

PREVENTION OF PRETERM LABOUR BY CERVICAL CERCLAGE

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SUMMARY

An analysis of the line of management and outcome in 75 cases suspected to have cervical incompetence on clinical grounds have been done. The cases have been divided into two groups — study and control. The control group consisted of 35 cases and were treated by rest progesterone and uterine relaxants. In study group of 40 cases cervical cerclage were done at suitable time besides the usual treatment given. The outcome in the two groups have been compared. Better results were obtained in the study group regarding prolongation of pregnancy, neonatal weight and survival. Cases of incompetent cervix were found even in some primigravidae having no relevant history. It is therefore, recommended that every primigravida should be suspected of having cervical incompetence and should be examined at intervals to detect it in time. Cases diagnosed and treated with cerclage even in early third trimester had definite prolongation of pregnancy.

Introduction

Preterm delivery accounts for 7% of all births and is one of the chief causes of perinatal mortality being responsible for 75% of all perinatal deaths. Its incidence has been reported between 5 to 10% in recent western studies. In India incidence is still higher between 10 to 32% (Dawn, 1982).

The etiological factors for preterm labour are diverse and many including chronic ill-health, acute illness, trauma, toxæmia etc. Incompetent cervix as a cause of preterm labour was observed by several obstetricians.

The chances of neonatal survival is directly related to the maturity as well as the birth weight of the neonate. As quoted by Donald (1979), if the birth weight is less than 900 gms., chances of survival are only 1 in 30, if it is 1800 gms. only 1 out of 3 should die of prematurity and if the birth weight is 2250 gms. or above, none should succumb to prematurity.

Materials and Methods

Seventy-five patients suspected to have cervical incompetence were included in the present study. Cervical incompetence was suspected on the following grounds:—

1. Significant past obstetric history e.g. mid trimester abortion, preterm labour and cerclage operation in previous pregnancy.

Any other cause of abortion or preterm labour was carefully excluded.

2. Symptoms of lower abdominal discomfort, waist pain, dragging down sensation and discharge of mucus.

3. Present cervical findings—asymptomatic opening of internal os and/or gradual shortening of cervix in second or early third trimester.

Patients with vaginal bleeding, leaking membranes, intrauterine death and established labour were not included in the series.

Out of 75 cases, 35 served as control and they were treated by bed rest, progesterone and uterine relaxants only. Forty cases which constituted the study group were treated by cervical cerclage operation in addition to bed rest, progesterone and uterine relaxants. In progesterone, 17-alpha hydroxyprogesterone 500 mg. I.M. at 5 to 7 days interval was given to most of the patients except those who refused to have injections. Allylestrenol 10 mg. orally thrice daily was given to them. Isoxsuprine was given in a dose of 20 to 60 mgs. daily. The drug was stopped temporarily if side-effects were present even with a low dose. Progesterone and Isoxsuprine were continued till 36 weeks of pregnancy. Both the groups were observed for the rest of the pregnancy and the outcome of pregnancy were recorded.

Cervical Cerclage Operation

Pre-operative medication :

1. Proluton Depot (17-alpha hydroxyprogesterone) — 500 mg. Intramuscularly 1 hour before the operation.
2. Atropine sulphate (0.65 mg)—intramuscularly 45 minutes before operation.
3. Isoxsuprine intravenous drip — 30 mg. in one pint of 5% dextrose started half an hour before operation.

Operative procedure :

After voiding urine the patient was put in lithotomy position. Intravenous Thiopentone sodium was used for anaesthesia supplemented with Diazepam in all the cases. Vulva and vagina were painted with Povidone Iodine solution and draped with sterile linen. After properly exposing the cervix, its lips were caught by a pair of Ellis forceps. A purse string suture was inserted at cervicovaginal junction with suture material mounted on an ordinary round bodied needle. Four to six bites were usually taken depending upon the effacement of cervix. In cases where there was no effacement or only slight, 4 bites were taken at 12, 3, 6 and 9' O'clock positions. If the cervix was more than half or fully effaced then 6 bites at 6, 8, 10, 12, 2 and 4' O'clock positions were taken. It was highly impressive to see how the forebag of water receded back spontaneously when the lips of effaced cervix were pulled down. This facilitated insertion of sutures. After taking the bites the suture was tied posteriorly under proper tension.

After care :

Sedatives were used liberally though were usually not required more than once. For two days post-operatively the patients were kept strictly in bed and were given Isoxsuprine by continuous intravenous drip. 30 mgs of Isoxsuprine hydrochloride in one pint of 5% dextrose was infused in 6 to 8 hours. The drip rate was slowed if side effects like nausea, vomiting, palpitation, dizziness, tachycardia and hypotension occurred. After 48 hours, the intravenous drip was stopped and Isoxsuprine was given intramuscularly 10 mgm. 8 hourly for 3 days. Thereafter the patients were put on oral Isoxsuprine tablets.

Prophylactic antibiotic in the form of

Ampicillin capsules (500 mg) were given 8 hourly for 7 days. Then long-acting penicillin (Penidure LA 12) — one vial I.M. was given fortnightly for the rest of pregnancy.

The patients were discharge after one week of operation. Each patient was kept under strict antenatal supervision. The stitch was cut and removed after completion of 38 weeks or earlier, if labour was established.

Observations

Discussions

The management and outcome in 75 cases of cervical incompetence have been analysed.

Table I shows the etiological factors responsible for the incompetence in these cases. In 37% no cause could be substantiated. Amongst known causes previous medical termination of pregnancy was most commonly encountered. Liberalization of M.T.P. Act might be responsible for that. Rest of the cases followed mismanaged second stage of labour, Manchester operation or D & C. Cases with unknown etiology might be those with congenital weakness of cervical sphincter.

