

Amniotomy Surgical Method Of Induction Of Labour And Its Maternal Outcome In Tertiary Care Centre

1. Dr Neetu Kumari (3RD Year Resident)
2. Dr Kalpana Mehta (Sr Professor & Unit Head)
3. Dr Anusha Malapure (2nd year resident)
4. Dr Vinod (3rd year resident)

Department of Obstetrics & Gynaecology Umaid Hospital,
Dr S N Medical College, Jodhpur, Rajasthan
Corresponding author- Dr Neetu Kumari

Date of Submission: 20-08-2021

Date of Acceptance: 05-09-2021

I. Introduction

For labour induction, artificial rupture of the membranes sometimes called surgical induction- can be used and always implies a commitment to delivery.

Elective amniotomy with the intention of accelerating labour is often performed and amniotomy performed at 5 cm dilatation accelerated spontaneous labour by 1 to 1 ½ hours.

Amniotomy is a commonly performed intervention thought to accelerate the labor course through the increase in the release of prostaglandins and oxytocin.[5,6]

Amniotomy or artificial rupture of membranes is usually implemented to induce and support the delivery process, internal electronic fetal heart monitoring, intrauterine recording of contractions, meconium detection, and uterine dysfunction. On the other hand, its drawbacks are chorioamnionitis, umbilical cord prolapse, a severe urgency to terminate pregnancy, abnormal patterns of fetal heart rate due to cord compression, and fetal distress. The main disadvantage of amniotomy when it is used for induction is that the time required for initiation of contractions is unpredictable and sometimes might be quite long [1]. Releasing amniotic fluid shortens muscular fibers and increases the force and duration of contractions and thus it is advisable to deter it until the start of the first stage of delivery [2].

In this regard, several studies has demonstrated the effectiveness of amniotomy shortening delivery and reducing variability of 5 minute Apgar score, and that is the reason, which it is used extensively in practice [3]. However on the other hand, amniotomy can increase the rate of intrauterine fetal distress, and the number of caesarean operations [4]. Increase in the number of caesarean section has caused some alarming advices by clearsighted authorities. So, it is necessary precisely to study the factors affecting the rate of caesarean section such as amniotomy

IOL in low-risk nulliparous women at 39 weeks of gestation does not increase neonatal morbidity while decreasing the caesarean delivery rate, the number of patients undergoing IOL is expected to rise.[7]

Amniotomy is a commonly used labour intervention, worldwide, despite limited evidence on it shortening the length of labour (Smyth et al., 2013).

Definition of early and late amniotomy

Author	Early amniotomy	Late amniotomy
Macones et al 12	Amniotomy at 4 cm	Amniotomy at >4 cm
Makarem et al 13	Early amniotomy when the cervix was 3cm and	Late amniotomy is Spontaneous rupture of membrane at cervix dilatation at 3cms as decided by senior resident on duty

INDICATIONS OF SURGICAL INDUCTION

- 1.Placental abruption- early arm to be done
- 2.hydramnios- controlled arm should be done
- 3.Hypertensive disorder of pregnancy
- 4.Post maturity
- 5.Previous still birth
- 6.fetal growth restrictions

7. Medical disorders (at 38 weeks of gestations)
8. Intrahepatic cholestasis of pregnancy (at 38 weeks of gestations) infections

CONTRADINDICATIONS

1. Intrauterine fetal death (high risk of DIC)
2. HIV positive mother (high risk of infections and fetal transmissions)
3. Genital herpes infections with active lesions (risk of flare up and fetal transmissions)

Regardless of the indication, amniotomy is associated with risk of cord prolapse to minimize the risk, disengagement of the fetal head during amniotomy is avoided. Toward this goal, a fundal or suprapubic pressure or both may be helpful. Some clinicians prefer to rupture membranes during contraction. If the vertex is not well applied to the lower uterine segment, a gradual release of amniotic fluid can sometimes be accomplished by several membrane punctures with a 26 gauge needle held with ring forceps and direct visualisation using vaginal speculum. In many of these, however membranes tear and fluid lost is rapidly. Because of the risk of cord prolapse or rarely abruption, the fetal heart rate is assessed before and immediately after amniotomy.

