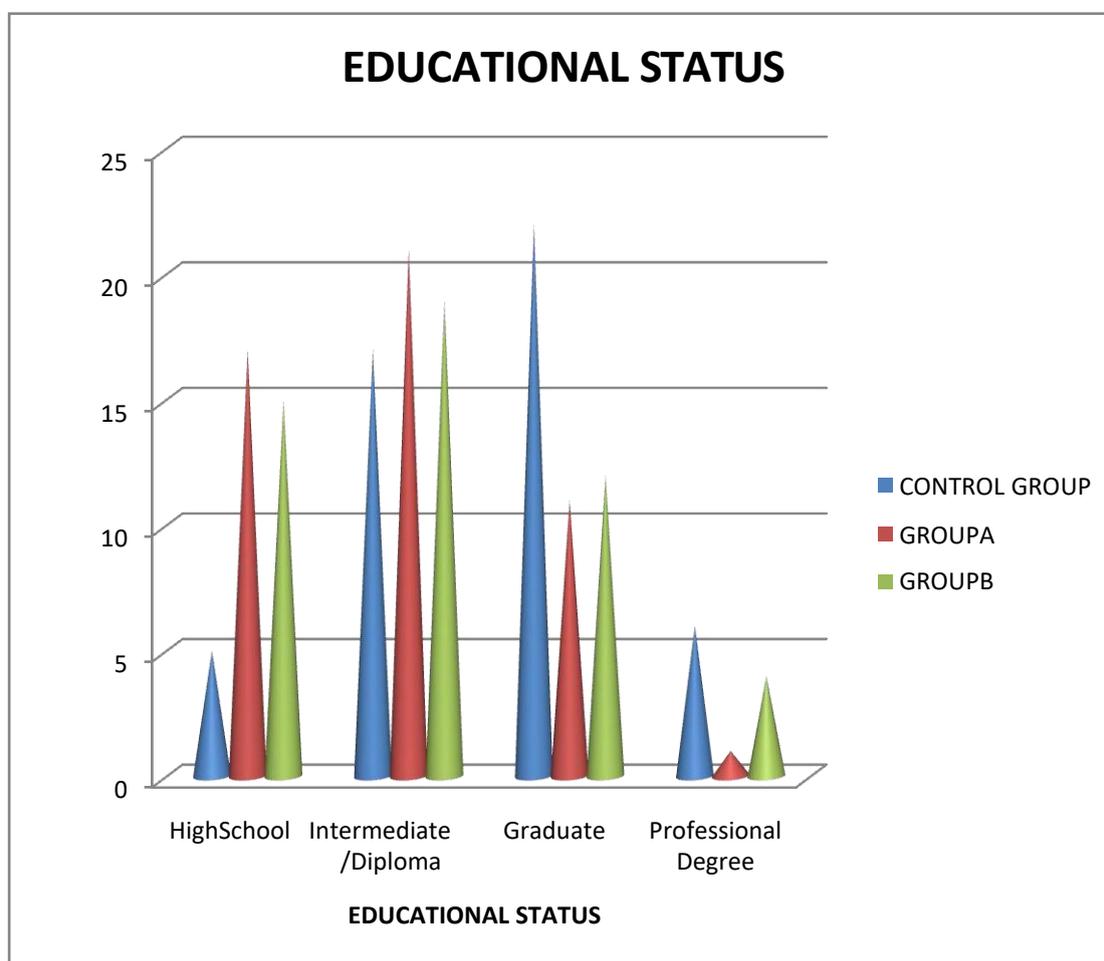


FIG 1: DISTRIBUTION OF EDUCATIONAL STATUS

TABLE 2: DISTRIBUTION OF AUGMENTATION NEEDED

AUGMENTATION	Control		Group A		Group B		P value
	No of cases	%	No of cases	%	No of cases	%	
ARM	30	42	17	34	10	20	<0.001
Syntocinin	20	58	10	20	8	16	

Pearson chi square 46.01* p<0.001

Augmentation with ARM and Syntocinin was needed more for the control group(ARM - 42% ; Syntocinin – 58%) rather than the sweeping groups [(once-weekly: ARM - 34%; Syntocinin - 20%) (twice-weekly: ARM -20 % ; Syntocinin - 16%)] (P value = < 0.001).

15 women (30%) of the control group, 7 women(6%) of the once-weekly sweeping, 3 women (6%) of the twice-weekly group became post-dated which is statistically significant (P value = 0.005).

