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PREGNANCY COMPLICATIONS AND OUTCOME FOLLOWING CERVICAL CERCLAGE OPERATIONS AT THE UNIVERSITY OF MAIDUGURI TEACHING HOSPITAL, MAIDUGURI, NIGERIA

Audu Idrisa, Othman Kyari, Emeka Ojiyi
Department of Obstetrics and Gynaecology, University of Maiduguri Teaching Hospital, Maiduguri, Nigeria.

ABSTRACT

Objective: To determine the Pregnancy Complications and Outcome following Cervical Cerclage Operations.

Subjects: The case records of 76 patients who underwent Cervical Cerclage Operation for Cervical incompetent at the University of Maiduguri Teaching Hospital between January, 1983 to December 1999 inclusive were reviewed. In all the patients the diagnosis of Cervical incompetence was made based on the history of two or more midtrimester abortions or preterm deliveries and ultra-sound finding of internal OS diameter of 16mm or more in the second trimester of Pregnancy.

Results: The MacDonald (81%) and shirodkar (19%) techniques were the two forms of Cerclage employed. Preterm rupture of membranes vulvovaginitis and Urinary tract infections were the Common Post-insertion Complications encountered while antepartum haemorrhage, Perineal/Cervical tear and mal-presentations were the Common associated labour complications. 65.3% of the deliveries were term births while preterm deliveries made up 23.1% of the births. The overall foetal salvage rate was 85.3%. There was no maternal death. The Peritanal mortality was 84 per 1000.

Conclusion: The overall foetal salvage rate of 88.3% observed in this study is high and in a developing Country like Nigeria with inadequate neonatal facilities and a slim foetal survival between 24-28 weeks, any procedure like cervical cerclage that will prolong pregnancy until foetal maturity is still relevant and beneficial.

KEYWORDS: ***Cervical Incompetence, Cervical Cerclage, Pregnancy outcome, Maiduguri, Nigeria.***

INTRODUCTION

Cervical incompetence not only poses a management dilemma to the modern day obstetrician, but is also a source of anxiety for the couples with recurrent pregnancy wastage cervical incompetence is the most important cause of recurrent spontaneous midtrimester abortion. Cervical incompetence is the inability of the uterine cervix to retain pregnancy until term because of a structural or functional defect. It is characterized by repeated expulsion of the uterine contents in the 2nd trimester or towards the beginning of the third trimester without pain, contractions or bleeding and is generally accompanied by rupture of the membranes or protrusion of the foetal membranes into the vagina.

Various aetiological factors have been implicated as being responsible for cervical incompetence. They include cervical trauma following dilatation and curettage for termination of pregnancy; birth injuries; surgery on the cervix like in conization and amputation of the cervix; congenital exposure to diethylstibestrol and congenital weakness of the sphincteric mechanism at the level of the internal OS[1].

The diagnosis of cervical incompetence can be made in pregnancy or in the non-pregnant state. During pregnancy the diagnosis of cervical incompetence is most often based on the finding of progressive cervical effacement and dilatation in the absence of uterine contraction. This often involves performing serial vaginal examinations. Another useful diagnostic tool during Pregnancy is ultrasonography and the finding of an internal os diameter greater than 15mm in the second trimester of pregnancy, or more than 20mm in the third trimester is diagnostic.

Ultrasonography can also reveal the hour glass amniotic sac protrusion. Before pregnancy, Hegar's traction, and compliance test and hysterosalpingography have been helpful in diagnosis[1]. A diagnosis of cervical incompetence by HSG is characterized by disappearance of the uterocervical angle and a canal width of more than 8mm at the level of the internal os[1]. However, there is no truly diagnostic test for cervical incompetence. It remains a diagnosis by exclusion[2].

The treatment options for cervical incompetence can be surgical or nonsurgical. Nonsurgical or conservative treatment include bed rest and prolonged hospitalization, use of progesterone injection and the use of vaginal pesary (Smith-Hodge).[1,2] Surgery for the correction of cervical incompetence can be done either in the pregnant or in the nonpregnant woman. In the nonpregnant woman, this involves the excision of a wedge of the damaged cervix (Lash and Lash procedure), trachellorraphy

*Correspondence: Dr. Audu Idrisa

for cervical laceration and the insertion of an isthmic cerclage. During pregnancy the surgical treatment involves the use of cerclage procedures. This is done using either the vaginal or the trans-abdominal approach. Despite the conflicting findings on the superiority of elective cerclage over expectant management of cervical incompetence[3,4], elective cervical cerclage in early second trimester has become standard practice. The absence of a truly diagnostic test for cervical incompetence and the lack of a satisfactory proof about the efficacy of cervical cerclage are reflected in the wide variation in the application of cervical cerclage.

