



INDUCTION OF LABOUR; EFFICACY OF SWEEPING OF MEMBRANES AT TERM IN PREVIOUS ONE C-SECTION

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ABSTRACT ... It is now widely accepted that trial for vaginal delivery should be attempted unless a genuine indication exists for C- section. **Objective:** To determine the efficacy of membrane sweeping for onset of labor till 41 weeks of gestation and mode of delivery in patients with previous one cesarean section (C-Section). **Study Design:** Randomized control trial. **Setting:** Department of Obstetrics & Gynaecology, Benazir Bhutto hospital, Rawalpindi. **Period:** Jan 2008 to Dec 2008. **Methods:** Pregnant women with previous one C- section were randomly allocated to Group-A (sweeping of membrane) and Group-B (no intervention) each having 55 patients. There was no absolute indication of cesarean section in present pregnancy. After complete antenatal examination, tests like CBC, urine DR, BSR, urea, creatinine, screening for hepatitis B and C were done. In group A, digital sweeping of fetal membranes was started a 37 weeks and was done every 3rd day till she went into the labor or she reached 41 weeks. At 41 weeks of gestation, if she did not go into labor, induction with prostaglandin or elective C-section was done depending upon the bishop score. In group B, patients awaited spontaneous onset of labor till 41 weeks. After 41 weeks induction with prostaglandin or elective C- cesarean section was done. **Results:** In Group A, 43 (78.18%) patients had onset of labour after sweeping of membranes while 12 (21.82%) patients had no onset of labour. In Group-B, 28 patients (50.90%) had spontaneous onset of labor while 27 (49.10%) had no onset of labours. In Group-A, 34 (61.82%) patients and in Group-B only 14 (25.45%) were delivered vaginally (p Value 0.001). In Group-A, lower segment cesarean section was done in 6 (10.91%) patients while in Group-B, 23 (41.82%) had cesarean section (p Value 0.001). Assisted vaginal delivery was done in 15 (27.27%) in Group-A while 18 (32.73%) patients in Group-B had assisted vaginal delivery (p Value 0.533). **Conclusions:** In patients with previous one cesarean section, the efficacy of membrane sweeping in terms of onset of labor and normal vaginal delivery is significantly higher as compared to patients who had no sweeping of membranes.

Key words: Previous one cesarean section, membrane sweeping at 41 weeks of gestation, onset of labor, mode of delivery.

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INTRODUCTION

The management of labour in patients who have under gone previous caesarean section(C-section) continues to be a problem in obstetrics. It is now widely accepted that trial for vaginal delivery should be attempted unless a genuine indication exists for C- section.¹

Induction of labor is defined as onset of of uterine contractions which are artificially initiated prior to the spontaneous onset of labor which leads to gradual dilatation and effacement of the cervix and in the end, delivery of the baby.² In Europe and North America Labor is induced approximately in

20% of pregnancies.³ Evidence from the obstetric literature suggests that the frequency of labor induction is increasing. According to the National Centre for Health Statistics, the rate of labor induction has more than doubled during the past 10 years, from 9% in 1989 to 19.9% in 2000. As labor induction has become more widely used in recent years, the number of medications used for pre-induction cervical ripening has expanded greatly.⁴ This increase is due to availability of better cervical ripening agents, the desire to have planned time of delivery and more acceptable attitudes towards induction of labor.⁵

The methods of induction can be pharmacological or mechanical. Sweeping of membranes is a simple procedure. In this procedure, the index finger is placed through the internal os of the cervix and then swept in a circular motion separating the amniotic membrane from the lower uterine segment. This procedure increases local prostaglandin F_{2α} production from decidua and adjacent membrane, thereby leading to onset of labour.^{6,7}

Sweeping of membranes has been examined in several randomized trials with conflicting results.⁸ It was found in two meta-analyses that sweeping of membranes at term reduces the duration of post-term pregnancy (greater than 41 weeks). It also increases the rate of delivery within two to seven days and decreases the use of formal induction methods.^{9,10} No significant differences were found in the mode of delivery or risk of infection. Women undergoing sweeping membranes had discomfort during the examination and minor side effects like bleeding and uterine irritability were more frequently noted. It was concluded that sweeping of membranes promotes onset of labor, however it does not have clinically important benefits on maternal or neonatal outcomes. In emergency cases, sweeping of membranes is not the method of choice. Its use reduces as a method of formal induction should be balanced against the risk of discomfort to the patient, bleeding and uterine irritability.

The purpose of this study was to determine the efficacy of sweeping of membrane for onset of labor till 41 weeks of gestation and subsequent mode of delivery in patients with previous one cesarean section.

