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RESEARCH ARTICLE

SWEEPING OF MEMBRANE FOR INDUCTION OF LABOUR AT OMDURMAN MATERNITY HOSPITAL (OMH), SUDAN; 2015

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ABSTRACT

Background: Sweeping of membrane is a simple outpatient procedure performed to initiate onset of labour by increasing local prostaglandins production.
Objective: To study the effect of sweeping of fetal membranes in initiation of onset of labour and its complications in postdate pregnancy (40-42 weeks) at OMH 2015.
Methodology: This is a descriptive, prospective study, conducted at (OMH), during 2015. All low risk pregnant women attending antenatal clinic (ANC), who completed 40 weeks or more (40-42) were included after an informed consent. Ethical approval was obtained from ethical review committee (ERC) at Sudan medical specialization board (SMSB). Sweeping was done by an obstetrician or a senior registrar after initial fetal and maternal assessment and ascertaining of gestational age (GA). Data was collected by trained data collectors and analyzed by computer program SPSS version 21.0
Results: A total of 995 women with uncomplicated postdate pregnancies (40-42) weeks underwent sweeping of fetal membrane for induction of labour. Many of them; 724 (72.7%) started contraction within 48 hours, 310 (31.2%) had one attempt of sweeping and 679 (68.2%) had two-four attempts. Out of them; 828 (83.2%) delivered vaginally, 153(15.4%) delivered by cesarean section and 14 (1.4%) delivered by forceps. After sweeping; 609 (61.2%) developed discomfort, 44 (4.4%) slight vaginal bleeding, 14(01.4%) ruptured their membrane before onset of labour and eleven (1.1%) developed infection. Seven (0.7%) babies were admitted to neonatal intensive care unit (NICU), six of them with transient tachypnea of newborn (TTN) discharged after 24 hours and one delivered by forceps developed severe birth asphyxia and early neonatal death.
Conclusion: Sweeping of membranes is a useful simple and safe procedure for initiation of onset of labour with high client satisfaction and success rate which can reduce the need for formal methods of induction.

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INTRODUCTION

Induction of labour is an intervention practiced to artificially initiate uterine contraction leading to progressive effacement and dilatation of the cervix and delivery of the baby (RCOG, 2001). It is indicated for maternal medical conditions, abruptio placentae, chorioamnionitis, fetal compromise, particularly postdate or fetal death. It is done by several methods including; prostaglandins, amniotomy, oxytocin, sweeping of membranes or a combination of any of them. When it is done with unfavorable cervix may lead to failed induction in over 50% (Putnam et al., 2011). It should be avoided when vaginal delivery is contraindicated as in previous uterine scar, fetal transverse lie, placenta praevia, invasive cervical cancer, and active genital herpes. Postdate pregnancy is defined by World Health Organization (WHO) as pregnancy extended beyond the estimated date of delivery, at least completed 41 weeks (RCOG, 2001). It complicates about 5%-10% of all pregnancies with increased risks to both fetus and mother including; placental insufficiency, oligohydramnios, post maturity syndrome, meconium aspiration and increased risks of instrumental delivery or induction of labour. Last menstrual period (LMP) and early dating ultra-sound scan are used for

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increasing the reliability of expected date of delivery (EDD). Sweeping (or stripping) of membranes; is the separation of fetal membranes from the cervix and lower uterine segment during vaginal examination. It leads to release of phospholipase A2 and prostaglandins 2α, resulting in ripening of the cervix and ultimate initiation of onset of labour within 48 hours (Tan et al., 2006; Fogsi, 2009). It is safe and effective outpatient procedure for inducing labour in uncomplicated pregnancy for clients who passed their EDD. It can be used as a sole method for induction of labour or prior to use of formal methods of induction of labour with oxytocin, prostaglandins or amniotomy. Serial sweeping of membrane can be used to ripen the cervix and initiate onset of labour or prior to starting other methods of induction (Fogsi, 2009; Wong et al., 2002). It may be complicated by; premature rupture of membrane, pain or discomfort during procedure, irregular contraction or bleeding from an undiagnosed placenta praevia. Although this intervention is currently performed by a large number of clinicians; to our knowledge, there is no local study to support the effectiveness of membrane sweeping in this hospital or other hospitals in the country, which necessitates selection of this topic for study.

METHODOLOGY

A descriptive, prospective cross sectional study, conducted at Omdurman maternity hospital. All low risk Pregnant women who completed 40 weeks of gestation or more by last certain menstrual period or early scan with single fetus, cephalic presentation and intact membrane were included, after an informed consent and fetal assessment. Data was collected by trained data collectors using a structured format, containing; age, parity, gestational age at time of sweeping, number and frequency of sweeping, mode of delivery, fetal outcome and associated complications. Women with scared uterus, intra-uterine growth restriction (IUGR), vaginal bleeding or any contraindication for vaginal delivery were excluded from the study. Sweeping of membrane was performed daily in antenatal clinic with ensured confidentiality, sterile examination gloves and lubricants. It was performed by obstetrician or a senior registrar by inserting the clinician's finger into the cervical os, separating the inferior pole of the membranes from the lower uterine segment by a circular movement of the examining finger. A successful sweeping is denoted by staining of the examiner's finger gloves with blood. If the doctor's finger was not admitted into the cervix; massage was done for few minutes to encourage prostaglandin release. Women were observed for two hours, then allowed to go home with fetal movement chart (kick count chart), and were informed to expect; a show or irregular contraction and have to present themselves to labour ward if they developed spontaneous rupture of membranes, vaginal bleeding, decreased fetal movements or severe abdominal pain, or after two days if do not develop labour pain. We adopted repeated sweeping until established labour. Once contraction established; 3-4/ 10 minutes and cervix dilatation is more than three cm, vaginal examination was done every 3-4hours to assess progress of labour, unless otherwise indicated. If contractions are inefficient, less than 3 / 10 minutes, oxytocin has been added by titration method.

