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Original Research Article

## Sweeping of the fetal membranes and its effect on duration of pregnancy in low risk cases

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### ABSTRACT

**Background:** This study aimed to determine effectiveness of sweeping of membranes on the duration of pregnancy at term, and its effect on maternal and neonatal outcomes.

**Methods:** In this prospective study, 145 women with uncomplicated pregnancy at 39 weeks or more gestation who were attending regular ANC clinic, were recruited for study, out of them 60 were cases (sweeping group) and 85 were control (no sweeping group). Primary outcome measure was occurrence of spontaneous labour and total duration of pregnancy. Other outcome measures included were interval of onset of labour from membrane sweeping, incidence of premature rupture of membranes, total duration of active labour, mode of delivery, rate of caesarean section and causes, and neonatal and maternal outcome.

**Results:** There were no statistically significant differences between the two groups regarding maternal age, parity and bishops score at recruitment. There was a significant difference observed in spontaneous labour rate and interval time between recruitment to delivery in groups. There was no significant difference regarding mode of delivery, maternal and fetal outcomes.

**Conclusions:** Membrane sweeping is a safe procedure that reduces the incidence of post-term pregnancies if applied at term.

**Keywords:** Delivery, Induction, Membranes sweeping, Post-term pregnancy, Spontaneous labour, Term pregnancy

### INTRODUCTION

Perinatal mortality rates increase in pregnancies that extend beyond 42 weeks of gestation. The rate of caesarean delivery for dystocia and fetal distress significantly increased at 42 weeks compared with earlier deliveries.<sup>1</sup> The incidence of neonatal seizures and death doubled at 42 weeks.<sup>2</sup> So there is a need to decrease the numbers of post-term pregnancies to reduce poor fetal outcomes. The mostly used method to reduce post-term pregnancy is the induction of labour and cervical ripening.<sup>3</sup> Caesarean rate in post-term pregnancies are higher in induced labour than spontaneous labour<sup>4</sup>. Cervical ripening can be achieved by use of prostaglandins. Sweeping of membranes is other method

to ripen the unfavourable cervix, without having any adverse maternal and neonatal outcomes.<sup>5,6</sup> Sweeping of membranes was only method of induction in past.

NICE guidelines (2008) recommended sweeping of membranes beyond 38 weeks to reduce post-term pregnancies.<sup>7</sup> So this study was done to evaluate efficacy of sweeping of membranes, to determine whether it could decrease the incidence of post-term pregnancy and its effect on maternal and neonatal outcomes.

### METHODS

The study was conducted in department of obstetrics and gynecology, Jawaharlal Nehru Medical College and

Hospital, Aligarh Muslim University, Aligarh, Uttar Pradesh, India.

**Inclusion criteria**

- Women with uncomplicated pregnancy who were attending the antenatal clinic were enrolled in study if they met the criteria: low risk pregnancies of confirmed 39 weeks or more, single fetus with cephalic presentation.

**Exclusion criteria**

- Pregnancies with premature rupture of membranes
- Previous two caesarean section, multiple pregnancies
- All high-risk pregnancies
- Pregnancies contraindicated for vaginal delivery.

The aim of study and procedure was explained to all participants. The membrane sweeping was done at 39 weeks gestation by using all aseptic precaution in dorsal position, by introducing index finger into the cervix and rotating the finger 360° to separate the amniotic

membranes from lower uterine segment as much as much possible.

Controls had gentle cervical examination to know the Bishop’s score at 39 weeks and no further PV examination was done until Labour starts or indicated.

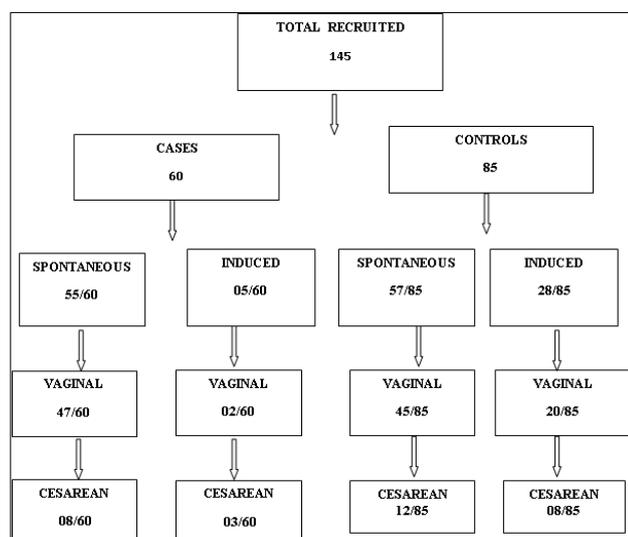
Data’s were collected in terms of total duration of pregnancy, Bishop’s score before sweeping and after sweeping, occurrence of spontaneous labour, Bishop’s score on admission, interval of onset of labour from membrane sweeping, premature rupture of membranes, duration of active labour, need of oxytocics for induction or augmentation of labour, mode of delivery, rate of caesarean section and causes, and neonatal and maternal outcome.

