

# A COMPARATIVE STUDY OF TWO SURGICAL MANAGEMENT METHODS FOR CERVICAL INCOMPETENCE AT UNIVERSITY COLLEGE HOSPITAL, IBADAN.

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## ABSTRACT

### Background

Incompetence of the internal uterine cervical os is associated with recurrent pregnancy loss. Different surgical techniques are in practice to correct the defect.

**Objective:** The objective of this study therefore was to review the outcome of pregnancies following cervical using either of the two procedure among patients diagnosed as having incompetence of the cervix.

### Methods

A comparative study of 2 standard methods of cerclage used in our hospital, McDonald & Shirodkar, in a group of 80 patients was done. All the patients had cervical cerclage insertion done between the 14<sup>th</sup> & 16<sup>th</sup> weeks of gestation using either of the two methods.

### Results

There was no significant morbidity with either of the 2 methods. The overall success rates, as measured by continuation of the pregnancy to term, were similar.

### Conclusion

Both methods of cervical cerclage are equally effective in producing the desired outcome, but since the McDonald method is technically simpler to perform, it may be desirable to adopt this approach more frequently.

**KEY WORDS:** Recurrent Mid-trimester Loss, Cerclage, Cervical Incompetence

## INTRODUCTION

Incompetence of the internal uterine cervical os is a deficiency structure and function of the sphincter mechanism of the internal os resulting in the inability of the cervix to retain an intrauterine pregnancy until term<sup>1,2,3</sup>. Recurrent mid-trimester pregnancy losses or premature delivery usually characterizes this condition. The loss of a wanted pregnancy is a traumatic experience for any woman, more so if the fetus is normally developed as is the case with most second trimester abortion<sup>4</sup>. In a community such as ours where high premium is placed on child bearing, the problem of repeated abortions become immediately important.

Definitive diagnosis of this condition remains elusive and most workers agree that the only absolute proof of cervical incompetence is palpation or visualization of dilating cervix during pregnancy<sup>5</sup>. Among the

diagnosis methods so far described are, hysterosalpingography, free passage of Hegar dilators, traction test, and clinical assessment of the cervix during pregnancy by vaginal examination and ultrasound assessment of the internal cervical os.<sup>6,7</sup>

Since this abnormality was first described and a successful pregnancy following a surgical correction was reported in 1948, other workers<sup>8</sup>, have reported different techniques for correcting this defect, with many modifications to the original techniques. Non surgical management includes supervised bed rest in the hospital and the use of Hodge pessary. The two most favoured procedures in our hospital are the Shirodkar and the McDonald's cervical cerclage procedures.

The objective of this study therefore was to review the outcome of pregnancies following cervical cerclage using either of the two procedures among patients diagnosed as having incompetence of the cervix.

## MATERIAL AND METHODS

All available case notes of patients with the diagnosis of cervical incompetence at the UCH, Ibadan between January 1996 and December 2005, a 10 year period were reviewed. Data were collected on the maternal age, parity, number of previous mid-trimester abortions, past obstetric collected on the maternal age, parity. Number of previous mid-trimester abortions, past obstetric history of dilation and curettage and cervical surgery, the gestational age of the previous mid-trimester abortion, the type of cervical cerclage the patients had, the outcome of the pregnancy following cerclage insertion and complications that arose. The results were analyzed with the use of tables and diagram and test of statistical significance.

The Shirodkar method being done is a modification of the original technique. A 5mm Mersilene tape is inserted circumferentially submucosally at the level of the internal os after the urinary bladder might have been reflected away from the cervix to visualize the reflection of the fold of peritoneum. The suture is tied posteriorly and the knot cut short and left in the posterior fornix, the interior transverse incision on the cervix is closed with absorbable suture.

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In the McDonald's method, suturing of the cervix is performed by means of a Mersilene suture around the ecto-cervix as high as possible without the need to reflect the bladder in a purse-string fashion. This is done with 5 to 6 penetrations into the cervical body thereby encircling the cervical canal. The suture is tied posteriorly and the knot left in the posterior fornix. In both methods, the suture is removed at 37 completed weeks or at the onset of labour if it occurs earlier. Other indications for removal of the sutures include, premature rupture of membranes, evidence of chorioamnionitis, antepartum haemorrhage, and intrauterine death. The Consultants or the Senior Residents under the supervision of the Consultants in this hospital carried out the procedures. Post operative management includes absolute bed rest for the first week, toilet facilities for the second week, administration of tocolytics in the form of oral salbutamol 2-4mg, three times a day, antibiotics for the first week post operative, and analgesics. The patients are usually discharged home after the second week if they are clinically stable.

