



Original Article

Sweeping Membrane at 40 Weeks Initiation of Normal Labour Induction: A Randomized Controlled Trial

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Abstract

One hundred twenty women at 40 weeks pregnancy with singleton foetus in cephalic presentation and intact membrane were randomly assigned to receive membrane sweeping or no membrane sweeping. The aim of this study was to determine the benefit of membrane sweeping at initiation of labour induction in conjunction with other methods of labour induction. After sweeping Bishop Score was done and in sweeping group, oxytocin infusion or misoprostol was administered 6 hours later. In control group, oxytocic agent was administered after vaginal examination. Among one hundred twenty women (60 sweep and 60 non-sweep) show that swept women had higher spontaneous vaginal delivery rate (83% compared with 60%). Shorter induction to delivery interval (12 hours compared with 19 hours), fewer that required oxytocin use (15% compared with 50%), shorter duration of oxytocin infusion (2 hours compared with 4 hours). Membrane sweeping at initiation of labour induction increased the spontaneous vaginal delivery rate, reduced oxytocic drug use, shortened induction to delivery interval.

TAJ 2009; 22(2): 204-206

Introduction

Induction of labour occurs in about 20% term pregnancies but is associated with lower rate of spontaneous vaginal delivery in comparison with spontaneously occurring labour¹. However, sweeping of the membrane to induce labour is an old practice. In 1810 Hamilton proposed inducing labour by sweeping the membranes instead of amniotomy, in order to avoid infection². The physiological basis of membrane sweeping leading to labour is well established and has been shown to release endogenous prostaglandins and oxytocin-Ferguson's reflex³. Uterine contraction frequency is also increased by membrane sweeping⁴. Action of prostaglandin last at best 6

hours⁵. Multiple sweeping puts women in prelabour situation where irregular contraction have a cervical ripening effect⁶. This may explain our women assigned to membrane sweeping had a higher Bishop score after admission and a lower induction rate. The aim of this randomized controlled trial is to determine the effectiveness of membrane sweeping on induction of labour, shorter induction delivery interval, use reduced dose of inducing agent compared to control group.

Material and Methods

This randomized controlled trial was conducted in Rajshahi Medical College Hospital between the period from January to July 2009 on 120 women.

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Women with singleton pregnancy in cephalic presentation at 40 weeks intact membrane invited to participate in trial when they were admitted in labour ward. Women were randomly assigned to receive membrane sweeping or no membrane sweeping to initiate normal labour induction then either with oxytocin infusion or tablet misoprostol. Randomization was done by lottery method. For randomization a sequentially numbered sealed envelopes were used before giving sweeping of membrane.

Exclusion criteria were previous history of caesarean section, malpresentation, multiple pregnancy and ante-partum haemorrhage. On admission in the hospital eligible women were informed about the study. After selection a written informed consent was taken from each participant. Women assigned to "sweep" their cervix sweep by inserting the examining finger as high as possible past the internal os and membrane was swept off the lower pole of the uterus by a complete circular sweep of the finger. In the event at a closed internal or external cervical os, the external cervix was swept with two circular motions. Then Bishop score was recorded. The women was assessed 6 hours later. At that time again Bishop score was recorded. After 6 hours later, depending on cervical dilatation and presence of uterine contractions, oxytocin infusion or oral misoprostol was given. Women assigned to "no sweep" had a straight forward cervical assessment for Bishop score followed by immediate use of oxytocin infusion or 100µg oral misoprostol. Outcome measures included number of sweeping to increase Bishop score, mode of delivery, induction to delivery interval, duration and dose of oxytocin infusion and dose of misoprostol.