The aim of this present review is to determine the pregnancy complications and outcome following cervical cerclage operations at the University of Maiduguri Teaching Hospital, Maiduguri.

PATIENTS AND METHODS

There were a total of 20,255 deliveries at the University of Maiduguri Teaching Hospital since its inception in January, 1983 to December, 1999 inclusive. Out of the one hundred and eight patients diagnosed as having cervical incompetence and therefore had cervical cerclage during the period under review, 76 patients case records were available with complete data for analysis. The 76 patients had a total of 121 pregnancies with cervical cerclage inserted during the period under review. All the 76 patients had antenatal care and delivery at our centre. The information obtained from the case records include the age and parity, previous abortions and preterm births, method of diagnosis and type of cerclage insertions during the study period, pregnancy outcome in current pregnancy, common post-insertion complications, labour complications, and foetal outcome.

In the patients the diagnosis of cervical incompetence was made based on the history of two or more midtrimester abortions or preterm deliveries and ultraound finding of internal os diameter of 16mm or more. In the second trimester of pregnancy. After confirmation of foetal viability and morphology by ultrasongrapy, cerclage was inserted selectively at 14-16 weeks. 26 patients had their cerclage inserted when the process of cervical effacement and dilatation had started with intact membranes at the level of the internal os or bulging the vagina (emergency Cerclage). Post cerclage treatment included bed rest and tocolytics (oral salbutamol) for two weeks. Two to three doses of pentazocine or pethidine were given for Post Operative analgesia.

RESULTS

The incidence of cervical incompetence in the centre during the review period was 0.5% (i.e 1 in every 200 deliveries). The age range of the patients was 18-36 years with a mean of 26.3 years, while the parity ranged from 0-9 with a mean of 2.3.

As shown in Table 1, the model gestational age range at cerclage insertion was 14-17 weeks. 85 patients (70.2%0 had cerclage inserted once, while 6 patients (5%) had it inserted four or more times (Table 2).

The commonest post-insertion complications were preterm rupture of membranes (30.6%), vulvo-vaginitis (19.8%) and Urinary tract infection (13.2%) (Table 3).

As Table 4 shoes, most of the patients (95%) had no complication during labour, but the major associated labour

Table 1: **Gestational Age at Insertion of Cerclage (Weeks)**

Gestational Age	n= 121 Number	Percentage (%)
14–17	92	76.0
18–21	16	13.0
22–25	8	6.6
≥–26	5	4.1
Total	121	100

Table 2: **Number of Cerclage Insertions during the Review Period**

Number of time	n = 121 Number	Percentage (%)
1	85	70.2
2	21	17.4
3	9	74
4	6	5.0
Total	121	100

Table 3: **Common Post Insertion Complications**

	n= 121 Number	Percentage (%)
Preterm rupture of	37	30.6
membrance	24	19.8
Vulvovaginitis	16	13.2
Urinary tract infection	9	7.4
Vaginal bleeding	5	4.1
Preterm Contractions		

Multiple Complications in some cases

complications recorded were antepartum haemorrhage (2.5%), perineal/cervical tear (2.5%), malpresentation (1.7%) and retained placenta (1.7%). Table 5 shows the overall pregnancy outcome in the series. The overall foetal salvage rate was 88.4%. 14 patients (11.6%) had midtrimester abortions, 28 (23.1%) preterm births while 79 (65.3%) had term births. There was no pregnancy that lasted longer than 42 weeks.

Table 6 shows the foetal outcome in the series. The live births was 98 (91.6). 81(75.7%) patients had foetal weight between 2.5 – 3.9kg, while 23 patients (21.5%) had foetal weight less than 2.5kg.

The average duration of hospital stay after cervical cerclage was 10 days with a range of 5 – 65 days. The minimum interval between suture removal and the onset of spontaneous labour was 2 hours while the maximum interval was 4 weeks. 8(6.6%) patients had induction of labour on account of postdate pregnancy.