PATIENTS AND METHODS

It was a randomized control trial conducted at Department of Obstetrics & Gynaecology, Benazir Bhutto Hospital and Rawalpindi from January 2008 to December 2008. Pregnant women with previous one cesarean section were randomly allocated to Group-A (sweeping of membrane) and Group-B (No intervention). Each group consisted of 55 patients. All pregnant

women in their Singleton second pregnancy with previous one lower segment transverse cesarean section, having longitudinal lie and cephalic presentation at 37 weeks of gestation confirmed by ultrasonography were included in the study. There was no absolute indication of cesarean section in present pregnancy. Patients with any contraindication for vaginal delivery like cephalopelvic disproportion, breech and placenta previa, maternal medical disorders necessitating urgent delivery like severe pre-eclampsia were excluded from the study. Informed consent was taken from each patient after explaining procedure and risks and benefits associated with it. After carrying complete antenatal examination, necessary lab investigation like CBC, urine DR, BSR, urea, creatinine, screening for hepatitis B and C were done.

In group A, patient was placed in lithotomy position and using sterile examination gloves, bishop score was assessed and then digital separation of 2-3 cm of membrane from lower uterine segment was performed, rotating the finger at least twice through 360°. If cervix was closed, it was digitally stretched until membrane sweeping could be carried out.

Membrane sweeping was started at 37 weeks and was done every 3rd day till she went into the labor or she reached 41 weeks. Even at 41 weeks of gestation if she did not go into labor, induction with prostaglandin or elective lower segment cesarean section was done depending upon the bishop score. In group B, women at the same gestational age were not subjected to such membrane sweeping and spontaneous onset of labor was awaited till 41 weeks. After 41 weeks induction with prostaglandin or elective lower segment cesarean section was done depending upon the bishop score.

Data was entered in a pre-designed proforma and analyzed by SPSS 20. The quantitative variables like age of patients and duration of gestation were presented as mean and standard deviation. Qualitative variables like, onset of labor before 41 weeks (Yes/No) and mode of delivery (normal

vaginal delivery, lower segment cesarean section, assisted vaginal delivery) were presented as frequency and percentages. Chi square test was used to compare onset of labor before 41 weeks and mode of delivery in group A and B respectively. P value equal to or less than (≤ 0.05) was considered significant.

RESULTS

The patient's mean age was 24.28 ± 3.87 and 23.98 ± 4.21 years in group A and group B. Majority of the patients, 23 (41.82%), were between 20-25 years of age in group A. In group B, the most of the patients 26 (47.27%) were also in the same age group (20-25 years) (Table I).

Age (Years)	Group (A) n=55		Group(B) n=55	
	No. of patients	%	No. of patients	%
20-25	23	41.82	26	47.27
26-30	19	34.55	17	30.91
31-35	13	23.63	12	21.82

Table-I. Age distribution

In group A, 43 (78.18%) patients had onset of labor after sweeping and 12 (21.82 %) did not had onset of labor while in group B, 28 (50.90%) patients had onset of labor and 27 (49.10%) had no onset of labor (table II).

Onset of labor	Group(A) (n=55)		Group(B) (n=55)	
	No. of patients	%	No. of patients	%
Yes	43	78.18	28	50.90
No	12	21.82	27	49.10
Total	55	100	55	100

Table-II. Onset of labor before 41 weeks of gestation

P Value= 0.003

Gestational age at onset of labor is shown in table no. III. In group A, 28 (65.11%) patients delivered between 37 to 38 weeks, 9 (20.93%) patients between 38 to 39 weeks, 5 (11.63%) patients were delivered between 39 to 40 weeks and 1 patient (2.33%) was delivered between 40 to 41 weeks of gestation. While in group B, 3 (10.71%) patients were delivered between 37 to 38 weeks, 7 (25%) between 38 to 39 weeks, 10 (35.71%) between 39 to 40 weeks and 8 (8.33%) were delivered between 40 to 41 weeks of gestation. Majority of the patients, (28), in group A delivered between 37 to 39 weeks while in group B most of the patients, (8), delivered between 39 to 41 weeks.

Table No. IV shows, incidence of mode of delivery. In group A, 34 (61.82%) patients delivered vaginally while in group B, 14 (25.45%) patients were delivered vaginally (P- value 0.001). Lower segment cesarean section was done in 6 (10.91%) patients in group A and 23(41.82%) patients in group B (P- value 0.001). Assisted vaginal delivery was done in 15 (27.27%) patients in group A, while in group B 18 (32.73%) patients underwent this procedure (P- value 0.533).

