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PREGNANCY OUTCOME FOLLOWING CERVICAL ENCERCLAGE OPERATION

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ABSTRACT

Background -Recurrent second trimester abortions and premature deliveries, continue to be two of the main problems of modern obstetrics and perinatal medicine. Cervical incompetency or insufficiency is defined as “the inability of the uterine cervix to retain a pregnancy in the absence of contractions or labor. Cervical encerclage is considered as a simple but useful minor surgical procedure for improving the fetal salvage in proven cases of cervical incompetence.

Material and Methods-A prospective analytical study was carried out at tertiary care teaching hospital for a period of seven years. Sixty cases of bad obstetrical history (repeated abortions, preterm labour) with previous pregnancy losses probably due to cervical incompetence were included in the study .These cases were subjected to cervical encerclage operation at various gestational periods.

Results- Out of total fifty cases, who underwent McDonald’s procedure, 2 women had abortion, and 11 had preterm labour and 37 women reached to term. Out of the ten cases, who underwent Wurm’s procedure, 1 women had abortion, 2 had preterm deliveries and 7 women reached to term. In the present study, the average interval from cerclage to delivery was 95 days. It was observed that the fetal salvage rate was unsatisfactory in women having short cervix with open internal os before cervical encerclage operation. Infant salvage rate in this study was 51.07% before and 84% after encerclage operation.

Conclusion-Cervical encerclage done in properly selected cases, results in improvement in fetal salvage up to eighty percent.

Keywords: Cervical incompetence, cervical encerclage, Preterm labor, recurrent abortions

1. Introduction

Recurrent second trimester abortions and premature deliveries, continue to be two of the main problems of modern obstetrics and perinatal medicine. Cervical incompetency or insufficiency is defined as the inability of the uterine cervix to retain a pregnancy in the absence of contractions or labor[1]. It is characterized by a painless opening and shortening of the cervix uteri between 16 and 28weeks of gestation resulting into fetal wastage[2]. Palmer and Lacomme first described the operation for repair of the cervical internal os[3].Lash and Lash published a paper on habitual abortions due to cervical incompetence [4]. Shirodkar, described his new operative technique for managing cervical incompetence [5]. Incidence of cervical incompetence reported by various authors varies from 1:54 to 1:222 pregnancies [6,7,8,9]. It is responsible for 15 -20% abortions in the second trimester.Cervical encerclage is considered as a simple but useful minor surgical procedure for improving the fetal salvage in proven cases of cervical incompetence.

2. Material and Methods

A prospective analytical study was carried out at tertiary care teaching hospital for a period of seven years. Sixty cases of bad obstetrical history (repeated abortions, preterm labour) with previous pregnancy losses probably due to cervical incompetence were included in the study. Cervical incompetence was diagnosed either on the basis of past reproductive history or clinical or ultrasonographical findings of the current pregnancy.These cases were subjected to cervical encerclage operation at various gestational periods. All women were given oral tocolytic therapy till 37 weeks of pregnancy. Cervical stitch was removed at 38 weeks of gestation. All cases were advised mandatory institutional delivery.

3. Results

It was observed that majority of the cases (93%) were in the peak reproductive age group. Most of the cases (83%) were unbooked at the time of admission. Eighty eight percent were multigravidas. (Table.1) In the present study of 60 cases, the average circlage to delivery interval was 95 days. In 75% cases, there were

some associated risk factors responsible for cervical incompetence. Previous preterm deliveries or abortions were present in 45% cases.(Table.2) Fifty four percent cases presented in late second trimester. (Table.3) Out of 50 women who underwent McDonald's procedure, 2 women aborted, 11 had preterm labour and 37 women reached to term, 33 women delivered spontaneously, whereas, 4 women needed caesarean section for obstetric causes like CPD in 2, breech presentation in one and cervical dystocia with foetal distress in 1 case. All except the baby of foetal distress were normal. Out of all preterm deliveries, 5 babies died due to prematurity and respiratory distress syndrome. In the group of 10 women who underwent Wurm's procedure, 1 women aborted, 2 had preterm deliveries and 7 women reached to term. One woman required caesarean section for foetal distress in this group. One of the preterm babies died due to septicaemia on 4th day of life.

The overall caesarean section rate was 9% in the study group.(Table.4) It was observed that more the cervical dilatation at the encerclage, worse was the pregnancy outcome. (Table.5) Complications were noticed in 10 cases following encerclage. Commonest among them was displacement of suture following encerclage. In 3 cases, uterine irritability was increased following circlage, which was managed by intravenous tocolytic drugs; one case had PROM and chorioamnionitis each. Infant salvage rate was 51.07% before and 84% after encerclage operation.

