ORIGINAL ARTICLE

Outcome of Sweeping Membrane within 48 Hours in the Induction of Labour in Multigravidae

AZRA YASMEEN, ASLAM MEHMOOD MALIK*

ABSTRACT

Aim: To evaluate the effectiveness of membrane sweeping as compared to without sweeping in the induction of labor at 48 hours in term pregnancy among multigravida.
Study design: A randomized controlled trial.
Duration of study: This study was conducted from February, 2013 to August, 2013 in the department of obstetrics and gynecology, BVH, Bahawalpur. A total of 60 patients were enrolled. After taking written and informed consent from the patients, they were divided into two groups. In group "A" sweeping membrane was done. In group "B" no sweeping was done.
Results: In group-A, 21(70%) patients with sweeping membrane had effective delivery (within 48 hours) while 9(30%) had no delivery within 48 hours. In group-B, 14(46.67%) patients without sweeping membrane had effective delivery (within 48 hours) while 16(53.33%) had no delivery within 48 hours.
Conclusion: Sweeping of the membranes during induction of labor had a beneficial effect on labor and delivery. Based on the findings, it is recommended to induce labor with sweeping of the membranes.
Keywords: Membrane sweeping, induction of labor, term pregnancy

INTRODUCTION

Induction of labor is a frequently performed intervention in obstetrics. Sweeping of the membranes is a relatively noninvasive technique which could be performed in situations where the indication to induce labor is not urgent. The goal of the intervention is to avoid more formal methods of labor induction, such as oxytocin, prostaglandins, and amniotomy. During routine cervical examination, the inferior pole of the membranes is separated from the lower uterine segment by a circular movement of the examining finger. This increases the release of prostaglandin F and the frequency of uterine contractions increased[1,2]. Sweeping the membrane is a method of artificially inducing labor that may decrease the chance of use of chemical methods[3]. The mechanism of induction of labor by this technique is due to increased prostaglandins[4]. Advantages of this technique over pharmacologic methods are its low cost, few systemic side effects and no storage requirement[5.] Disadvantages may include a small risk of maternal and neonatal infection and some maternal discomfort upon manipulation of cervix[6].

**Associate professor of Obstetrics and Gynecology, BVH/QMC, Bahawalpur*
Correspondence to: Dr. Azra Yasmeen, Post Graduate Trainee, Department of Obstetrics and Gynecology, BVH, Bahawalpur. E-mail: azrayasmeen123@gmail.com

MATERIALS AND METHODS

This randomized controlled trial was conducted in Labor room Gyne unit-II of BVH, affiliated with QMC, Bahawalpur from February 2013 to August 2013. All patients admitted in the labor room of Gynae unit-II of BVH, Bahawalpur fulfilling the inclusion criteria in the study after informed consent. Patients of para 2 and para 5 with age from 25 to 35 years, Uncomplicated single cephalic term pregnancy, Candidates for vaginal delivery and patients with 40-41 weeks estimated gestational age (by early pregnancy scan) were included in this study. Exclusion criteria was primigravidae, grand multipara, high risk pregnancy and patients presentation other than cephalic.

Patients were randomized to "A" and "B" groups. In group "A", sweeping membrane was done. In this group, digital separation of 2-3cm of the membranes from lower uterine segment by rotating the finger at least twice through 360 degrees was done. A closed cervix was stretched digitally until membrane sweeping could be carried out. A closed cervix that would not admit a finger was vigorously massaged. Women who underwent sweeping was told that spotting or blood stained cervical mucus may appear. In group "B" no sweeping was done. Main outcome measure was the proportion of women achieving spontaneous labor within 48 hours.

RESULTS

Details of results are given in tables 1, 2, 3 and 4

Table 1: Effectiveness of sweeping membrane in different groups

Groups	Effectiveness of delivery within 48 hours	
	Yes	No
Group-A (with sweeping of membrane)	21(70%)	9(30%)
Group-B (without sweeping of membrane	14(46.7%)	16(53.3%)
Total	35(58.3%)	25(41.7%)

P value 0.067

Table 2: Effectiveness of delivery with sweeping membrane in different parity

Parity of patients	Effectiveness of delivery with sweeping membrane	
	Yes	No
Para-II	4(80%)	1(20%)
Para-III	6(75%)	2(25%)
Para-IV	5(55.6%)	4(44.4%)
Para-V	6(75%)	2(25%)
Total	21(70%)	9(30%)

P value 0.724

Table 3: Effectiveness of delivery without sweeping membrane in different parity

Parity	Effectiveness of delivery without sweeping membrane	
	Yes	No
Para-II	4(66.7%)	2(33.3%)
Para-III	3(42.9%)	4(57.1%)
Para-IV	3(27.3%)	8(72.7%)
Para-V	4(66.7%)	2(33.3%)
Total	14(46.7%)	16(53.3%)

P value 0.304

DISCUSSION

Sweeping the membranes has fewer adverse effects and is acceptable to women. Many studies reported fewer women eventually required induction for post-term delivery if cervical sweeping was done antenatally[7]. Cervical sweeping involves release of endogenous PG. Amnion sweeping releases many substances (prostaglandins PGF2a and endocervical phospholipase A2) that soften the cervix, which might explain in part why sweeping has a more significant effect on nulliparous with unfavorable cervices, who would benefit most from cervical softening. Prostaglandin F2a also augments oxytocin-induced contractions, which increases the efficacy of oxytocin and endogenous oxytocin spurts that occur after sweeping and vaginal examination (Ferguson's reflex). As a result reduced need for oxytocin in women who had their membranes swept. It has been shown that increased uterine activity and PGF2a release in response to sweeping occurs rapidly and lasts for at least 6 hours. Vaginal examinations in the current study were done at 6-hour intervals during PGE2 priming, so concurrent sweeping might have prolonged the endogenous response to sweeping during induction, shortening the induction-labor interval[8].