TABLE I
Etiological Factors

Etiology	No. of cases
Unknown	28
D & C	6
M.T.P.	21
Manchesters repair	6
Forceps delivery	4
Cervical lacerations sustained during labour	10

Four of our cases were primigravidae in whom diagnosis could have been missed, if

routine pelvic examinations were not carried out. To identify such cases in time, it is very important to examine each primigravida as a suspect. It is all the more important in those who had been treated for infertility and had D & C during the course of investigations. Unfortunately, these are the cases who are extremely keen for a mature normal infant. Also a few primigravidae might have had undisclosed MTP in the past. Those multigravidae who had MTP, forceps delivery or birth canal laceration during previous labour should also be suspected as having incompetent cervix. The suspected cases should have pelvic examination at 15 days interval if cervix feels suspicious and at one month interval even when it appears normal.

TABLE II
Parity

Parity	No. of cases
Primi	4
2nd	11
3rd	15
4th	24
5th and above	21

As evident from Table III cervical suturing was done between 14 to 31 weeks. In 5 cases cerclage was done in early third trimester.

TABLE III
Duration of Pregnancy at the Time of Operation

Duration in weeks	Number
15 - 16	5
17 - 20	12
21 - 24	8
25 - 28	10
28 - 31	5

Different types of suturing materials were tried during this study. Merselene tape was used in 12 cases. Besides its cost the main

problem was the difficulty of inserting it into the eye of reasonable sized needle. During suturing it got doubled up and very often caused cervical laceration. Ethicon non-absorbable suture of No. 3 size was tried in 5 cases and in double layer it was found to be equally effective as merselene tape. Polythene tube was tried in 2 cases, but it also carried the difficulty of inserting into needle. Nylon fibre 3 to 4 in number eyed on a round bodied needle were used in 21 cases. They were found to be almost equally effective at low cost.

Cervical cerclage operation appeared a safe procedure having very few complications. Infection was most commonly encountered. It was severe with systemic features in 2 cases. Mild infection in the form of yellowish vaginal discharge occurred in 6 cases. Both of them were already in labour at the time of removing suture.

Table VI, VII and VIII show the comparison of results in the study and control groups of cases. Twenty-one from the study group continued their pregnancies beyond 37 weeks, while only 4 from the control group could do so. Only 3 out of 40 study

group cases delivered before 28 weeks. Overall pregnancy continuation rate was better and longer in the study group.

TABLE V
Complications

Complications	No. of cases
Infection	
—Mild	6
—Severe	2
Cervical lacerations	
—During operation	Nil
—During pregnancy	4
—During labour	2
Burying of suture	2

TABLE VII
Pregnancy Outcome in Relation to Neonatal Weight

Neonatal weights	Study Group	Control group
Less than 1500 gms.	4	8
1500-2000 gms	6	12
2000-2500 gms	14	10
More than 2500 gms.	16	5

TABLE IV
Suture Material Used

Suture materials	No. of cases
Merselene tape	12
Non-absorbable Ethicon No. 3	5
Nylon	21
Polythene tube	2

TABLE VIII
Perinatal Outcome

	Study group	Control group
Intrauterine death	1	0
Intranatal death	1	1
Neonatal death	4	8

TABLE VI
Outcome of pregnancy

Prolongation of pregnancy upto completed weeks	Study group (40 cases)	Control group (35 cases)
1. More than 37 weeks	21	4
2. 35 - 37 weeks	10	6
3. 32 - 34 weeks	2	12
4. 29 - 31 weeks	4	8
5. Less than 28 weeks	3	5

Neonates from the study group had higher birth weights than those of control group. Certainly, it was an effect of longer continuation of pregnancy in that group.

Perinatal mortality was much reduced in the study group. One intrauterine death occurred in a patient who had evidence of severe intrauterine infection. The single intranatal death in this group occurred in the other patient with severe infection. There were 4 neonatal deaths in study group, all weighing less than 1500 gms. In control group, there was no intrauterine death, 1 intranatal death and 8 neonatal deaths. The neonatal death in both the groups occurred in neonates with very low birth weight.

As quoted by Shroti (1980) cerclage operation may prevent preterm labour first,

by mechanically closing the cervix it gives support to the membranes and thus prevents their subsequent rupture. Secondly, it may minimise ascending infection through open os which weakens the membranes, leading to its rupture. Thirdly, the strong mechanical closure of internal os counteracts the effect of gravity and thus may increase the ability of the cervix to retain the conceptus.

References

1. Dawn, C. S.: Textbook of Obstetrics, Ed. 8, 1982, Calcutta Dawn Books, P. 287.
2. Donald, I.: Practical Obstetric Problems, Ed. 5, London 1979, Lloyd-Luke (Medical Books) Ltd., P. 941.
3. Shroti, A. N.: Journal Obstet. Gynec. India. 30: 33, 1980.

Group	Birth weight (kg)	Number of neonates
Study	< 1.5	4
Control	< 1.5	0

Group	Intrauterine death	Intranatal death	Neonatal death
Study	1	1	4
Control	0	1	8

TABLE 1
Comparison of perinatal mortality

Group	Perinatal mortality (%)
Study	12.5
Control	25.0

Group	Birth weight (kg)	Number of neonates
Study	> 3.5	15
Control	> 3.5	12

Group	Intrauterine death	Intranatal death	Neonatal death
Study	0	0	0
Control	0	0	0

TABLE 2
Comparison of perinatal mortality

Group	Perinatal mortality (%)
Study	0
Control	0