

CIRCLAGE OPERATION IN CERVICAL INCOMPETENCE

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Introduction

Cervical incompetency is one of the major causes of habitual abortion in second trimester and premature deliveries. These repeated episodes of abortions and premature deliveries resulting into high death rate of foetus, lead to deterioration in health and shattering of hopes of a woman aspiring to be a mother. Palmer and Lacomme (1948) were first to report the successful pregnancy after repair of incompetent cervix. Palmer (1950) described a technique—cervical repair by removing a wedged shaped segment of anterior wall of supravaginal cervix in non-pregnant subjects.

Lash and Lash (1950) reported a similar technique and reported success in 7 patients. Shirodakar (1953) described the plication of lower segment of the cervix to strengthen the sphincteric action. Since then many other methods and their modifications with good results have been reported. But later, the observation by Foyd (1961), Parikh and Mehta (1961) that many pregnancies with dilated internal cervical os in second trimester and early third trimester ended successfully at term without complications, put a question mark over the utility of cervical en-

circlage operation. On the other hand, Wood *et al* (1965) observed that a significant number of women with incompetent cervix during mid-trimester go into spontaneous premature labour.

The present prospective study therefore, was planned to study the usefulness of cervical encirclage operation in the patients with repeated pregnancy wastage due to cervical incompetency.

Material and Methods

One hundred and five patients of incompetent cervix attending the antenatal clinic of our unit at Women's hospital for a period of 2 years were included in our study. They were diagnosed on the basis of history of repeated pregnancy wastage in the form of mid-trimester abortion or premature deliveries and had open internal os on vaginal examination done for the complaints of mucus discharge, backache and vague discomfort and pains. The patients with vaginal bleeding, toxæmia, already in labour and intrauterine death, were excluded.

Operative Technique

Short-acting intravenous barbiturates supplemented with gas and oxygen were used in all cases for anaesthesia. Modified MacDonalds (1957) method was done for encirclage of cervix using black silk thread with minimum manipulation. All the cases were given bed rest, parenteral

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diazepam alternating with Isoxsuprine for first 24 hours. This treatment was continued longer depending upon condition of the patient and uterine contractions. Some patients were also given parenteral progesterone as uterine inhibitor. These patients were then made ambulatory and discharged. They were advised to attend antenatal clinics fortnightly and to report as soon as labour pains start or any other complaints like leaking and bleeding per vaginum. Suture was cut with the start of true labour.

The outcome of pregnancy, weight and condition of baby uptill 7 days were recorded.

Observations

This study was carried out in 105 patients of incompetent cervix. Their pregnancies were divided into two groups—A and B in Table I. In group A were the 279 previous pregnancies in which no tightening of os was done. The detailed and meticulous history of these pregnancies with their outcome was recorded and this formed a control group. In group B we included those 99 pregnancies where

tightening was done and its outcome could be recorded. This included 5 previous pregnancies where this operation was done earlier also. Out of 105 patients, 94 could be followed till 7 days after delivery. These 94 pregnancies were included in group B.

In group A out of 279 pregnancies only 18.18 per cent (54) terminated at full-term. While 38.05 per cent (18) terminated before term and 43.73 (130) ended in abortion. There were only 55 surviving children at the time of studies from previous term or pre-term 167 deliveries. Obvious cause of death was known in 18 cases. Therefore, survival rate in relation to number of pregnancies in these cases was 18.51 per cent. This low rate is not exclusively due to incompetent os but other causes also contributed to it.

In group B, out of 99 pregnancies 78.88 per cent had full term deliveries, 16.83 per cent (17) had pre-term deliveries and only 2.9 per cent (3) had abortions. There were 80.78 per cent (86) survival children at the end of 7 days after delivery in this group.