Result

A total 120 women recruited in the study. Table (I) shows demographic variable including age, parity, duration of gestation, Bishop score. There were no significant difference between the two groups with regards maternal demographics

Table I : Demographic characteristics of women at admission

Characteristic	Sweeping group n- 60	No sweeping group n - 60
Age years	24.84 + 5.59	24.92 + 5.4
Parity	Primi	Primi
Duration of gestation (weeks)	40 weeks	40 weeks
Bishop score	4	4

Table II : Number of sweeping to increase Bishop score

Sweeping n- 60	Bishop score	No sweep (n- 60)	Bishop score
With 1 st sweep	20 (33.33%) 6	60(100%)	4
With 2 nd sweep	40 (66.66%) 8		

Table (II) shows effect of sweeping on Bishop score with 1st sweep Bishop score was 6 in 33.33% patient and after 6 hour with second sweeping Bishop score was 8 in another 66.66%. Sweeping increased the Bishop score. In control group after vaginal examination, immediate oxytocin or tablet misoprostol was given. Initially Bishop score remain the same.

Table III : Labour delivery characteristics

	Sweeping (no-60)	No sweep (no-60)
Spontaneous vaginal delivery	50 (83%)	30 (60%)
Induction delivery interval hours	12 hours	19 hours
Instrumental delivery	2 (3.33%)	10 (16.66%)
Caesarean section	8 (13.33%)	20 (33.30%)

In table (III) labour and delivery characteristics were shown. Women assigned to sweeping spontaneous vaginal delivery rate 83% vs 60%. However induction delivery interval in sweeping group 12 hours compared to oxytocin group 19 hours. The number of operative instrumental delivery and caesarean section rate not higher in study group 3.33%, 13.33% versus 16.66%, 33.30%.

Table IV : Oxytocic drug use

Oxytocic	Sweeping n- 60	No sweep n-60
Inj. oxytocin	9 (15%)	30 (50%)
Duration of oxyticin	2 hours	6 hours
Tablet misoprostol	2 (3.33%)	30 (50%)
Dose	50 µg	100 µg

Table (IV) shows sweep women required oxytocin in 15% cases compared with 50%, shorter duration of oxytocin infusion 2 hours compared with 6 hours. The number of misoprostol used in sweeping group 3.33% compared with 50%. The reduction in misoprostol dose in sweeping group 50µg compared with 100µg in control group.

Discussion

Induction of labour is a starting process which is probably self sustaining once labour is established and it is believed to involve a self perpetuating cascade of endogenous release of prostaglandin. The result of this study indicated that membrane sweeping to initiate labour induction in conjunction with established method of labour induction had beneficial effect. Hendrik recruited 278 women at 39 weeks of gestation to receive weekly basis sweeping of the membrane. Women allocated to sweeping showed a trend toward having a shorter randomisation delivery interval. The need for induction of labour was significantly reduced in those women who under went seeping 11% versus 26%. The incidence of oxytocics has 15% which was similar to result of Hendrik . Foong Lc et al in their study demonsrated positive benefits of membrane only among nulliparous⁷. Based on Foong Lc et al study which reported increase in spontaneous vaginal delivery rate from 75% to 85% with sweeping. The success rate at spontaneous vaginal delivery of our study is similar to that of Foong Lc et al. Similar study showed sweeping of membrane had spontaneous vaginal delivery rate 69% compared with 56%, shorter induction to delivery interval (14 hours compared with 19 hours), fewer that required oxytocin (46% compared with 59%), shorter duration of oxytocin infusion (2.6 hours compared

with 4.3 hours, the reduction of misoprostol use⁸. The induction delivery time in present study 12 hours in compared group 19 hours and duration of oxytocin infusion 2 hours compared with 4 hours. The advantage of the present study and that of pengchingTang et all membrane sweeping is simple and quick require no equipment and cost, did not invite ascending infection and also increase Bishop score.

Conclusion

Membrane sweeping to initiate labour induction may be the first line of option. It is safe, effective, cheaper also preferred by women. Further study is required to see whether membrane sweeping has immediate effect on cervical dilatation. Based on result of our study membrane sweeping had beneficial result and sweeping at initiation of labour induction at term should be considered.

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