INCLUSIONS CRITERIA

1. Singleton term pregnancy who presented for IOL (induction of labour) at more than or equal to 37 weeks of gestations with intact membranes
2. Women who came at cervical dilatation of 4 cms at least

EXCLUSIONS CRITERIA

1. Women at term pregnancy who had abnormal presentations at the time of admissions.
2. Women who had spontaneous rupture of membrane at <4 cms of cervical dilatation and had unknown timing of rupture of membrane

II. Materials and Methods

It was a Descriptive observational study carried in Umaid hospital Dr S N Medical College Jodhpur, a tertiary care hospital in Rajasthan for the period of 3 months from 1st of May 2020 to 31st July 2020.

After taking informed consent, women with singleton 37 weeks gestation live pregnancy fulfilling inclusion criteria admitted for induction of labour were recruited for our study.

All women at 37th week's of gestation with single live fetus in cephalic presentation with a cervical dilatation of at least 4 cms. Patients were excluded if they had abnormal presentations, previous caesarean section, genital herpes, HIV infected mothers. Preterm mothers were also excluded from the study.

A detailed history was taken and thorough general, abdominal and pelvic examination was done. Digital cervical evaluation was performed at the initiation of induction of labour through the amniotomy and the colour of liquor was observed for further decision making.

Women with a cervical dilatation of 4 or less were included in the study.

After the amniotomy is performed the uterine activity, cervical dilatation and effacement, fetal status (fetal heart sound) should be carefully monitored to detect any undesirable effects like hypertonic myometrial contractions or foetal distress, colour of amniotic fluid.

III. Results

In our study total 200 patients studied everytime for comparison and results are analysed.

Table no. 1 Distribution of Cases According to indication of amniotomy

Maternal indication	No	%
Post dated	40	20
Abruption	80	40
HDOP	20	10
Active phase of labour $cx > 4$ cms	60	30
Total	200	100 %

In our study most common indication for induction with amniotomy observed in 200 patients was Abruption (40%) followed by Active phase of labour i.e $cx > 4$ cms (30%).

Table no. 2 Distribution of Cases to study the effect of amniotomy done after the use of dinoprostone gel.

	Amniotomy done only		Amniotomy done after induction with dinoprostone gel	
	No	%	No	%
Normal delivered	95	47.5 %	110	55%
Caesarean section	105	52.5%	90	45 %
Total in number and percentage	200	100	200	100

Here in this study again separate 200 patients were studied and the amniotomy was done after the use of dinoprostone gel, It had been observed that 55%cases delivered vaginally while in cases where the amniotomy was done alone 47.5% delivered vaginally. In our study LSCS delivery in amniotomy done alone v/s amniotomy done after the dinoprostone gel induction was 52.5% v/s 45% of cases respectively.

Table no.3 Distribution of Cases to observe the effect of early amniotomy in normal delivery and caesarean sections

	Normal vaginal delivery		Caesarean section		Total	
	No	%	No	%	No	%
Early amniotomy cx dilatation <4cms	75	37.5	125	62.5	200	100
Early amniotomy cx dilatation >4cms	134	67%	66	33%	200	100

In our study another 200 patients were studied and we had done early amniotomy that is the cervix dilatation less than 4cms ,37.5 % of women delivered vaginally and 62.5% delivered through caesarean sections. Also in case of late amniotomy the caesarean section rate was 33 % and the normal vaginal delivered women were 67%.

Table no 4. Distribution of Cases to observe the effect of amniotomy and the labour progress in women according to BMI.

	Women with BMI of 25- 30		Women with BMI of 30-35	
	No	%	No	%
Normal vaginal delivery Women	130	65 %	50	25%
Caesarean section	70	35%	150	75%
Total in number and percentage	200	100%	200	100

In this study, we studied in two separate groups on the basis of the BMI and it had been seen that women with the BMI 25-30,65% of women delivered normally if the amniotomy was done and 35 % delivered through caeserean section. Also in other group women with BMI 30 -35 the rate of normal delivered women after the amniotomy induction was 25% and the caeserean section rate was 75%.