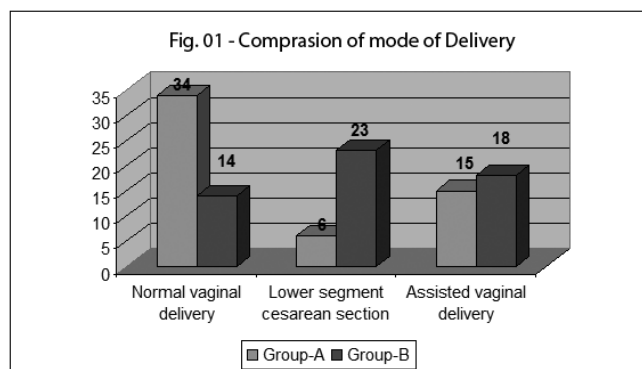
Gestational Age	Group-A (n=43)		Group-B (n=28)	
	No. of patients	%	No. of patients	%
37 to 38 weeks	28	65.11	03	10.71
38 to 39 weeks	9	20.93	07	25
39 to 40 weeks	05	11.63	10	35.71
40 to 41 weeks	01	2.33	08	8.33

Table-III. Gestational age at onset of labor

Gestational Age: Group-A= 37.46 ± 2.31 , Group-B= 39.02 ± 2.95

Mode of delivery	Group (A) (n=55)		Group(B) (n=55)		P value
	Number of patients	%	Number of patients	%	
Normal vaginal delivery	34	61.82	14	25.45	0.00
Lower segment cesarean section	06	10.91	23	41.82	0.00
Assisted vaginal delivery	15	27.27	18	32.73	0.533

Table-IV. Mode of delivery



DISCUSSION

Post term pregnancy, is defined as pregnancy lasting more than 42 weeks (294 days) from the first day of last menstruation.¹ In UK, approximately 60 000 women deliver postdates each year.² Post term pregnancy remains a difficult and controversial problem in modern obstetrics.³ In postdate pregnancies there is an increased risk of intrapartum and postpartum complications. It is also associated with increased perinatal morbidity and mortality rates.⁴ About two third of the prolonged pregnancies are due to mistaken dates.⁵ Babies delivered postdates are more likely to be hospitalised during early years of life. These babies have also greater risk of having epilepsy, neurodevelopmental delays and Asperger's syndrome.⁶

Membrane sweeping has been considered an effective outpatient method to reduce the number of postdate pregnancies (exceeding 41 wks).⁷ Membrane sweeping is found more effective in nulliparous women with unfavourable Bishop Scores. Patients were randomized to either a gentle examination or weekly sweeping of membranes starting at 38 weeks in a study by Berghella et al.⁸ Sweeping of membranes significantly decreased time to delivery, and there were fewer pregnancies reaching beyond 41 weeks.⁹ Sweeping of membranes in some other studies have not reduced the need for post-term induction. A well-designed Canadian study did not find any differences between a single membrane sweeping and routine examination with respect to onset of labor after 41 weeks or need for induction of labor.

Sweeping of membrane is considered safe and effective mechanical method for induction of labor in previous one cesarean section also. Our study shows 61.82% normal vaginal deliveries after membrane sweeping in patients with previous one cesarean section, which is comparable with a study conducted by Pathadey SD and workers, which found 79% patients with normal vaginal delivery after sweeping of membranes.¹⁰ Though this study has a higher incidence of normal vaginal delivery however both studies show the same results.

Regarding onset of labor, our study shows 78.18% patients had onset of labor, which is showing more efficacy of this procedure and these results are significantly higher 50.09% in comparison of patients managed in control group.

Another study conducted by de Miranda et al, also confirms the efficacy of this procedure even in nulliparous by showing significant results of early onset of labor as compare to patients without sweeping of membranes. This study concluded that sweeping of membranes at 41 weeks can effectively reduce the rate of postdate pregnancies.¹¹ The results of this study are in support of our hypothesis that sweeping of membrane leads to earlier onset of labor in previous one cesarean section in comparison with no membrane sweeping.

CONCLUSIONS

The efficacy of membrane sweeping in terms of onset of labor till 41 weeks of gestation is significantly higher and majority of the patients are delivered vaginally.

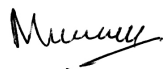

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REFERENCES

1. FIGO International classification of disease: update. Int J gynaecol obstet 1980; 17: 634-40.
2. Bakketeig L, Bergsjø P. **Post-term pregnancy: magnitude of problem.** In: Chalmers I, Enkin M, Keirse MJNC. eds. Effective care in pregnancy and childbirth, Vol. 1, ed 2. Oxford: Oxford university press 1989: 765-75.
3. Allot HA, Palmer CR. **Sweeping of membranes: a valid procedure in stimulating the onset of labour?** Br J Obstet Gynaecol 1993; 100: 898-903.

