ORIGINAL ARTICLE

Management Of Cervical Incompetence In Aba, South-Eastern Nigeria

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ABSTRACT

Background: *There have been relatively few reports on the outcome of cervical cerclage performed in non-tertiary centres .The aim of this study was to determine the pregnancy complications and outcome in patients following cervical cerclage.*

Methods: *Seventy-one patients who had 103 pregnancies and underwent cervical cerclage at Women's Hospital, Aba over a ten-year period were reviewed. The diagnosis of cervical incompetence was made from the history in 90.6% of cases and also in some cases by hysterosalpingography and ultrasonography.*

Results: *The Shirodkar (65%) and McDonald (35%) techniques were employed and 10.7% of cases were done as emergency procedures. The more common post-insertion complications were urinary tract infection (50.4%), preterm rupture of membranes (20.4%) and vulvovaginitis (14.6%). Common labour associated complications were antepartum haemorrhage, perineal/cervical tears and malpresentations. The preterm birth rate was 32%. Term births accounted for 68% of the deliveries. The overall fetal salvage rate was 92.2%. Antepartum haemorrhge was a significant indication for caesarean section delivery. The perinatal mortality was 63.2 per 1000 and there was no maternal death.*

Conclusion: *The high fetal salvage rate of 92.2% justifies the procedure of cervical cerclage.*

KEYWORDS: *Cervical incompetence; Cervical cerclage; Pregnancy Outcome; Aba.*

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INTRODUCTION

Cervical incompetence results from a multifactorial disorder which manifests itself as painless cervical dilatation in the second trimester of pregnancy and results in recurrent pregnancy loss. This is a distressing condition. The two major categories include congenital abnormality such as congenitally short cervix, Mullerian duct abnormalities and *in utero* exposure to diethylstilboestrol [1]. The other group comprises trauma from cervical laceration following spontaneous vaginal delivery, prolonged second stage of labour, instrumental delivery and procedures such as dilatation and cone biopsy [2,3]. Generally, cervical incompetence may present in one of three ways; there may be a suggestive history leading to an elective procedure, the cervix may be dilated without symptoms requiring urgent surgery, or there may be symptoms as well as dilatation requiring emergency treatment [4,5]. Emergency cerclage may be performed when cervical dilatation is greater than 4cm with intact but protruding membranes and absence of other evidence of labour [6].

Different strategies have been developed to refine the prediction of the risk of preterm delivery in asymptomatic patients. The diagnosis has often been based on the history of repeated midtrimester miscarriages and preterm births. Also the clinical finding of significant premature cervical effacement and/or dilatation, using repeated vaginal assessment. Sonographic cervical evaluation has assumed an increasing role to determine shortening of the endocervical length to 20mm or less [4]. Dilatation of the internal os and funnelling of the fetal membranes are the earliest radiographic manifestations of an incompetent cervix[7]. In the non-pregnant state, Hegar's test and hysterosalpingography have been helpful in diagnosis [8,9-13]. However there is still no substitute for a careful medical and obstetric history in arriving at an early diagnosis [14,15].

In our population, the diagnosis may not be easy and therefore the decision to perform the operation becomes a difficult one to make. A recent study from the Royal College of Obstetricians and Gynaecologists (RCOG) has documented the inaccuracy of risk assessment [16]. Also there is no doubt about the complications of cervical cerclage especially when performed in the rural community [17].

Most cerclage operations for cervical insufficiency are performed transvaginally early in the second trimester [18].

We have conducted this study to determine the outcome of pregnancy in patients who had cervical cerclage performed for cervical incompetence.

We also studied the complications resulting from the cerclage procedure.

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PATIENTS AND METHODS

This was a retrospective study conducted at Women's Hospital, Aba from January 1994 December 2003. All the case records of the 71 patients diagnosed as having cervical incompetence were available with complete data for analysis. The 71 patients had a total of 103 pregnancies during the study period. All had antenatal care and delivery at the hospital. The total number of deliveries during the period was 10,950. The information obtained from the case records included age and parity, history of previous miscarriages and preterm births, criteria for diagnosis and type of cerclage operation, pregnancy outcome in index pregnancy, common post-insertion complications, labour complications and fetal outcome.