IV. Discussion

In our study, we took the 200 patients in our study and separated them in different groups to see whether the women delivered through caesarean section or normally and also the most common indication of amniotomy (surgical method of induction) .From the second table we can see that if the amniotomy is done after the dinoprostone gel induction the normal delivery rate will be high and in our study the 55 % of women delivered normal and 45 % women delivered through ceaserean section, whereas if the amniotomy done alone then the 47.5% women delivered normally and 52.5% of women delivered through ceaserean section ,hence it is better if we do amniotomy after the priming of cervix with dinoprostone gel. In another group (table no 3) we observed that if early amniotomy done with cervical dilatation of less than 4 cms ,then only 37.5% of women delivered normally and 62.5% of women delivered through ceaserean section and if the amniotomy is done at 4 cm s of dilatation then 67% of women delivered normally and 33% of women delivered through caesarean section. The last group (table no 4), shows that if the amniotomy done in women with BMI 25 – 30 then 65% of women delivered normally and35 % of women delivered via ceaserean section and in women with bmi 30 – 35 the 75 % of ceaserean delivery observed are high i...e 75% and only 25% of women delivered normally.

We studied that most common indication for induction with amniotomy was abruption (40%) followed by active phase of labour i...e cx dilatation after 4 cms(30%), post dated (20%) , and HDOPs(10%) (table no 1). Labour induction is one of the most common intervention in obstetric practice. A simple method and surgical method of induction- amniotomy , release the prostaglandin and therefore the cervix will dilate effectively and improve Bishop’s score there by helping in successful vaginal delivery. However better outcome always depends on awareness of contraindication, proper application and understanding of possible complications and handling then effectively.

V. Conclusion

Amniotomy the surgical method of induction is very useful method to assess the variability in the fetal heart rate and also it the good method of induction of labour .

Amniotomy, after ripening with a dinoprostone insert, is a safe and efficient method for speeding up delivery times with decrease in caesarean section rates during labour inductions.

Amniotomy during induction of labour and if add on with oxytocin afterwards is associated with faster time to delivery without any evidence of adverse perinatal outcomes. Early amniotomy has to be carried out with more delicacy and deterred for the time other methods are contraindicated. In addition, it can be concluded that early amniotomy is associated with an increase in the caesarean rate and its main reason is the lack of progress in the 1st stage of labour. Besides this also the amniotomy has also association with the obesity ,if the BMI is more then the chances of caesarean section also increases, even the amniotomy is done at 4 cms of dilatation.

References

- [1]. Cunningham F, Leveno K, Bloom S, Hauth J, Rouse D, Spong C. Williams obstetrics. Appleton & Lange 2014.
- [2]. DeCherney AH, Nathan L, Laufer N, Roman AS. Current Diagnosis & Treatment: Obstetrics & Gynecology, 11th Edition. The McGraw-Hill Companies, Inc; 2013.
- [3]. Mitchell MD, Flint AP, Bibby J, et al. Rapid increases in plasma prostaglandin concentrations after vaginal examination and amniotomy. Br Med J 1977;2:1183-5.
- [4]. Chard T, Gibbens GL. Spurt release of oxytocin during surgical induction of labor in women. Am J Obstet Gynecol 1983;147: 678-80.
- [5]. Mitchell MD, Flint AP, Bibby J, et al. Rapidincreases in plasma prostaglandin concentra-tions after vaginal examination and amniotomy.Br Med J 1977;2:1183-5
- [6]. Chard T, Gibbens GL. Spurt release ofoxytocin during surgical induction of labor inwomen. Am J Obstet Gynecol 1983;147:678-80.5.Smyth RM, Alldred SK, Markham C.Amniotomy for shortening spontaneous labour.Cochrane Database Syst Rev 2013;1.6.Wei S, Wo BL, Qi H-P, et al. Early amniotomyand early oxytocin for prevention of, or therapyfor, delay infirst stage spontaneous labourcompared with routine care. Cochrane Data-base Syst Rev 2013;8.Systematic Review6AJOG MFMNOVEMBER 2019
- [7]. Grobman WA, Rice MM, Reddy UM, et al.Labor induction versus expectant managementin low-risk nulliparous women. N Engl J Med2018;379:513-

Dr Neetu Kumari, et. al. "Amniotomy Surgical Method Of Induction Of Labour And Its Maternal Outcome In Tertiary Care Centre." *IOSR Journal of Dental and Medical Sciences (IOSR-JDMS)*, 20(09), 2021, pp. 18-21.