**RESULTS**

Total numbers of patients recruited for study was 145, out of them 60 were cases and 85 were control. Age, parity and Bishop’s score at the time of recruitment was similar among both groups (Table 1).

**Table 1: Comparison of characteristics and pregnancy outcomes in study groups.**

Parameters	Cases	Control	p value
No. of patients	60	85	
Maternal age (years)	23.3±4.0	23.8±3.7	
Bishop’s at recruitment	3.88±1.290	3.59±0.955	
Recruitment to delivery interval (days)	55 (3.62±2.17)	57 (7.96±3.63)	0.001
Spontaneous labour	55/60 (90.0%)	57/85 (67.1%)	0.001
Bishop’s at initiation of labour	55 (7.15±2.2)	57 (7.00±2.19)	
Duration of labour (hours)	49 (6.48±2.04)	65 (6.56±2.28)	
Oxytocin used	18/60 (30.0%)	28/85 (32.9%)	0.988
PROM	04/60 (6.7%)	10/85 (11.8%)	0.233



**Figure 1: Study flow.**

Out of 60, 55 patients in sweeping group went into spontaneous labour and 57, out of 85 went in spontaneous labour in control group (Figure 1).

Statistically significant difference was observed in the spontaneous labour rate [55/60 (90.0%) versus 57/85 (67.1%)] in study and control group respectively (p <0.01). There was significant difference regarding recruitment to delivery interval (3.62±2.17) versus (7.96±3.63) days for cases and control respectively.

There was no statistically difference in mode of delivery in both groups (p=0.738), in cases normal vaginal delivery rate was 48/60 (80.0%), instrumental delivery 1/60 (1.7%) and caesarean section 11/60 (18.1%). Similar outcome was observed in control group, normal vaginal delivery rate was 64/85 (75.3%), instrumental delivery was 01/85 (1.2%) and caesarean rate was 20/85 (23.5%) (Table 2).

There also was no difference regarding indication of caesarean section in both groups. There were no statically differences between both groups in terms of Bishop's score at initiation of labour [(7.15±2.2 versus (7.00±2.19)], incidence of PROM [(04/60) (6.7%) versus 10/85 (11.8%) (p=.233)], total duration of active labour (hours) [6.48±2.04 versus 6.56] and use of oxytocin for augmentation of labour [18/60 (30.0%) versus 28/85 (32.9%) (p= 0.988)] (Table 1).

Number of post-term pregnancies was significantly higher in control group 22/85 (25.88%) than 01/60 (1.66%) in cases (p=0.001). mean gestational age of delivery, 39.72±0.48 weeks versus 40.42±0.65 weeks was significantly less for cases group. There was significantly higher number of deliveries [42/60 (70.0%)] in first week in case group after recruitment than [23/85 (27.05%)] in control group (Table 3).

**Table 2: Mode of delivery.**

Parameters	Cases	Control	p value
Spontaneous vaginal	48/60 (80.0%)	64/85 (75.3%)	0.738
Instrumental	01/60 (1.7%)	01/85 (1.2%)	0.738
Caesarean	11/60 (18.1%)	20/85 (23.5%)	0.738
Fetal distress	10/60 (16.7%)	12/85 (14.1%)	0.150
NPOL	01/60 (1.7%)	8/85 (9.4%)	0.179

**Table 3: Comparison of study groups regarding duration of pregnancy.**

Parameters	Cases	Control	p value	Relative risk
Gestation at delivery weeks (Mean±SD)	39.72±0.48	40.42±0.65	0.05	2.9
No. of deliveries in 1 <sup>st</sup> week	42/60 (70.0%)	23/85 (27.05%)	0.001	
No. of post-term pregnancies	01/60 (1.66%)	22/85 (25.88%)	0.001	

## DISCUSSION

Sweeping of membrane proved an effective method in preventing the post-term pregnancies (1.66% versus 25.88%). Similar results were found in Mc Colgin (3.3% versus 16%) and Sharma (none versus 8.65%).<sup>8,9</sup> Mean gestational age of delivery was less in study group than controls (39.72±0.48 versus 40.42±0.65) weeks that were similar to Gupta 38.83±0.63 versus 39.83 weeks, and Sharma 38.67±0.73 versus 40.09±1.49 weeks in cases and control respectively.<sup>9,10</sup>

In this study spontaneous labour rate was 90.0% versus 67.1% in cases and control groups, that was similar to Sharma 91% versus 83% and Gupta et al 98% versus 68% in cases and control groups respectively.<sup>9,10</sup> There was no significant difference in use of oxytocin in cases and controls that were similar to Day et al, but Tan et al reported statically significant lesser duration of oxytocin infusion in nulliparas.<sup>11,12</sup> In this study there was no difference regarding mode of delivery vaginal or caesarean section (Table 2), which was similar to Day et al, but Shafik et al reported higher percentage of vaginal deliveries in sweeping group.<sup>11,13</sup> There were no difference regarding incidence of PROM, Apgar score at 5 minutes and maternal and neonatal outcomes.

## CONCLUSION

Membrane sweeping reduces the incidence of post-term pregnancies if applied at term.

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