**RESULTS**

Case Records of 80 patients were analyzed. They all had cervical cerclage insertion done between 14<sup>th</sup> and 16<sup>th</sup> week of the gestation using either Shirodkar or MacDonald's method. This was not randomized as the

choice of procedure depended solely on the surgeons.

Seventy-percent (55) of the patients had Shirodkar procedure of cervical cerclage while the rest had MacDonald type done.

About half (51.25%) of the patients were in the age range 30 - 34 years. Seventy five percents of the patients were between Para 0 and 2. Also 50% (40) of the patient have had two previous spontaneous mid trimester abortion which occurred between the gestational age of 20 and 21 weeks.

Forty-eight (60%) out of eighty patients studied had previous induced abortion by dilation and curettage prior to the clinical presentation of cervical incompetence.

Table 1 showed the patients' characteristics in the two groups which were found to be similar. Out of the fifty patient who had Shirodkar cerclage, 35 of them had term delivery, 11 had preterm delivery while 9 had mid trimester abortion which usually occurred between the 3<sup>rd</sup> and the 4<sup>th</sup> week post cervical cerclage. Whereas, in the MacDonald group, 16 had term delivery, 6 had preterm delivery while 3 had mid trimester abortion. However, the observed values were not statistically significant (P value>0.05) (Table 2).

Those who delivered pre-term were preceded by premature rupture of membrane. The overall success rate was 85%.

**TABLE 1: PATIENTS CHARACTERISTICS**

Patients' Characteristics	Shirodkar Group (n=55)	McDonald Group (n=55)
Mean Age (years)	28.7±5.3	28.2±5.6
Mean number of previous mid trimester abortion	2.5±0.3	2.4±0.2
Mean number of Induced Abortion	2.8±0.5	2.6±0.8
Mean GA of previous mid -trimester abortion	20.2±1.5	19.8±1.8
Mean GA at Index Cerclage	14.8±0.3	15.1±0.5

**TABLE 2: Pregnancy Outcome**

	Term	Pre-term Delivery	MTA	Total
McDonald	16 (64%)	6(24%)	3(12%)	25
Shirodkar	35(63.6%)	11(20.0%)	9(16.4%)	55
Total	51(63.8%)	17(21.3%)	12(15%)	80

Z = 0.27  
 df = 2  
 Pvalue = 0.874

Success Rate  
 - McDonald 88%  
 - Shirodkar 83.6%  
 - Overall 85%

## **DISCUSSION**

The benefits of cervical cerclage over non-surgical management have been well documented<sup>9</sup>. Although cervical cerclage is considered the standard for cervical incompetence, there is no scientific evidence of superiority of one method over the other. More patients had cervical cerclage by shirodkar method than the McDonald's in this study. This is simply because of the choice of the surgeon and not based on any specific randomization. Moreso, the procedures were carried out by different surgeons.

It is not surprising that three-quarter of the patients had low parity since the condition is basically associated with pregnancy wastage. The number of patients with previous spontaneous mid-trimester abortion was decreasing with increasing number of the previous abortion. This could be due to the fact that they were having successful pregnancies following cerclage, as it has been previously noted that the operation of cervical cerclage had an important beneficial effect<sup>9</sup>.

History of previous dilatation and curettage as a form of trauma of the cervix has been widely accepted as a causative factor to development of cervical incompetence. This study however showed that more than half of the patient have had previous induced abortion by dilation and curettage from where the internal cervical os could have been traumatized. Although other factors could have contributed to the weakness in the structure and function of the sphincter mechanism of the internal os<sup>1,10</sup>.

Majority of the cases of the mid-trimester abortion occurred between the gestational age of 20 and 21 weeks. This is the usual scenario, because when the uterine contents reach a critical site, the reduced resistance of the internal os is overcome and products of conception extrude into the cervix, triggering uterine contractions, amniorrhaxis and usually expulsion of an immature fetus<sup>1</sup>.

Most studies are case series reporting success rates of 75-90%. In this study, the overall success rate was 85%, (McDonald 88%, Shirodkar 83.6%), this was comparable to the previous work done by Osinusi and Adewumi<sup>2</sup> of 85.7%, and Nnatu who recorded 73.3% in Lagos<sup>31</sup>. The type of the procedure done in this study did not affect the overall outcome of the pregnancy. This is just to show that no single procedure of cervical cerclage is most satisfactory. Few complications were recorded in these patients, this could be due to proper assessment of the patients prior to surgery, use of prophylactic antibiotics, tocolysis, and adequate bed rest. Although the use of

tocolysis as well as antibiotics is controversial, while some authors favour their use<sup>1,2,3</sup>, some could not identify any benefit<sup>10</sup>.

## **CONCLUSION**

Both methods of cervical cerclage are equally effective in producing the desired outcome, but since the McDonald method is technically simpler to perform, it may be desirable to adopt this approach more frequently.

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