TABLE I
Outcome of Pregnancies With and Without MacDonal's Operations

	Outcome of Previous Pregnancies without operation (Group A)		Outcome of pregnancies after operation (Group B)	
	Number	Per cent	Number	Per cent
<i>Pregnancies</i>	297		99*	
— Full-term deliveries	54	18.18	79	78.80
— Premature deliveries	113	38.05	17	16.83
— Abortions	130	43.73	3	2.90
Surviving Children**	55	18.51	86	80.78
Children dying due to other obvious causes	18			

* This includes 5 previous pregnancies with circlage operation and their outcome was known. Re-tightening was done this time also.

** These figures are upto 7 days after deliveries, while the figures in group A are after much longer follow-up period.

Table II depicts the duration of pregnancy at which tightening was done.

TABLE II
Duration of Pregnancy at the Time of Mac
Donald's Operation

	Duration of pregnancies (weeks)					
	14	18	22	26	30	32
No. of cases	10	12	19	29	18	6

Out of 17 pre-term deliveries, 11 of them failed to have a live child even after circlage procedure. There was 1 infant death among the full-term deliveries after operation. The known cause was ante-partum haemorrhage and placental insufficiency.

Discussion

In our series, 27 patients had history of undergoing cervical dilation and difficult and prolonged labour mostly at home, which probably were responsible for cervical injury and later its incompetence. Thus traumatic etiology was present in 25.71 per cent. Shrotri had reported traumatic aetiology in 27.3 and 38.9 per cent cases in a year while Kaul and Olyai (1981) reported it to be 47.9 per cent. MacDonald (1951) reported its incidence as 80.0 per cent. One important point to be highlighted is that in 9, out of 19 patients who underwent cervical dilatation the indication was MTP. Therefore, with legalization of abortion we may have to face large number of cases of incompetent cervical os following termination of pregnancy without due precaution.

The two groups of pregnancies with and without circlage operation in the same set of patients formed a comparable sample. In group A the diagnosis of incompetent cervical os and observations of these were not done by the authors. Therefore, con-

sidering that all these patients had incompetent cervical os may not be very true. However, the fact that all these patients had history of mid-trimester or late first trimester abortions and/or pre-term deliveries along with greatly improved outcome of pregnancy after encirclage did suggest that great majority of these patients must have had incompetency earlier.

The efficacy of circlage operation in improving the outcome of pregnancy is established beyond doubt by the data of this study. After MacDonald's operation, 78.8 per cent of pregnancies reached the term while in same patients earlier without this procedure only 18.8 per cent reached term. This indicates that foetal maturity increases significantly with circlage operation ($\chi^2 = 127.7$, $p < 0.001$). These figures compare well with other Indian reports.

As far as pre-term termination of pregnancy is concerned 38.05 per cent of pregnancies without this procedure had pre-term deliveries while after undergoing tightening only 16.83 per cent delivered before term. This was also found to be statistically significant ($\chi^2 = 14.61$, $p < 0.001$). The cause of failure after circlage was found to be due to placental insufficiency, accidental hemorrhage, irritable uterus and effaced cervix at the time of circlage.

The late abortion rate declined from 43.73 to 2.9 per cent after operation, again statistically highly significant ($\chi^2 = 54.91$, $p < 0.001$). The 3 abortions which occurred after operation were within 48 hours of the manipulations. Therefore, the probability of the handling of cervix expediting the process of abortion cannot be ruled out.

The foetal survival rate with and without circlage also improved significantly ($\chi^2 = 151.38$, $p < 0.001$). The data of

survival rate in these two groups are not very identical and comparable. The reason is that in Group A the survival rate was calculated of the child surviving for much longer time as they were the children of previous pregnancies in comparison to group B of child surviving at 7 days after birth.

The results of this study thus unequivocally establish the value of circlage operation in improving the outcome of pregnancies considerably in patients of incompetent cervical as diagnosed on the basis of repeated mid-trimester abortion and premature deliveries with the physical findings of open os. But its indication and efficacy in primiparae who do not have bad obstetric history is still a ques-

tion to be settled, even in such situation this operation must be considered if there is definite history of earlier cervical injury and/or os is widely open in early pregnancy favouring incompetency.

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