ORIGINAL ARTICLE

Intracervical Foley's Catheter in the Management of Intra-Uterine Fetal Death at a District Hospital of Bangladesh

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ABSTRACT

Background: Intrauterine fetal death (IUFD) i.e. the death of a fetus in utero after 22 weeks gestation is a remarkable gyanecological problem worldwide - incidence of intrauterine fetal death (IUFD) is high enough – about 1.89% of live births round the world. And, aim of this study was to have a look into the outcome of intrauterine Foley's catheter balloon with or without vaginal misoprostol in cervical ripening and induction of labour in pregnant women with IUFD.

Methods: This cross-sectional hospital-based study was carried out at the Department of Obstetrics and Gynaecology of 250 Bedded Mohammad Ali Hospital, Bogura from July 2024 to December 2024. Cases were selected by purposive sampling technique (N=40). A self- retained Foleys catheter was introduced and the balloon was inflated with water. In addition to Foley's catheter, misoprostol was used in the posterior fornix in 27 cases randomly. Then we waited for completion of the procedure. In incomplete expulsions, we proceeded for D&C and in cases unresponsive by 48 hours, we proceeded for hysterotomy or LSCS. Data was compiled as actual number, percentage of total or Mean±SD (as applicable). Chi-squire test, Student's 't' test (unpaired) and Odd's ratio were used to assess the level of significance.

Result: Age range was 18 to 36 years with mean±SD of age being 26.4 ± 5.95 years. Complete evacuation was achieved in 27 of all the cases (N=40) of both the groups and the remaining 13 cases were either with retained product of conception or totally unresponsive, required D&C or hysterotomy or Cesarean section. The difference in result observed in two different procedures (i.e., with or without misoprostol) was insignificant ($\chi^2 = 0.31$, P>0.10); but Odd's ratio was (1.484) weakly in favor of Combined ICC plus Misoprostol application. Mean ± SD of age of those where any of the trials was successful was 25.33±5.73 years and of the trial-failed cases was 28.61±5.95 years; (t=1.65, P>0.10). Among all the cases 16 were primigravida and 24 were multigravida. Balloon inflation procedure failed in 25% of the primigravida but in 38% of multigravida (χ^2=0.034, P>0.10; Odd's Ratio=1.80). No difference of gestational age was found failed and success cases.

Conclusion: In the management of uncomplicated IUFD, intracervical Foley's catheter, with or without vaginal misoprostol, may be a good method for hospitalized cases – of course the sample size is too small to draw a conclusion clearly or definitely.

Key Words: Intracervical Catheterization, Intrauterine Fetal Death.

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INTRODUCTION

Intrauterine fetal death (IUFD) is defined as the death of a fetus in utero after the gestational age of 22 weeks.[1] American College of Obstetrics and Gynaecology (ACOG) mentioned it as fetal death after 20th week pregnancy and categorized it as early or late – where early IUFD refers to before 24th week and late IUFD refers to after 28th week of pregnancy. [2] With the development of healthcare system, regular monitoring of pregnant females and their fetuses through the antenatal check-up has also improved a lot; still then the incidence of intrauterine fetal death (IUFD) is high enough – about 18.9 per 1000 live births round the world. [3] Whenever an IUFD occurs, it becomes a task for the health care delivery personnel to make the dead fetus out of the uterus. And, evacuation of the product of conception from the uterus after 22 weeks gestation due to intrauterine

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fetal demise is a remarkable challenge where there is an increased risk of maternal morbidity and mortality than the terminations of first trimester.[4] Krause describe for the first time (1833) that Foley's catheter may be used for termination of pregnancy. [5] In 1967, 94% successful induction was achieved by Foley's catheter.[6,7] In another study, it was found that Foley's catheter balloon alone achieved better cervical ripening than dinoprostone vaginal passery and the cost of the procedure was also much low. [8,9] Foley's catheter balloon ripens cervix mechanically by dilating and stretching the lower uterine segment and cervix – that lacks systemic or serious side effects. [10]

And, the present study was designed to have a look into the outcome of intrauterine Foley's catheter balloon with or without vaginal misoprostol in cervical ripening and induction of labour in pregnant women with IUFD.

