

USE OF LAMINARIA IN MID-TRIMESTER ABORTION INDUCED BY SALINE INSTILLATION AND OXYTOCIN

by

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Introduction

While suction evacuation remains an accepted and best method of termination of pregnancy upto 10 weeks, various procedures and abortifacients in combination or alone are being used in order to achieve shorter induction-abortion interval with minimum of complications and with low cost. None of the methods so far seems to be an ideal one. The search continues on.

Since prostaglandins are not available for our routine use, intra-amniotic saline remains the method of choice for mid-term terminations. Various other institutions are using urea or distilled water in preference to hypertonic saline, but there does not seem to be any significant advantage of one over the other. Laminaria tents which had been in disrepute for quite sometime, reappeared on the scene again. Introduction of the tents in cervical canal helps in overcoming the greatest obstacle in mid-term termination i.e. the dilatation of the cervix.

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The such dreaded complications of infection can be completely avoided by proper asepsis and shorter period of application.

The great majority of our cases are the unmarried girls who due to social taboos take time to seek expert medical aid. Introduction of laminaria tent in conjunction with intrauterine saline and syntocinon was considered the most suitable approach.

Materials and Methods

Three hundred forty-nine women aged 15 to 40 years are included in the present study between February, 1978 to March, 1980. The study was carried out by two teams: one at Patna Medical College Hospital, and other at Nalanda Medical College Hospital. It also included the private cases done by two gynaecologists. All the patients were estimated by palpation to be more than 14 weeks but not more than 20 weeks gestation. The patients were divided into one of the three groups (Table I).

Trans-abdominal amniocentesis was performed aseptically with No. 18 spinal needle after 2 cc. of 1% xylocain infiltration. Without withdrawing any amniotic fluid, 200 cc. of 20% hypertonic saline was injected. 5% glucose with 10 units

oxytocin was started 2 hours later. The concentration of syntocinon was increased upto 40 units gradually if the response was poor.

Procedure for applying Laminaria

The patients were prepared and draped in dorsal lithotomy position. One or more tents were inserted into the cervical canal with distal ends and string protruding through the external os. All strings were tied and vagina was packed. Oral or I.V. Diazepam was given in certain young apprehensive girls prior to the insertion. The nulliparous patients required less number of laminaria tents than multiparous women in whom the os was patulous.

Number of laminaria tents introduced varied from 2 to 3 only.

The cut-out time was taken as 72 hours beyond which it was considered as failure. The time was counted from instillation of intrauterine saline in Group I and Group II and introduction of laminaria tents in Group III. If placenta was not expelled within half an hour of abortion it was removed with spong holding forceps under I.V. Diazepam.

TABLE I
Distribution of Cases

Group	Methods used	No. of cases
I	Intra-amniotic saline + syntocinon	169
II	Simultaneous lamina- ria tent insertion	85
III	Insertion of laminaria tents 4 hours prior to instillation of hyper- tonic saline	95
Total		349

Observations and Results

Three hundred forty-nine patients were included in the present study; out of 349, 95 patients had tents insertion 4 hours prior to instillation of hypertonic saline.

TABLE II
Marital Status

Marital status	No. of cases	
Unmarried	245	— Nulliparous
Married	104	— Nulliparous 24 Multiparous 80

Majority of our patients were nulliparous and unmarried. Married women usually prefer to go to term once they have come so far or go for hysterotomy when ligation is also needed.

TABLE III
Parity

Group of cases	Nulliparous	Multiparous
I	124	45
II	65	20
III	80	15
Total	269	80

The time from laminaria insertion to abortion of the foetus in group III ranged from 6 hours to 38 hours with a mean of 16.3 hours, while no difference in the induction-abortion time was noted in groups I and group II. Appreciable reduction in time period was observed in group III.

TABLE IV
Induction-abortion Intervals

Group of cases	Methods used	Mean (hours)	Range (hours)
I	Hypertonic saline and oxytocin	27.5	7.5 to 71
II	Simultaneous laminaria insertion	26.1	7.5 to 62
III	Insertion of laminaria 4 hours prior to instillation of hypertonic saline	16.3	6 to 38

TABLE V
Complications

Complications	Group of Cases (No.)		
	Group I	Group II	Group III
Cervical injury	2	1	Nil
Haemorrhage (no transfusion)	2	1	1
Haemorrhage (required transfusion)	Nil	Nil	Nil
Failed abortion	2	1	Nil
Retained placenta	5	3	3
Infection	2	1	1

Figure I gives the cumulative abortion rate for three groups which suggests that a greater percentage of patients aborted faster with prior laminaria insertion.