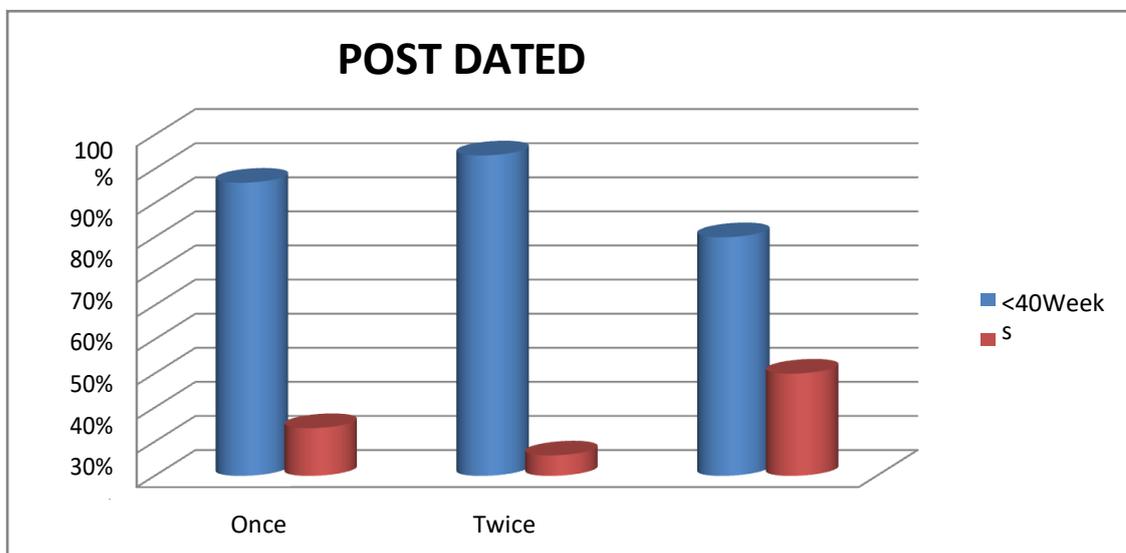


Figure 2:Post Dated Deliveries

The perinatal morbidities and NICU admission distribution was 8 babies in control group, 6 babies in once weekly group and 10 babies in the twice weekly group, which was insignificant (P value = 0.551).

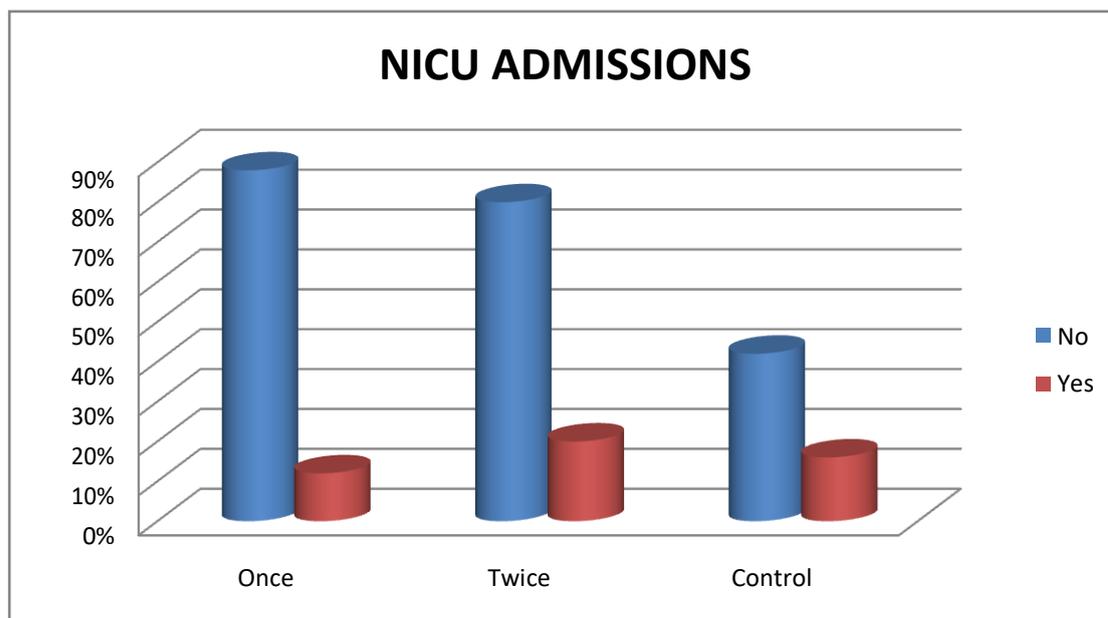


Figure 3: Nicu Admissions

4.DISCUSSION

This study was done only in antenatal women who attended the outpatient department of Obstetrics and Gynaecology, Sree Balaji Medical College and hospital, Chennai at 38 weeks of gestation and compared with other authors who have done the same procedure of membrane sweeping in the study group. In the present study, 150 patients who attended outpatient department at our hospital at 38 weeks of gestation, were randomly divided into 3 groups for cervical assessment by Modified Bishop's scoring and digital sweeping of membranes once-weekly, twice-weekly and no sweeping till 40 weeks.¹⁰ In this study, a significantly earlier gestational age for hospital admission and time of delivery was observed in the once- and twice-weekly membrane sweeping groups as compared with the control group. The once-weekly and twice-weekly groups had significant advancement in their scoring as compared to the control group (P value < 0.001). Even in the women who remained undelivered at forty-weeks showed increased score in the study groups.¹¹