Table 4: **Associated Complications of Labour**

	n= 121 Number	Percentage (%)
None	115	95.0
Antepartum haemorrhage	3	2.5
Perineal/Cervical tear	3	2.5
Malpresentation	2	1.7
Retained placenta	2	1.7
Cervical dystocia	1	0.8

Multiple Complications in some case

Table 5: **Overall Pregnancy Outcome**

Outcome	n = 121	Percentage (%)
Midtrimester abortion	14	11.6
Pretermblrth	28	21.1
Term birth	79	63.3/88.4%

Table 6: **Foetal Outcome**

	Number (n)	%
Gestational age at delivery		
14–27	14	11.6
28–37	28	23.1
38–42	89	65.3
	121	100.00
Foetal Birth Weight (kg)	n = 107	%
<2.5	23	21.5
2.5–3.9	81	75.7
>4.0	3	2.8
Perinatal Mortality	n=107	%
	9	8.4
Live Birth	98	91.6

DISCUSSION

The incidence of cervical incompetence in this series of 1 in 200 is all time low and may reflect the low incidence of induced abortion in our community. Furthermore, most patients with cervical incompetence in the area prefer to be treated in peripheral hospitals and clinics because of cost differential and are only referred to our centre when there is treatment failure. However, this incidence rate is in agreement with the findings of other workers[5].

The MacDonald technique, probably because it is easier to perform, was more commonly employed in this series. This finding was similar to studies done at Zaria[5] and Benin city[6]. The shirodkar stitch was the next commonly employed techniques. It is more difficult to perform and has been claimed to have a stronger circumferential support than the MacDonald stitch[1], but Edozien and Marinho[7] found no difference in the foetal salvage rate between the two procedures in their series. If the suturing is performed when there is already effacement and dilation of the cervix with protrusion of the foetal membranes, the pregnancy outcome can be improved by bed rest prior to cerclage insertion and by pushing back the protruding membranes by means of Foley's Catheter and vaginal irrigation with granulocyte elastase inhibitors, ulinastatin and PVP iodine solution at the time of the procedure[8,9]. This development is most welcome especially in our environment where most patients present when cervical effacement and dilation is advanced. In the developing country such as ours with a high foetal and neonatal mortality rate and inadequate neonatal facilities, any cerclage procedure that will prolong pregnancy and therefore improve foetal outcome is still a welcome development.

The common post-insertion and associated labour complications observed in this series like preterm rupture of membranes, vulvo-vaginitis, urinary tract infection, antepartum-haemorrhage and cervical dystocia and had been similarly observed by other workers[5-6].

Most of the patients (89.9%) had spontaneous vaginal delivery as similarly observed by other writers[5,6].

The average duration of stay in hospital after cerclage insertion in this study was 10 days. Because of the polygamous nature of our environment necessitating patients to immediately resume their usually hective domestic chores on discharge from hospital and the postinsertion complications like premature contractions and urinary tract infections, a longer duration of stay in hospital is usually necessary.

Preterm labour and birth was common in this series. This occurred in 23.1% of the cases. Intrauterine infection can cause preterm labour by activating the postaglandin cascade[10], and the high incidence of vulvovaginitis (19.8%) in this series may well account for the major complications – e.g. preterm rupture of membranes and delivery.

Most of the cerclages (75.5%) in this series were inserted at 14 – 16 weeks gestation. Because of the possibility of early spontaneous abortion in the first trimester as a result of chromosomal anomalies and the fact that the cervix starts playing a major role in supporting the uterine contents after the first trimester of pregnancy, the recommended time for cerclage insertions is at 14 – 18 weeks, after ultrasonography to confirm foetal viability, exclude major foetal anomaly and molar gestation[1]. At this gestation there is no significant cervical changes and the performance of cerclage is relatively easy[11].

The overall foetal salvage rate recorded in this review was 88.8%. The perinatal mortality was low (84/100). There was no maternal death. It is difficult to predict the outcome of these pregnancies had cerclage not been inserted. However, other studies found very low chances of foetal survival with conservative therapy[5,11], and a mean foetal salvage of 88.4% indicates that the procedure is still beneficial in our set up.

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