In our study, the mean duration of delivery was 29.5±16.1 hours in group-A while in group-B, the mean duration of delivery was 41.6±11.9 hours. In group-A, 21(70%) patients with sweeping membrane had effective delivery (within 48 hours) while 9(30%) had no delivery within 48 hours. In group-B, 14(46.7%) patients without sweeping membrane had effective delivery (within 48 hours) while 16(53.3%) had no delivery within 48 hours. These results were comparable to the other study conducted locally and internationally. In a study conducted by Foong et al[9] showed that those who had membrane sweeping had a shorter mean induction-labor interval (13.6±1.4 vs17.3±1.2 hours) and required less oxytocin (mean maximum dose 6.8±0.8 vs10.35±1.1 mU/minute) than those who were not swept. Swept women also had a significantly greater likelihood of better delivery outcome (vaginal delivery 40 of 48[83.3%] vs 32 of 55 [58.2%].

Another study conducted by Kashanian M et al[10] showed that the mean interval between sweeping(stripping) and vaginal examination until delivery was 7.7±6.9 and 7.1±5.6 days in the sweeping and in the control group, respectively (p=0.61). Of the 101 pregnant women, only 6 patients had premature rupture of membranes (2 in the sweeping group and 4 in the control group). There were no statistically significant differences between these individuals (p=0.68). Significant vaginal bleeding was not observed in the two groups. In another study conducted by Wong et al[11] showed that the recruitment to delivery interval was significantly shorter among women who had sweeping of membranes (3.2 vs 4.2 days, P < 0.05). The incidence of induction of labor was comparable (35.5% vs 38%). The incidence of caesarean section and assisted vaginal delivery were comparable. The incidence of premature rupture of membranes, intrapartum and postpartum infection were comparable.

In another study conducted by Boulvain et al[12] showed that women allocated to sweeping of the membranes required formal induction of labor less frequently than women in the control group, but this difference was not statistically significant (49% vs 60%, RR 0.83, 95% CI 0.64-1.07). Pain during vaginal examination and other side effects were more frequently reported by women allocated to the

sweeping group. El-Torkey et al[13] showed that spontaneous labor occurred more often in the sweeping of the membranes group than in the control group (25/33 (76%) vs 12/32 (38%); odds ratio (OR) 4.65; 95% confidence interval (CI) 1.75 to 12.31; P=0.002). In addition a greater proportion of women in the sweeping group had a cervical dilatation of 4 cm or more at the first vaginal examination in the labor ward (16/33) (49%) vs 5/32 (16%); OR 4.39; 95% CI 1.56 to 12.32; P=0.005). There were fewer maternal infections in the sweeping group (0/33 vs 4/32 (12%); OR 0.12; 95% CI 0.02 to 0.88; P=0.04). There were no differences in the type of analgesia used in labor, the mode of delivery or neonatal outcome.

CONCLUSION

Sweeping of the membranes for induction of labor had a beneficial effect on labor and delivery. Sweeping of membranes is the method of choice for induction of labor, and also it can be used combined with other available methods. Based on the findings of the present and of previous studies, it is recommended to induce labor with sweeping of the membranes.

REFERENCES

1. National Collaborating Centre for Women's and Children's Health. Induction of labour; NICE Clinical Guideline 70. London, 2008.
2. ACOG Committee on Practice Bulletins-obstetrics. ACOG Practice Bulletin No. 107: Induction of labour. ObstetGynaecol 2009;114:386-97.
3. Goer H. The thinking woman's Guide to a Better Birth. The Berkley Publishing Group, New York, 1999.
4. 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 randomized controlled trail. Brit J ObstetGynaecol. 2006;113;402-8.
5. Boulvain m, Kelly A, Lohse C, et al. Mechanical methods for induction of labour. Cochrane Database Syst Rev 2001: CD 0001233.
6. Heinemann J, Gillen G, Sanchez-Ramos L, Kaunitz AM. Do mechanical methods of cervical ripening increase infections morbidity, A systematic review. Am J ObstetGynecol 2008;199(2):177-87.
7. Boulvain M, Irion O, Marcoux S, Fraser W. Sweeping of the membranes to prevent post-term pregnancy and to induce labor: A systematic review. Br J ObstetGynaecol. 1999;106:481–5.
8. Takahashi T, Marcus B, Scheerer RG, Katz M. A new model for objective assessment of cervical ripening: The effect of prostaglandin E2 and prelabor contractility. Am J Obstet Gynecol. 1991;164:1115–8.
9. Foong LC, Vanaja K, Tan G, Chua S. Membrane sweeping in conjunction with labor induction. Obstet Gynecol. 2000;96(4):539-42.
10. Kashanian M, Akbarian A, Baradaran H, Samiee MM. Effect of membrane sweeping at term pregnancy on duration of pregnancy and labor induction: a randomized trial. GynecolObstet Invest. 2006;62(1):41-4.
11. Wong SF, Hui SK, Choi H, Ho LC. Does sweeping of membranes beyond 40 weeks reduce the need for formal induction of labour? BJOG. 2002;109(6):632-6.
12. Boulvain M, Fraser WD, Marcoux S, Fontaine JY, Bazin S, Pinault JJ. Does sweeping of the membranes reduce the need for formal induction of labour? A randomised controlled trial. Br J ObstetGynaecol. 1998;105(1):34-40.
13. el-Torkey M, Grant JM. Sweeping of the membranes is an effective method of induction of labour in prolonged pregnancy: a report of a randomized trial. Br J ObstetGynaecol. 1992;99(6):455-8.