MATERIALS & METHODS

This cross-sectional hospital-based study was carried out at the Department of Obstetrics and Gynaecology of 250 Bedded Mohammad Ali Hospital, Bogura, Bangladesh from July 2024 to December 2024. Total 40 cases were included in this study by purposive sampling technique.

Consent was taken from patients and their attendance. They were ensured that all of their personal privacy would be maintained and they had every right to withdraw themselves from the study at any time if they desired.

Inclusion criteria:

(1) Ultrasonography proved IUFD
(2) History of pregnancy for more than 20 weeks
(3) IUFD not in labour.

Exclusion criteria:

(1) History of 3 or more previous cesarean sections.
(2) IUFD with malpresentation not suitable for vaginal delivery (e.g., transvers lie).
(3) IUFD in labour.
(4) IUFD with placenta previa.
(5) Any sign of infection as fever or altered CBC.

On admission, they were examined clinically. Their complete blood count and coagulation profile was done for exclusion.

After selection of a case, a self- retained Foleys catheter was introduced so that the balloon is placed above the internal us of cervix. The balloon was than inflated with 30-40 cc water. In addition to Foley's catheter, we used misoprostol 50 microgram tablet in the posterior fornix in 27 of the 40 cases randomly.

Then we waited for starting of labour pain and expulsion of catheter and completion of the procedure. If the procedure was incomplete, we proceeded for D&C. If no response in 24 hours, then the catheter was taken out and another new one was re-positioned. If still it was unresponsive by another 24 hours (ice, total 48 hours), we proceeded for hysterotomy or LSCS.

Data was compiled as actual number, percentage of total or Mean±SD (as applicable). Chi-squire test, Student's 't' test (unpaired) and Odd's ratio were used to assess the level of significance. $P<0.05$ was considered as level of significance.

RESULTS

Age range of all the cases (n=40) was 18 to 36 years with mean ± SD of age being 26.4 ± 5.95 years. Among them intracervical catheter (ICC) was applied in 13 cases and combined intracervical catheter (ICC) plus misoprostol was applied in 27 cases.

Among all of them 27 (67%) cases from both the groups were managed by these ways, 10 (25%) cases were with retained product of conception those required D&C and 3 (8%) cases were totally unresponsive those required hysterotomy or Cesarean section (LSCS) (Figure-1).

The difference in result observed in two different procedures was insignificant ($P>0.10$); but Odd's ratio was weakly in favour of Combined ICC plus Misoprostol application. (Table- I)

Table-I: Shows the comparison between only ICC and Combined ICC plus Misoprostol application for the evacuation of IUFD.

	Combined ICC & Misoprostol	Only ICC	Total
Success (evacuated)	19 (70%)	8 (61%)	27 (67%)
Failed evacuation	8 (30%)	5 (39%)	13 (33%)
Total	27 (100%)	13 (100%)	40 (100%)

$\chi^2 = 0.31$, $P>0.10$; Odd's Ratio=1.484

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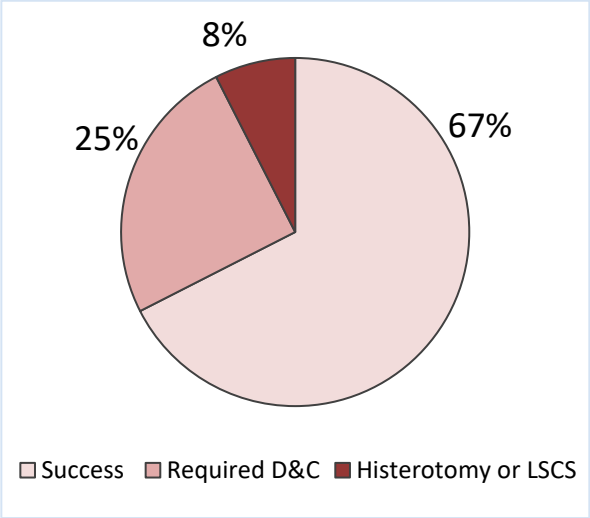

Figure 1: Shows the outcome of the application of intracervical catheter as a whole.