RESULTS

A total of 995 women with uncomplicated postdate pregnancies (40-42) weeks underwent sweeping of fetal membrane to induce labour. Of them, 414 (41.6%) completed 40 weeks, 561 (56.4%) 41 weeks and only twenty (02.0%) 42 weeks. Many of them; 724 (72.7%) started contraction within 48 hours, 193 (19.4%) between 49-72 hours, 59 (5.9%) after 72 hours and 19 cases (02.0%) did not start contraction, were transferred to other option of induction by prostaglandins and oxytocin. Three hundred and ten (31.2%) had one attempt of sweeping, 679 (68.2%) two-four attempts and only six cases (0.6%) had more than five attempts of sweeping. Out of them; 828 (83.2%) delivered vaginally, 153(15.4%) delivered by cesarean section, 14 (1.4%) delivered by forceps, 147 (14.8%) received oxytocin for augmentation of labour. After sweeping; 609 (61.2%) developed discomfort, 44 (4.4%) slight vaginal bleeding, eleven (1.1%) developed infection, 14 (01.4%) ruptured their membrane before onset of labour, covered by antibiotics, started labour within 24 hours and were accelerated by oxytocin. Seven (0.7%) babies were admitted to neonatal intensive care unit (NICU), six of them with transient tachypnea of newborn (TTN) discharged after 24 hours and one delivered by forceps developed severe birth asphyxia and early neonatal death. Majority of them; 843 (84.7%) were satisfied with the procedure and the progress of labour, 876 (88.0%) will choose membrane sweeping if their next pregnancy needs induction of labour.

Table 1. Distribution of side effects associated with sweeping of membrane for induction of labour at OMH 2015

Side effects	Number	%
No associated side effects	317	31.9%
Pain or discomfort	609	61.2%
Slight vaginal bleeding	044	04.4%
Spontaneous rupture of membranes	014	01.4%
Infection	011	01.1%
Total	995	100.0%

DISCUSSION

Sweeping of membrane is a simple, non-invasive outpatient procedure, can be performed during ANC. It can reduce the need for other formal methods of induction, if used in women with favorable cervix, where it will be easily performed with limited need for repeated sweeping. It is associated with minimal fetal and maternal complications. When performed at 41 weeks gestation or more, is more likely to be successful with less associated discomfort. In this study the main outcome measure was to assess the success of induction by sweeping, mode of delivery, maternal complications, neonatal outcome and admission to neonatal intensive care unit (NICU).

The successful rate in this study was high (98.0%), where only 19 cases (2.0%) had failed induction with sweeping of membrane. This is higher than that found by Shafik in Egypt (80.7%) (Shafik et al., 2014). However, it is similar to that found by Foong and others, where sweeping of membrane increases spontaneous vaginal delivery in nulliparous patients with unfavorable cervix if used prior to other methods of induction (Foong et al., 2010). This high level of success may be due to the good selection of cases with favorable cervix. The evidence has shown that sweeping of membrane at 41 or more when the cervix is favorable, reduces the need for induction of labour by other methods (Boulvain et al., 2005). In this study, 72.2% of participants started contraction within 48 hours after sweeping. This is similar to that found by Wong, where 61% of women under study went into spontaneous labour (Wong et al., 2002). This also depends on the time of performance at forty weeks or more where the cervix is more favorable. Vaginal

delivery is this study was 83.2%, C/S was 15.4% and 01.4% delivered by forceps. This is consistent with that found in Nigeria; 87.0% vaginal delivery and that in Egypt; 80.7% vaginal delivery (Tan et al., 2006; Shafik et al., 2014). This indicates that sweeping of membrane does not increase C/S rate or instrumental delivery. Although the procedure was associated with some discomfort, 84.7% of participants were satisfied from the process of labour induction and 88% of them would choose the procedure if their next delivery deserves induction. The evidence has shown that; sweeping of membrane was associated with higher satisfaction with the birth procedure (Adeniji and Akinola, 2013). In this study, 61.2% of participants developed discomfort, mild vaginal bleeding 4.4%, infection 1.1% and 0.7% of neonates were admitted to NICU. This is consistent with that found by Boulvain, where he found that; sweeping of membrane has no fetal or maternal complication over other methods of induction of labour (Boulvain et al., 2005). Also in Nigeria; it was found that; no harmful adverse effects of membrane sweeping were reported apart from mild discomfort, ante partum haemorrhage and early rupture of membranes (Tan et al., 2006).

Conclusion

Sweeping of membranes is a useful simple and safe procedure for initiation of onset of labour with high client satisfaction and success rate which can reduce the need for formal methods of induction.

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