CERVICAL INCOMPETENCE
A DIAGNOSTIC AND PROGNOSTIC SCORING SYSTEM

by

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Introduction

It is now 3 decades since Palmer and LaComme (1948) and later Lash and Lash (1950) described the incompetent cervix as an aetiological factor for second trimester abortion or premature labour.

A number of methods have been suggested for the diagnosis of this condition. These are mainly procedures to be carried out during the non-pregnant stage. At Cama and Albless Hospital Bombay, it is found to be almost impossible to get the patients during this period. So much so that some of the patients who delivered normally at full term after the tightening of cervix, when called for confirmation of incompetent cervix (by dilator test) after 3 months failed to visit the hospital. Hence reliance had to be made on history of previous midtrimester abortion or premature labour and cervical trauma and on clinical findings. Most investigators agree that a progressive, painless cervical dilatation with bulging of membranes during second trimester clinches the diagnosis of incompetent cervix. In the present series reliance was mainly on history. The pregnant patients attending the clinic already had high fetal wastage, hence a decision to treat the cases with the tightening operation was taken if the cervices were found very short along with the characteristic obstetric history. Waiting to confirm the diagnosis of incompetent cervix after the cervix dilated and membranes bulged would have meant further fetal wastage in some cases as the operation done so late not only becomes difficult but may cause rupture of membranes or amnionitis and abortion. There is very little doubt now about the treatment of incompetent cervix and most gynaecologists prefer to do the operation during the pregnant stage to obviate the various disadvantages of doing the same during the non-pregnant stage.

Cushner (1963) and Seppala and Vara (1971) realised the need to standardise the selection of patients and to evaluate the results of the operation. Block and Rahhal (1976) reported the use of cervical scoring system for selection of appropriate patients and as a prognostic index of pregnancy outcome. They derived a scoring system using the following criteria (Table I).

A value of one was given to each cerclage indication criteria which the patient met and each case was scored from 1 to 5. In our series however a short cervix was taken as one of the criteria in place of cervical dilatation

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TABLE I

Criteria (Block and Rahhal)

1. Previous premature delivery or midtrimester abortion without obvious cause.
2. Visual evidence of previous surgical or obstetric trauma to the cervix.
3. History of painless premature labour and rapid delivery.
4. Progressive dilatation or dilatation greater than 2 cms. on initial examination during midtrimester.
5. Previous diagnosis of cervical incompetence with previous cerclage.

greater than 2 Cms. for reasons mentioned above.

Material and Methods

The patients reviewed in this study were admitted in one of the 4 units of Cama and Albless Hospital, Bombay, over the past 6 years from 1972-1977. All patients were at least 12 weeks pregnant at the time of cerclage and operation performed in each case was the Shirodkar's Operation using Mersilene tape, except in 1 in whom McDonald's operation was done. The procedure was done under general anaesthesia. Postoperatively all patients were given prophylactic antibiotics and adjunctive progestational agents.

Altogether 40 procedures were performed on 32 patients, tightening being done twice in 8 of our patients during this period. There was no case of repeat tightening during same pregnancy in the series.

A diagnostic scoring system devised by Block and Rahhal (1976) mentioned above was used for all patients. Using these criteria, 14 patients score 3, 23 patients scored 4 and only 3 patients scored 5. There was no patient with a score below 3 in the present series.

Results

The average time of gestation at which the operation was performed was 18 weeks (range 12-24 weeks). When cases were grouped according to their scores, the average number of weeks between operation and delivery was noted to increase with increasing score in the present series also, though not as much as shown by Block and Rahhal (1976) in their series.

All these patients who delivered full term infants were taken as successful cases. Success rate was defined as the number of infants surviving the perinatal period divided by total number of pregnancies attempted. Table II shows success rates before and after cerclage for total group as such and for those who scored 3, 4 and 5 respectively. Success rates were significantly different in each group before and after cerclage, and success rate after cerclage in group of patients who scored 5 was 100% in the present series. (Table II).

TABLE II

Success Rate

	Before (%)	After (%)
Total group	8.13	87.5
Score 3	8.16	92.85
Score 4	9.23	82.61
Score 5	11.11	100

Table III compares the results (success rates) of the present series before and after cerclage with those of other authors. (Table III).

The average birth weights and prematurity rates for the groups of different scores were calculated. Table IV shows the comparison between different scores. The difference in birth weight as well as prematurity rate was not found to be

TABLE III

Success rate	Before cerclage	After cerclage
Barter *et al*	11%	70%
Gans *et al*	12.8%	82%
Krishnan *et al*	16%	77%
Shirodkar		79.4%
Lash and Lash		80%
Cushner		66.7%
Present series		87.5%

significant though prematurity rate was 0% in the patients who scored 5. (Table IV.).

TABLE IV
Prematurity Rate

	Average weight (Gms.)	Prematurity rate (%)
Score 3	2540	7.14
Score 4	2632	8.69
Score 5	2650	0.00

Cerclage delivery Interval was compared for groups 'with different scores and was found to increase with increasing score as shown in Table V.

TABLE V
Cerclage Delivery Interval

Score	Cerclage delivery interval
3	19.21 weeks
4	19.91 weeks
5	20.66 weeks

Seppala and Vara (1971) have suggested the Index (fetal salvage ratio) for reporting results of operation which is defined as postcerclage success rates divided by precerclage success rate. Seppala and Vara (1971) reported fetal salvage ratio of 2.7. Table VI shows the fetal salvage ratio for total group as such as well as for the different score groups.

TABLE VI
Fetal Salvage

	Fetal Salvage ratio
Total group	10.93
Score 3	11.61
Score 4	9.15
Score 5	9.09

Table VII compares the fetal salvage ratio with that of Seppala and Vara and of Block and Rahhal. The fetal Salvage ratio in the present series is 4 times that of Seppala and Vara (1971) series, since in the latter, there were many patients with scores of 1 and 2, in whom the outcome after cerclage operation is not always good.

TABLE VII
Comparison of Fetal Salvage Ratio

Author	Fetal Salvage Ratio
1. Seppala and Vara	2.7
2. Block and Rahhal	3.8
3. Present series	10.93

Complications

There was no postoperative morbidity among the 40 procedures performed.

No patient required blood replacement.

Only 1 patient aborted within 3 days of the procedure. None of the patients in the series had postoperative complications like infection or rupture of membranes.

For patients in whom delivery was accomplished vaginally, no problems were encountered in identifying or cutting the suture nor was there vaginal trauma resulting from earlier surgical closure of the cervix.

Only 1 patient in the series sustained cervical tear (on anterior lip) which was sutured immediately after delivery. Knot was cut after the delivery. This particu-

lar patient attended hospital late in labour and delivered immediately after admission.

Discussion

It has been well demonstrated that surgical intervention will result in a marked increase in fetal salvage. However, it is of extreme importance that close attention be paid by the obstetrician to the operated pregnant women with incompetent cervix.

It is realised that as with all surgical interventions a certain number of questionable cases will present themselves and perhaps an unnecessary operation may be performed. However, this is a situation where patients have lost repeated pregnancies and where something positive can be done for emotional tranquility of the patient as well as to preserve the baby.

There are no two opinions now about the improvement in the fetal survival after the operation of tightening in cases of incompetent cervix. The problem is about the diagnosis and scoring system helps to select the patient for operative treatment and to prognosticate the outcome of the operation. It also helps to compare the results of the operative treatment from different institutions.

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