In this study, in the once-weekly sweeping group 20 cases (40%) and in twice-weekly sweeping group 27 cases (54%) had normal vaginal delivery as compared to control group only 16 cases (32%) which showed the significance of frequent sweeping. Similarly, control group had 25 cases (50%) who underwent caesarean section, once-weekly group had only 18 cases (36%) and twice-weekly had 12 cases (24%).¹² Assisted vaginal deliveries (outlet forceps and vacuum) were almost similar - 7 cases (14%) had forceps delivery, 5 cases (10%) had vacuum assisted in once-weekly group; 8 cases (16%) had forceps delivery and 3 cases (6%) had vacuum assisted in twice-weekly group; 5 cases (10%) had forceps delivery, 4 cases (8%) had vacuum assisted delivery in control group. In this study, there was a cogent evidence that the time interval between the first intervention to the onset of labour and delivery was shortened in the sweeping groups. In the control group, only 14 women (26%) delivered before

2nd visit, only 21 women (24%) before 3rd visit, whereas in the once-weekly sweeping group, 19 women (18%) delivered before 2nd visit and 24 women (20%) delivered before 3rd visit. The twice weekly sweeping group gave even better results with the sweeping interval becoming frequent (once in 3 days), 10 (20%) women delivered before 2nd visit, 18 (32%) women delivered before 3rd visit, 11 women (26%) delivered before 4th visit, 8 women (10%) before due date.¹³⁻¹⁵

The mean days to delivery was less in twice-weekly group (7.58 +/- 0.24); once-weekly group (9.48 +/- 0.32) as compared to the control group (13.11 +/- 0.55). There was poignant statistical significance. In the study by McColgin S.W et al (1990) their mean days to delivery interval in sweeping group was 8.6 ± 0.74 as opposed to 15.14 ± 0.83 of control group. Patients who delivered within a week were 49 (54.5%) versus 14 (15.6%) in the study and control group respectively. In 1990 McColgin S.W. et al conducted another study in which delivery within a week was accomplished in 59% of the sweeping group compared with 21% in controls. There was significant reduction in the number of days to delivery from 6.7 in study versus 13.3 in control group.¹⁶

In the study by Wiriyasirivaj et al (1997), 25 of 61 patients (41%) assigned to membrane sweeping delivered within a week, compared to 12 of 59 controls (20.3%). There was also a statistically significant difference in Bishop scores among those who did not deliver within 1 week (4.0 ± 2.5 versus 2.6 ± 1.7) in the study and control group respectively. In a 1998 study conducted by Cammu Hendrik, Vera Haitisma 53 (38%) of 104 and 50 (36%) of 138 cases delivered within 1 week in stripped and control group respectively.^{17,18} The duration of labour irrespective of the mode of delivery showed significant difference. The time-span of labour (all three stages) was earlier (7.54.4 hours) for twice-weekly sweeping group, 8.74.3 hours in the once-weekly sweeping group as compared to 11.06.4 hours of the control group. This once again proved that periodic membrane sweeping was statistically significant. All three groups needed augmentation (artificial rupture of membranes and oxytocin) for the labour to progress but more so for the control group. The control group needed (ARM - 42% ; oxytocin - 58%) while the sweeping groups needed [(once-weekly: ARM - 34% ; oxytocin - 20%) (twice-weekly: ARM - 20% ; oxytocin - 16%)]. The P value was < 0.001 proving to be convincing.¹⁹

In our study, 15 cases (10%) went in for post-dated pregnancy in the control group as compared to 7 cases (14%) in the once-sweeping group and 3 cases (6%) in twice-sweeping group. This was a statistically contrast improvement. There was a mild but insignificant surge in the maternal complications like pain, discomfort, mild vaginal bleeding and PROM in the sweeping groups than the control group (P value = 0.14) which is a similar fashion as asserted in various other studies.^{20,21} The perinatal morbidities and NICU admission too were even in all groups thus being statistically irrelevant like the referred studies.