For the majority of patients, the diagnosis of cervical incompetence was made based on the history of 2 or more midtrimester miscarriages or preterm deliveries. Others were diagnosed preconceptually by hysterosalpingography and Hegar's test or by ultrasonography in early pregnancy. After confirmation of fetal viability and appropriate gestational age by ultrasonography, cervical cerclage was performed electively at 14-16 weeks geatation. Eleven patients underwent cerclage after the process of cervical effacement and dilatation had commenced with intact membranes at the level of the internal os or bulging into the vagina(emergency cerclage).Post cerclage treatment included pentazocine injections for analgesia and prophylactic antibiotics. All the patients had bed rest in hospital before discharge. They were also treated with a tocolytic, oral salbutamol for four weeks.

RESULTS

The incidence of cervical incompetence during the review period was 0.7% (1 in every 154 deliveries). The age range of the patients was 20-42 years with a mean of 28.2 years.

The parity ranged from zero to 6 with a mean of 2.7. Over 70% of the patients had had two or more miscarriages and 15% had had one or more preterm births.

Table I. Diagnosis and Treatment Regimens

Diagnosis	Number(n)	Percentage(%)
History of 2 or more Spontaneous midtrimester abortions or preterm delivery	88	85.5
Hysterosalpingography	9	8.7
Ultrasonography	6	5.8
Total	103	100.0

Table I. Shows that preconceptual diagnosis was made in 8.7% of cases. In 5.8% of cases sonographic cervical evaluation to diagnose cervical incompetence during pregnancy was employed.

Sixty-seven (65%) patients had the Shirodkar procedure performed while for the remainder, 36(35%) the McDonald technique was employed using Mersilene tape.

Table II. Gestational Age at Insertion of Cerclage

Gestational Age (weeks)	n = 103 (number)	Percentage (%)
Elective		
14-16	92	89.3
Emergency		
17-21	6	5.9
22-26	3	2.9
27-30	2	1.9
Total	103	100.0

In 92(89.3%) of the cases the cerclage was performed electively between 14 and 16 weeks. The mean gestional age at cerclage was 18.8 weeks.

Table III. Number of Cerclage Insertions during study period

Number of times	Number (n)	Percentage(%)
1	95	92.2
2	7	6.8
3	1	1.0
Total	103	100

The vast majority (92.2%) of the patients had cerclage inserted once, 7 women had 2 insertions and 1 had 3 insertions.

Table IV. Common Post-insertion Complications

	(n=103) Number	Percentage (%)
Urinary Tract Infection	52	50.5
Preterm Rupture of Membranes	21	20.4
Vulvovaginitis	15	14.6
Preterm contractions	10	9.7
Vaginal Bleeding	5	4.8

Some patients had multiple complications.

The commonest post-insertion complications were urinary tract infection (50.5%), premature rupture of fetal membranes (20.4) and vulvovaginitis (14.6%).

Table V. Comparison of Complication Rate and Outcome Between Elective and Emergency Cerclage.

	Elective Cerclage n=92	Emergency Cerclage n=11
Urinary Tract Infection	47(51.1)	5(45.5)
Preterm Rupture of Membranes	11(11.9)	10(90.9)
Vulvovaginitis	12(13.0)	3(27.3)
Preterm contractions	1(1.1)	9(81.8)
Vaginal bleeding	1(1.1)	4(36.4)
Perinatal death	1(1.1)	5(45.5)

Some patients had multiple complications.

The complication rate after cerclage was higher after emergency than elective cerclage ($p<0.001$).

The duration of hospital stay after cervical cerclage ranged from 2 to 10 days with an average of 4 days.

Table VI. Complications In Labour

	Number(n)	Percentage(%)
None	88	85.4
Malpresentation	6	5.9
Cervicer Dystocia	4	3.9
Perineal/cervical tear	2	1.9
Antepartum Haemorrhage	2	1.9
Retained placenta	1	1.0
Total	103	100

Some patients had multiple complications.

The majority of the patients (85.4%) had no complications in labour, but the more common problems that occurred were malpresentations (5.9%) and cervical dystocia (3.9%). There were multiple complications in some cases. There were no maternal deaths. Seventy-four patients (71.8%) had spontaneous vaginal delivery, 15(14.6%) had forceps delivery, 2 patients (1.9%) had assisted breech delivery and 12(11.7%) underwent caesarean section.

The indications for caesarean section are shown in Table VII.