4. Mazhar SB, Alam K. **Induced Labour: Indications and Outcome.** PIMS Experience. J Surg 2001; 23-24: 31-3.
5. El-Torkey M, Grant JM. **Sweeping of the membranes is an effective method of induction of labor in prolonged pregnancy: a report of a randomized trail.** Br J Obstet Gynaecol 1992; **99**: 455-8.
6. Magann EF, McNamara MF, Whitworth NS, Chauhan SP, Thorp RA, Morrison JC. **Can we decrease postdatism in women with an unfavorable cervix and a negative fetal fibronectin at term by serial membrane stripping?** Am J Obstet Gynaecol 1998; **179**: 890-4.
7. Wong SF, Hui SK, Choi H, Ho LC. **Does sweeping of membranes beyond 40 weeks reduce the need for the formal induction of labour?** Br J Obstet Gynaecol 2002; **109**: 632-6.
8. Boulvain M, Fraser W, Marcoux S, Fontaine JY, Bazin S, Pinault JJ, et al. **Does membranes sweeping reduce the need for the formal induction of labour? A randomized controlled trail.** Br J Obstet Gynaecol 1998; **105**: 34-40.
9. Muzhar SB, Sarwar S, Mahmud G. **Induction of labour: A randomized trial comparing prostaglandin E2 pessary, intracervical Folley's catheter and extra amniotic saline infusion.** J Surg 2000; 19-20: 12-8.
10. Anwar S, Shami N, Akbar N, Asif S. **Induction of labour: prostaglandin E2 vaginal tablet in patients with previous Caesarean section.** J Coll Physicians and Surg Pak 2002; **12**: 208-11.
11. Lower AM. **Surgical Anatomy.** In: Shaw RW, Soutter WP, Stanton SL. eds. Gynaecology. 3rd ed. London: RDC Group Ltd. 2003: 21-36.
12. Cunningham FG, Gant NF, Leveno KJ, Gilstrap III LC, Hauth JC, Wenstrom KD, et al. **The placenta and fetal membranes.** William Obstetrics. 21 ed. New York. McGraw-Hill companies 2001: 85-108.
13. Roberts CL, Taylor L, Henderson-Smart D. **Trends in births at and beyond term: Evidence of a change?** Br J Obstet Gynaecol 1999; **106**: 937.
14. Laveno KJ, Quirk JG, Cunningham FG, Nelson SD, Santos-Ramos R, Toofanian A, et al. **Prolonged pregnancy: Observations concerning the causes of fetal distress.** Am J Obstet Gynaecol 1984; **150**: 465.
15. Cunningham FG, Gant NF, Leveno KJ, Gilstrap III LC, Hauth JC, Wenstrom KD, et al. **The placenta and fetal membranes.** William Obstetrics. 21 ed. New York. McGraw-Hill companies 2001: 85-108.
16. Eden RD, Seifert LS, Winegar A, Spellacy WN. **Perinatal characteristics of uncomplicated postdate pregnancies.** Obstet Gynaecol 1987; **69**: 296.
17. McColgin SW, Patrissi GA, Morrison JC. **Stripping the fetal membranes at term: is the procedure safe and efficacious?** J Reprod Med 1990; **35**: 811-4.
18. BERGHELLA, V.; ROGERS, R. A.; LESCALE, K. **Stripping of Membranes as a Safe Method to Reduce Prolonged Pregnancies.** Obstetrics & Gynecology. 1996; 87(6):927-931.
19. Boulvain M, Irion O, Marcoux S, Fraser W. **Sweeping of the membranes to prevent post term pregnancy and to induce labour: A systematic review.** Br J Obstet Gynaecol 1999; **106**: 481.
20. Pathadey SD1, Van Woerden HC, Jenkinson SD. **Induction of labour after a previous caesarean section: a retrospective study in a district general hospital.** J Obstet Gynaecol. 2005 Oct;25(7):662-5.
21. de Miranda E , van der Bom JG, Bonsel GJ, Bleker OP, Rosendaal FR **Membrane sweeping and prevention of post-term pregnancy in low-risk pregnancies: a randomised controlled trial.** BJOG. 2006 Apr;113(4):402-8. Epub 2006 Feb 20.

AUTHORSHIP AND CONTRIBUTION DECLARATION

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2	Dr. Uzma Asif	Article writing	
3	Dr. Bushra Miraj	Article writing	