SHOWING CUMULATIVE RATE
IN THREE GROUPS.

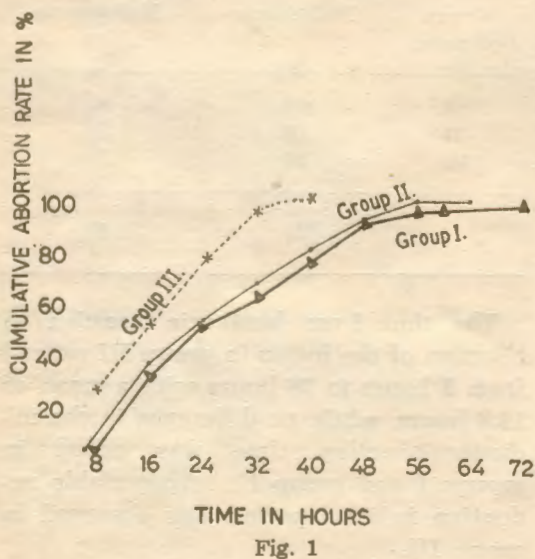


Fig. 1

There was not much difference in group I and group II cases.

There was no serious complication in any of the three groups. Rate of infection did not increase with the use of laminaria.

In group III there was no failure, while in group I, 2 patients did not abort within 72 hours, and hysterotomy was done. In group II also out of 85 patients, 1 patient failed to abort within 72 hours.

TABLE VI
Induction-abortion Interval in Nulliparous and Multiparous Patients in Each Group

Group of cases	Mean (hours)	Range (hours)
I		
Nulliparous	28.8	7.5 to 71
Multiparous	27.8	7.5 to 60
II		
Nulliparous	27.7	7.5 to 62
Multiparous	21.0	10 to 46
III		
Nulliparous	16.8	6 to 38
Multiparous	13.7	7 to 31

While observing the effect of parity on induction-abortion interval, shorter duration was noted with increased parity. We found no difference in abortion time with number of tents inserted.

Multiparous women by virtue of patulous os needed more tents than nulliparous women and the abortion time was shorter in the latter but wholly it was number of tents responsible or just contraction behaviour of multiparous uterus has not been clear from our series.

Comments

Prior introduction of laminaria tents into the cervix followed by intra-amniotic hypertonic saline and augmented further by oxytocin drip 2 hours latter has been found to be a very effective method for mid-trimester abortion. It also appears to be more physiological and natural process. Laminaria tents were introduced only 4 hours prior to instillation. This 4 hours limit was decided upon because Hale and Pion (1979) showed that nearly maximal laminaria diameter swelling occurred within 4.6 hours of insertion, even an additional 15.7 hours of insertion achieved only 1.2 mm. further enlargement.

The induction-abortion interval in group III averaged 16.3 hours. This was about half of the time taken by the first group. Our results are similar to Hachamovitch, *et al* (1979). In the first group average induction-abortion time in 28.5 hours.

The difference in the mean induction-abortion interval between 2 laminaria groups is intriguing. Laminaria insertion at the time of intra-amniotic saline did not significantly shorten the induction abortion interval. Strauss *et al* (1979) ob-

served that perhaps laminaria are ineffective when inserted concurrent with abortifacient because, (1) cervical dilatation from the abortifacients may have been greater than the rate of intrinsic laminaria expansion and (2) plug effect by laminaria and its vaginal pack may have mechanically impeded foetal abortion. By contrast, laminaria tents inserted four hours prior to abortifacient injection shortens the induction-abortion interval. It may be that prior dilatation of the cervix and thus indirectly stimulating the uterine contractions, perhaps augments the action of abortifacient and helps in completion of abortion earlier. Studies by Stubblefield *et al* (1974) using an intra-amniotic prostaglandin $F_{2\alpha}$ and Bienarz *et al* (1974) using an intramuscularly administered prostaglandin analogues also showed that pre-treatment of cervix with laminaria makes the termination of pregnancy a more rapid event.

Conclusion

In conclusion laminaria tents placed 4 hours prior to hypertonic saline instillation and added oxytocin infusion produced the shortest induction-abortion interval when compared to (i) laminaria placed at the time of injection, and (ii) no laminaria tent.

This reduction of induction-abortion interval shortens the hospital stay. In young unmarried girls shortest hospital stay is essential for social reasons as well. In majority of the cases we could avoid overnight stay. Risk of cervical injury, haemorrhage, retained products have also been negligible. Higher concentration of syntocinon and quicker expulsion over pre-treated cervix are important factors. Besides all other factors it is also less painful for the patients.

References

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