Mean ± SD of age of those where any of the trials was successful was 25.33 ± 5.73 years and of the trial-failed cases was 28.61 ± 5.95 years; (t=1.65, P>0.10). This indicated that age of the patient is not a factor related to success of these two trials. Those who were cleared (n=27, 67.5%) by any of these two trials, required 7-39 hours with a mean±SD of 17.96±8.65 hours for expulsion of dead foetus.

Among all the cases 16 were primigravida and 24 were multigravida. Procedure failed in 4 (25%) of 16 case of the primigravida but in 9 (38%) of 24 cases of multigravida and 13 (33%). (Table-II)

Table-II: Shows the difference between primigravida and multigravida in respect to procedure failures of both the trial as a whole.

	Primi Gravida	**Multi gravida**	**Total**
Success (Evacuated)	12 (75%)	15 (62%)	27 (67%)
Failed evacuation	4 (25%)	9 (38%)	13 (33%)
Total	16 (100%)	24 (100%)	40 (100%)

$\chi^2 = 0.034$, P>0.10; Odd's Ratio=1.80

Gestational age in weeks of both failed and success cases were respectively 20 to 40 weeks and 21 to 40 weeks – which are similar.

In 27 (67%) cases there was no previous history of abortion, in 7 (17%) cases there were history of only 1 abortion and in 6 (15%) cases there were history of 2 or 3 abortions.

History of previous cesarean section was found in 8 (20%). Among them 5 were expelled completely by combined method, 1 required D&C (combined method), 1 required LSCS (combined method) and 1 required hysterotomy (ICC).

Three cases were totally unresponsive and require either LSCS (1 case: 40 weeks gestation, H/O previous 1 LSCS) or hysterotomy (1 case: 27 weeks gestation, H/O no previous LSCS and the other case: 30 weeks gestation, H/O previous 2 LSCS).

DISCUSSION

In this study, mean ± SD of age was found to be 26.4 ± 5.95 years. in another study mean ± SD age was 28.18 ± 4.13 which is more or less similar to our study.[11] Our age range was 20 to 40 years which indicates that female may present with IUCD throughout the main reproductive age. Jovanovic I et al.[12] also found that about 97% of their cases were in the age range of 18 to 40 years[12] and Doly FA et al.[11] found 90% of their cases in the age range of 21 to 40 years – both of which are similar to our finding.

Here, it was found that only ICC application was successful in 61% cases and when both ICC and misoprostol was used success rate was 70%. Munir H et al.[13] found ICC only as successful procedure in 86% cases (out of 30 cases) and misoprostol only as successful in 60% cases (out of another 30 cases). We found a bit better result while applying bot the method in combination; though χ^2 was 0.31 (P>0.10), Odd's ratio was slightly in favour (1.484). While applying the procedure we did not face any untoward effect. The procedure failed cases (33%) was taken to interventions (D&C or hysterotomy or C/S) as soon as they were understood as "failed" – and, it was easy as the procedure was done in hospital.

We found 25% failure rate in primigravida and 38% failure rate in multigravida ($\chi^2 = 0.034$, P>0.10; Odd's Ratio=1.80). No such comparison we found as reference. As a rule, cervix of multigravida should be early to ripe by any mechanical or chemical stimulus.

But here we found more failure rate by percentage in the multigravida group (though the difference was insignificant) – this may be an incidental finding.

Overall, we may say that in the management of uncomplicated IUFD i.e., no H/O ≥2 previous C/S, presentation suitable for vaginal delivery, IUFD without placenta previa, no sign of infection and with a normal coagulation profile, intracervical Foley's catheter (if possible, with vaginal misoprostol) may be a good method that may be applied to the hospitalized cases.

Conclusion: In conclusion, we may say that in the management of uncomplicated IUFD intracervical Foley's catheter, with or without vaginal misoprostol, may be a good method for hospitalized cases – of course the sample size is too small to draw a conclusion clearly or definitely.

Limitations of the study: Sample size was too small to demonstrate anything clearly.

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