

# The Double Monofilament Stitch Still Relevant In Cervical Cerclage: A Report From Makurdi, Nigeria

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## Citation

H S.K.. *The Double Monofilament Stitch Still Relevant In Cervical Cerclage: A Report From Makurdi, Nigeria*. The Internet Journal of Gynecology and Obstetrics. 2010 Volume 15 Number 2.

## Abstract

Cervical cerclage for the incompetent cervix aimed at the prevention of mid trimester abortions and the risk of premature labour has been used extensively. Various surgical techniques have been advocated ranging from the complex shirodkar method to the more common McDonald's cerclage. With the application of different kinds of sutures ranging from catgut, polypropylene, to the traditional mersilene tape applied at the level of the internal cervical os. The application of the double suture was also tried. The use of the so called occlusion suture at the external cervix as a beneficial concept for the management of recurrent preterm, pre labour rupture of membranes has recently been advocated. Double suture at the level of the internal cervical os was used in a patient with recurrent mid trimester abortions and previous preterm birth with successful delivery at term. In view of this, it is suggested that the use of double monofilament cervical sutures for some selected women with cervical incompetence may still be relevant in resource limited countries as was seen in this case. Nigeria Department of Obstetrics and Gynecology Benue State University Makurdi Hembah-Hilekaan S.K.

## INTRODUCTION

Cervical cerclage remains a common prophylactic intervention for the management of second trimester pregnancy losses, although its application is not standardized all over the world<sup>1</sup>. Since the initial description in 1658 of the cervix being "so slack that it cannot keep in the seed" by Cole and Culpepper<sup>2</sup>, few subjects in obstetrics have generated as much controversy as the term "cervical incompetence," or as more recently referred "cervical insufficiency." Cervical incompetence is primarily a retrospective clinical diagnosis characterized by recurrent painless dilation and spontaneous mid-trimester abortions. Some of the associated underlying factors responsible for this problem include congenital malfunctions, infections/inflammation (syphilis, chorioamnionitis from loss of mucus plug and /or ruptured membranes), acquired anatomic causes from traumatic deliveries or repeated induced abortions due to forceful dilation of the cervix, trachelectomy, cone biopsy, multiple gestations, and diethylstilboestrol exposure in utero. Systematic illnesses like hypertension and diabetes mellitus responsible for preterm deliveries have also been implicated. However, the diagnosis of cervical incompetence relies on a history of painless preterm birth, cervical trauma or surgery and more rarely in utero exposure to diethylstilbestrol.

Previous authors have reported contrasting result on the effectiveness and adverse effects of cervical cerclage in developed and developing countries. In Nigeria clear beneficial effects of cerclage with 94.4% fetal salvage up from 23.7% before cerclage are reported<sup>3</sup>.

The incidence of cervical incompetence in the general obstetric population is reported to vary between 1: 100 and 1:2000. The wide variation is due to differences in the study populations, the criteria used to establish the diagnosis, and reporting bias between general practitioners and referral centres<sup>4</sup>.

There have been various types of suture materials for cervical cerclage ranging from initial use of catgut by shirodkar to the mersilene tape and monofilament sutures either double or single. In this case we report the successful use of double monofilament nylon 2 in a 28 year old woman with features of cervical incompetence that had spontaneous delivery at 39 weeks gestation in a private hospital in Makurdi, North Central Nigeria.

We hope this will be of immense benefit to the general practitioners working in low resource countries while at the same time stimulating more research in the use of double sutures and or the occlusion suture for the enhancement of the immunologic mucus plug for the reduction of preterm

births.

## **CASE REPORT**

A 26 years old Gravida 5 Para 1, was seen at a primary health centre (PHC) on the outskirts of Makurdi in north central Nigeria at 9 weeks gestation for routine antenatal care booking. She was referred to see a gynecologist on account of previous second trimester spontaneous abortions and cervical cerclage in her last pregnancy. She however, presented at Lobi Specialist Hospital in the same town ten weeks later with complaints of suprapubic pain for 4 days and drainage of watery discharge per vaginam of 16 hours duration. She was feeling normal fetal movements and denied history of vaginal bleeding, fever, urinary symptoms and vomiting. There was also no associated history of sexually transmitted disease (STD).

The past history indicated she had three previous spontaneous abortions, the last two of which were mid trimester abortions. Her only child birth was premature at seven (7) months following an earlier cervical cerclage at 14 weeks. The premature baby was subsequently incubated for 2 months. A review of her systems did not yield any additional findings.