5. CONCLUSION

„The best way to understand the sanctity of life is through pregnancy; the pains and struggles a mother would endure to make sure her baby has a safe and easy passage to earth’. It is the prayer of every obstetrician and the mother (of course!) to have an uneventful and breezy birth of a

child. So to achieve this, membrane sweeping is an equipment-free, drug-free way to coax someone already in late pregnancy into spontaneous labour. Its main purpose is the reduction for the need for a medical induction after the due date. Sweeping of the membranes was used as a method for inducing labour since 1810. The woman may go into active labour within a few hours, a few days or not at all – it depends on how ready her body is. “One sweep might not do anything, but if you have a sweep at weeks 38, 39 and 40, it’s the cumulative effect of those sweeps” – Dr.Bacon.

In conclusion, membrane sweeping is regarded as a relatively incomplex, secure and cost-effective intervention on an OPD basis that may increase the incidence of normalvaginal deliveries without over-running the expected date ofconfinement. It also decreases incidence of post-dated deliveries and its complications. Though it is an age old procedure, its advantages outweighs the disadvantages as far as the induction of labour is concerned.

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CONFLICT OF INTEREST

The authors declare no conflict of interest.

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BIBLIOGRAPHY

1. Cunningham FG, Kenneth JL, Steven LB, John CH,DwightJR, Catherine YS. Williams Obstetrics. 23rded. New York(USA):McGraw-Hill:2010.p.832.
2. GranstromE, HambergM. Et al., 1990: “Instability of 15 – Keto-13, 14- dihydro-PGE2 :The reason for low assay reliability” Prostaglandins :933-57.
3. Sachs BP, Friedman EA.Result of anepidemiologic study of post datepregnancy J.ReprodMed. 1986 ;31:162.
4. Rayburn WF et al : Antepartum prediction of the post mature infant ObstetGynecol1982 ;60:148.
5. Prabha S et al. Fetomaternaloutcome following post datepregnancy J of Obstand Gynecolof India2001;51:89-93.
6. Gauthier RJ et al Estriol in pregnancy VII. Unconjugated plasma estriol in prolonged gestation Am. J. ObstetGynecol1981; 139:382.
7. Eden RD et al.: Perinatal characteristics of uncomplicated postdatepregnanciesObstetGynecol1987;69:296.
8. Smith CV et al: Fetal death following antepartum fetal heart rate testing: A review of 65 cases. ObstetGynecol1987; 70: 18.
9. Witter FR. Prolonged Pregnancy. Obstetrics. Normal and ProblemPregnancies.
10. Smith CV et al. Fetal acoustic stimulation testing. A retrospective experience with the acoustic stimulation testAm J ObstetGynecol1985; 153:567.
11. Weinaet al: The value of Doppler ultrasonography on prolonged pregnancies. Eur

- J ObstetGynecolReprodBiol 1993; 48: 93 -97.
12. DevinderKaur et al. Maternal and foetaloutcome in post datedpregnancies J. of Obst. &Gyn of India 1997; 47: 331- 334.
 13. Gupta R, et al 1998 :“Safety and efficacy of stripping of membranes at term” Int J GynaecolObstet. 1998 Feb; 60(2): 115-21.
 14. KashanianM. et al 2006 :“Effect of membrane sweeping at term pregnancy on duration of pregnancy and labourinduction: A randomized trial” GynecolObstetInvest;62:41-44.
 15. Tarik Y Zamzami et al 2011 -12 : “ the efficacy of membrane sweeping at term and effect on the duration of pregnancy: a randomized controlled trial”; JCGO, Vol 3, No. 1, Feb 2014, pages30 -34.
 16. HamerlynckJV et al :“Routine membrane sweeping for induction of labor in full-term pregnancies effective, but not always useful” Ned TijdschrGeneesk: 2005 , 149(45):2508-10.
 17. BerghellaV et al 1996 :“Stripping of Membranes as a safe method of reduce prolonged pregnancies”. ObstetGynaecol; 87:927-931.
 18. AllottHA, Palmer CR, 1993: “Sweeping the membranes : a valid procedure in stimulating the onset of Labour?”. Br. J. ObstetGynaecol;100:898-903.
 19. Swann RD. 1958 :“Induction of labourby stripping membranes” ObstetGynaecol; 11:74-8.
 20. Hamdan M, Sidhu K, Sabir N, Omar SZ, Tan PC. Serial membrane sweeping at term in planned vaginal birth after cesarean: a randomized controlled trial. ObstetGynecol. 2009;114(4):745-751.
 21. Epley SL, Johnson SR, GopleurdCP. 1984: “The morbidityof membrane stripping” J. JowaMed Soc:74:252-5.