Table VII. Indications for Caesarean Section

	Number(n)	Percentage(%)
Antepartum Haemorrhage	5	41.7
Foetal Distress	4	33.3
Cervical Dystocia	2	16.7
Malpresentation	1	8.3
Total	12	100

Analysis of the overall pregnancy outcome showed that of the 103 pregnancies, 8(7.8%) had mid-trimester miscarriage, 17 (16.5%) had preterm delivery and there were 78(75.7%) term births. Thus the overall fetal salvage rate was 92.2%. The fetal salvage rates following the McDomald's and Shirodkar procedures were 91% and 92% respectively. There were no post term pregnancies.

Table VIII. Fetal Outcome.

Gestational age at delivery	Number(n)	Percentage(%)
14 27	8	7.8
28 37	17	16.5
38 42	78	5.7
	103	100.00
Fetal Birth Weight(kg)	n = 95	%
<2.5	26	27.4
2.5-3.9	67	70.5
>4.0	2	2.1
	n = 95	%
Perinatal Mortality	6	6.3
Live Births	89	93.7

There were 89(93.7%) live births. The birth weight of 70.5% of the babies was between 2.5 and 3.9kg. However the birth weight of 27.4% of the babies was less than 2.5kg.

DISCUSSION

The incidence of cervical incompetence in this series of 1 in 154 deliveries is lower than 1:29-39 in previous reports [11,13,19]. To the best of our knowledge there has been no previous report in our population. The low figure could be accounted for by the fact that there could perhaps be a lower induced abortion rate in Aba compared to that of other more cosmopolitan cities in Nigeria. Abortion in Lagos is procured almost on demand and invariably is carried out by untrained personnel [13]. This would lead to a relatively higher incidence of cervical incompetence. Only 8.7% of the cases were diagnosed preconceptually. The remainder were diagnosed during pregnancy from follow up and the necessary counselling and investigations to establish the cause of the miscarriage. Also some patients find the cost of these prenconceptual investigations prohibitive. For patients who presented in early pregnancy, ultrasonography assisted in the establishment of fetal viability,

confirmation of gestational age and diagnosis of cervical incompetence. The elective procedures were performed between 14 and 16 weeks gestation. This was considered the optimum time to obviate the commencement of cervical effacement and dilatation. Our study was conducted on patients who had cervical cerclage for incompetent cervix both electively and as an emergency procedure. The outcomc of pregnancy as well as the complications after cerclage were worse after the emergency procure. Although this difference was statistically significant, the number of patients in the emergency group was too small to make a logical conclusion.

The Shirodkar procedure was more commonly employed than that of McDonald, (65% and 35% respectively) because of the particular surgeon's preference and training, despite the fact that the former is more difficult to perform with a longer operation time. This finding differs from previous reports [19-21] where the McDonald procedure was more commonly employed, probably because it is easier to perform. The fetal salvage rate (92%) after the Shirodkar procedure was better than after the McDonald procedure (91%). The former has been claimed to have a better circumferential support [8] but the numbers were too few to draw a firm conclusion. Moreover, Edozien and Marinho [11] reporting from Ibadan observed no difference in the fetal salvage rate between the two techniques in their series.

The complications observed post insertion and during labour including preterm rupture of fetal membranes, cervical dystocia, breech presentation and retained placenta have been previously reported [11,12,19,21].

Increased uterine contractile activity may follow surgical manipulation itself or insertion of a foregn body such as a Mcdonald or a Shirodkar suture [22]. Therefore a tocolytic drug was routinely administered in an attempt to reduce postoperative uterine contractions after cerclage placement, as employed in other studies [23].

Most of the patients (71.8%), achieved spontaneous vaginal delivery. However, 11.7% underwent caesarean section. This figure is higher than 5.1% reported by Ifenne *et al*[20] but much lower than 29.9% quoted by Edozien and Marinho[11]. This could be partly due to liberal employment of assisted vaginal delivery by rotational forceps in this centre.

The average duration of hospital stay after cerclage was 4 days. This is significantly less than 10 days previously reported by workers from Maiduguri [21]. This agrees with previous work from Lagos which showed no difference in outcome between patients hospitalised for more or less than 7 days [13]. The overall fetal salvage rate observed was 92.2% and the perinatal mortality was 62.2/1000. Interestingly these figures compare favourably with those previously reported from tertiary centres [20,21]. This could be partly explained by the strict selection criteria used for the patients in the series. In Nigeria there are inadequate neonatal services except in some tertiary centers. Low chances of fetal survival have been reported with conservative therapy [20].

In conclusion, the high fetal salvage rate of 92.2% in this series justifies the procedure of cervical cerclage.

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