Table 1. General Observations

1	Age 20-30 yrs.	93.50%
2	Unbooked cases	83.00%
3	Multigravida	88.33%

Table 2. Predisposition factors for cervical incompetence

S. No.	Predisposing factor	No. of Patients
1.	PreviousTrauma Manchester Repair	2
	Cervical Tear	4
	Difficult Breech Delivery	4
	MTP	5
2.	Previous Preterm Delivery	15
3.	Previous Abortions	12
4.	Twin Pregnancy	2
5.	Hydramnios	1
	TOTAL	**45(75%)**

Table 3. Gestational Age at the time of cerclage

Stage of Gestation in wks.	No. of cases	Stage of gestation in wks.	No. of cases
14	3	24	11
16	4	26	15
18	6	28	4
20	6	30	6
22	2	32	3

Table 4. Methods of encerclage and pregnancy outcome

Method of encerclage	No. of cases	Pregnancy Outcome				
		Abortion	Delivery			
			SVD	PTVD	LSCS	Forceps
McDonald's	50	2	33	10	4	1
Wurm's	10	1	6	2	1	-
TOTAL	60	3	39	12	5	1

Table 5. Condition of cervix at encirclage and pregnancy outcome

Pregnancy outcome	Total cases (60)	Condition of Cervix					
		Os closed, open canal	Os open				
		Short cervix (8)	Long canal (6)	Short canal (12)	Ripe cervix (10)	1 finger loose(20)	2 finger loose(4)
Abortion	3	-	-	2	-	1	-
Preterm labour	13	1	1	2	3	3	3
Term Pregnancy	44	7	5	8	7	13	1
Total	**60**	**8**	**6**	**12**	**10**	**20**	**4**

4. Discussion

Gream in 1865 used the term "cervical incompetence"for the first time in[10]. Romero and others suggested the term "cervical insufficiency" in order "to avoid the negative connotation that the term 'incompetence' implies to patients "[11] .Cervical cerclage was introduced in 1955 by Shirodkar and was first performed on women who had had at least 4 abortions or was confined to women in whom he could prove the existence of weakness of the internal os by ''repeated internal examinations'' [5].McDonald suggested a simplification, and there now exist a variety of modifications[12] . Incompetent cervical os is the recognised cause of repeated mid trimester abortions or early preterm labour. Incidence of cervical incompetence in the present study was 1.25% of the antenatal admissions, which was more than observed by the other authors (Stromme and Haywa in 1963 reported the incidence varying from 0.05 to 1%)[13]. The higher incidence in the rural area could be because of increased incidence of cervical trauma during unattended home deliveries.

In this study, 75% cases had a previous history suggestive of cervical injury during delivery. Congenital defects of cervix are rare according to McDonald and are responsible for no more than 2% of all cases of cervical incompetence [12]. In the present study, 12% women were nulliparous. Controversy exists as to the treatment of cervical incompetence. Surgical treatment has been accepted as the mainstay of treatment. Variety of techniques of encerclage operations have been tried in the past. In the present study, overall success rate was 84% .Golan (1989) reported improvement following encerclage in foetal survival rate from 69% to 92%[14].Even though, cervical incompetence has been an accepted entity now, its relationship to open cervical os is still debatable. Authors like Floyd (1961), Anderson and Turnball (1969) and various others have not found any significant change in outcome of labour in patients having open cervical os.[15, 16]Wood *et al*. (1965) and many others have shown increase in preterm labour in patients having an open os. Value of internal examination to detect weak shorter os is emmence[17].The last decade in particular has seen a decrease in the usage of cerclage[3].In contrast to "the early days" of encerclage, a cerclage is performed today either• *prophylactically and electively,* according to the history of the patient or due to findings within the present pregnancy, or•*therapeutically,* in cases with significant opening or shortening of the cervix. Although encerclage has been performed quite frequently, it has increasingly become a subject of controversy. Harger and the ACOG practice bulletin have given a good overview[18,19]. Randomized studies with encerclage have not proven to be of benefit for women with low risk of preterm delivery (by history) [20]. The effectiveness in women with high risk pregnancies is uncertain. For example, Rush could not find any significant difference [21] .The MRC/RCOG final report on encerclage did find a significant difference only in one of 6 subgroups, namely with regard to births under 33 weeks gestation in the subgroup of women with 3 or more second trimester miscarriages or preterm births in the history [22]. More current research tried to identify women who might benefit from encerclage by monitoring the cervical length and performing an encerclage only when the cervix is short or shortening. Although initial studies had been promising [23,24] more recent studies do not support this [25,26]. Hassan *et al*. could even show in a retrospective cohort study, that, in patients with a shortened cervix ($\leq$ 15 mm), cervical encerclage did not only not reduce the rate of preterm delivery but it did increase the risk of preterm rupture of membranes[27]. Obido *et al*. compared Shirodkar versus McDonald encerclage in women with a short cervix and found no significant difference in the prevention of preterm delivery[28] . Romero *et al*.conclude in their review: "The role of prophylactic encerclage in high-risk patients without a sonographic short cervix for the prevention of preterm delivery/mid-trimester abortion (by history) is unclear[11].

Even though we are likely to overdo cervical encirclage, especially in multiparous patients with open os, it is better on the safer side by doing encirclage in the borderline cases rather than waiting till the onset of preterm labour. This is because even though diagnosis of incompetent os is still debatable, value of cervical encirclage by McDonalds or other procedure have been firmly established without any debate because of consistently improved infant salvage rates as reported by various workers[6-9].

Conclusion

Cervical encerclage in appropriately selected cases, in early midtrimester of pregnancy can improve the fetal salvage rate up to 80%. Proper history taking aided with good clinical and sonographic evaluation of cervix, can guide in

the selection of patients for prophylactic circlage, thereby increasing the carry home baby rate. . Today, encirclage operations offer a ray of hope to women previously denied children because of incompetent cervix.

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