On physical examination she was a young woman in painful distress. She weighed 51.6kg, the blood pressure was 110/70mmHg, pulse rate 74/mm, temperature 37C. She was not pale, anicteric and there was no pedal edema. The chest was clinically clear and the heart sounds were normal. The abdomen was uniformly distended with the liver, spleen and kidneys not palpably enlarged. The symphysio-fundal height was 20cm and fetal Doppler showed heart sounds of 158/minute. The vulva was normal with speculum examination showing no evidence of drainage of liquor even after fundal pressure. Digital examination revealed a closed cervix. A clinical diagnosis of cervical incompetence with urinary track infection in pregnancy was made. She was then admitted for bed rest, and placed on analgesics and antibiotics after samples were collected for investigations. She was counseled for cervical cerclage to which she gave a signed consent, she had modified McDonald's cervical cerclage with use of double monofilament nylon (2) sutures which were placed at the level of the internal os, and both tied separately posteriorly. She was further placed on tocolytics and discharged home after 1 week. The sutures were removed after 36 weeks gestation and she had a normal vaginal delivery at 39 weeks.

The laboratory investigations showed PCV 0.31, WBC 8.0 x

109/l with normal differentials, blood group- O Rhesus D positive, urine analysis and microscopy were normal. Urine, high vaginal swab (HVS) and cervical swab cultures yielded no growth after 24hrs of incubation. Abdominal ultrasound scan showed a normal intrauterine pregnancy with adequate liquor volume. There was slight funneling of the cervix. The cervical canal was about 1.7cm.

## **DISCUSSIONS**

Most women with a history of repeated first-trimester abortions will eventually achieve a successful pregnancy, as these are often due to some fetal abnormality for which nothing can be done. Second-trimester abortions on the other hand are not caused by recognizable fetal abnormalities, as some are due to maternal illness such as syphilis, hypertension, diabetes mellitus etc. or to a congenital malformation of the uterus, others are caused by "cervical incompetence or insufficiency". The diagnosis is not easy and usually made from the history and sometimes the physical examinations. A typical patient gives a history of two or more spontaneous mid-trimester abortions, without uterine contractions or bleeding, as was seen in this patient. The presentation is usually that of a watery vaginal discharge, often followed by a sudden loss of amniotic fluid, with the fetus delivered sometimes alive. The diagnosis is only certain in index pregnancy if the cervix is effacing and/or dilating without contractions of the uterus. Cervical incompetence and infection have been regarded as a major cause of preterm birth which is the leading cause of neonatal morbidity and mortality. Because its features overlap with preterm labour secondary to other aetiologies, the proportion of cases that arise from it is difficult to quantify. Women at high risk of preterm delivery due to cervical incompetence should therefore be followed-up with transvaginal measurements of cervical length.

Cervical cerclage is an intervention that is widely used to prevent miscarriage or delivery in the second trimester of pregnancy. The first use of this technique was by Lash and Lash in 1950. In 1955, Shirodkar<sup>6</sup> reported an alternative method using catgut after reflecting the bladder enabling insertion of a stitch above the level of the internal os and cardinal ligaments. Later McDonald<sup>4</sup> in 1957 described a simpler method which involves the insertion of a purse – string suture around the vagina cervix. The use of trans-abdominal sutures not widely used was described by Benson and Durfa<sup>7</sup> in 1965, for those with a severely deficient or damaged cervix. Major complications associated with this procedure include vaginal hemorrhage, urinary tract

infection and ruptured membranes. There has also been a reported increase in breech presentations and rate of caesarean sections due to cervical stenosis. None of these was seen in this patient.

Several types of suture materials have been used, prolene or other synthetic non-absorbable sutures like ethibond, is advocated by others with the argument that the width of mersilene tape places the patient at greater risk for infection<sup>8</sup>. Currently, there is no evidence that placing two sutures results in better outcomes than placing one<sup>9,10</sup> in difference to this case.

Although prophylactic antibiotics and tocolytics have not been proven to be of benefit, it is our routine to use them as was done here and she was advised against sexual intercourse until her next follow-up visit 2weeks later. Her suture was removed at 36 completed weeks although recent data suggest that removing the cerclage later or even at labour does not result in greater morbidity.

It is possible that a suture at the level of the internal os may not be sufficient in maintaining cervical barrier integrity leading to the loss of the mucus plug particularly in the presence of a dilated cervix prior to the onset of labour. Groom et al<sup>11</sup> found that women with a cervical length of <15 mm were more likely to have exposed membranes at the time of cerclage placing them in a worse prognostic group than those whose membranes were not exposed. Insertion of an additional suture at the level of the external os may be of benefit in such cases. such an occlusion suture of continuous non- absorbable fine polypropylene at the external os not having significant tensile strength either alone or in combination with an internal os suture, act to maintain the bactericidal mucus plug thereby lowering the risk of infection and hence, preterm birth<sup>12</sup>.

A combination of these factors in obstetrics enables us to identify a minority of those women who will benefit from a cervical cerclage. It will also be important if the use of

double sutures at the internal os, and the occlusion external cervical suture either alone or in combination with an internal os suture (which has been suggested to be better than the single suture) are further studied in controlled trials for a better use of cerclage especially for women diagnosed with or at risk of cervical incompetence to prevent preterm birth particularly in the developing countries.

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