

Prophylactic Cervical Cerclage - In a Broader Perspective

Introduction

Cervical cerclage has been in use for many decades to prevent early preterm birth and its associated neonatal mortality and morbidity. Cervical incompetence, which is the commonest indication for the procedure, is diagnosed from a classic history of painless dilatation of cervix with delivery of premature infant, history of precipitate labors, herniation of membranes, history of recurrent premature rupture of membranes (particularly in patients with prior history of cervical surgeries or trauma or a history of diethylstilbestrol [DES] exposure) and midtrimester abortions¹. The incidence of cervical incompetence varies from 0.5% to 1.0% in all pregnancies, and if not treated, results in a perinatal mortality of up to 70%. To diagnose, painless second trimester pregnancy loss without bleeding

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or contractions is the gold standard. In the non-pregnant state, easy passage of number 8 Hegar dilator or hysterosalpingography showing internal os dilatation of 6 mm or greater is diagnostic. During pregnancy, transvaginal sonography (TVS) of the cervix between 14 and 16 weeks showing a cervical length <2.5 cm is suggestive of incompetence. The first true cervical encirclage operation was reported by Shirodkar in 1955 using homologous fascia lata. The usual method employed is MacDonald cerclage in which a purse-string suture of four or five bites is placed around the cervix. The Shirodkar cerclage technique requires superior dissection of bladder and rectum, it is time consuming and

complications like bleeding, later cervical scarring are high. Transabdominal cerclage is a technique with significant maternal and fetal risk.

Though there are many indications for cervical cerclage, in our experience we found that the technique of prophylactic cerclage is useful in patients who had history of threatened abortion at least on two or more occasions in their current pregnancy, which necessitated admission.

Aim

To evaluate the efficacy of prophylactic cervical cerclage for high risk women who have exhibited previous cervical incompetency, patulous internal os at diagnostic laparoscopy and/

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or repeated threatened abortion in current pregnancy.

Materials and methods

A retrospective study was conducted from May 2002 to April 2005 at Fertility Research Centre, GG Hospital, Chennai, India. We performed prophylactic cervical cerclage on 170 pregnant women assessed from past high risk history or on diagnosing a patulous internal os during laparoscopy and history of repeated threatened abortion in the ongoing pregnancy. All these patients came to us either for primary or secondary infertility. Of the 170 pregnant women, 37 were natural conceptions, 46 had resulted from intra-uterine insemination (IUI) and 87 were IVF conceptions. One hundred and nine delivered successfully and 40 are ongoing. Eight were lost in follow up. Thirteen women had inevitable abortion despite the cerclage, of which 3 were anomalous fetuses (Table 1).

In our center, we perform the procedure at 16 weeks of gestation after ensuring a sonographically normal fetus and absence of chorioamnionitis. Prior to the procedure, which is done under



Normal cervix.



Incompetent cervix.

general anesthesia, the patient is put on prophylactic antibiotics and tocolytics. We use Sutopak no. 2 (Ethicon) non-absorbable black silk as the suture material. The type of suture we employ is worm suture. This involves taking bites from the anterior and posterior lips of the cervix. A minimum of 3 sutures are applied. It is advantageous because it is simple, less time consuming and with no complications. The patient is hospitalized and advised bed rest in the Trendelenburg position for 1 week and thereafter advised sedentary life at home till delivery.

Discussion

In our study, we have highlighted the application of cerclage in cases of repeated threatened abortion in current pregnancy, presence of a patulous

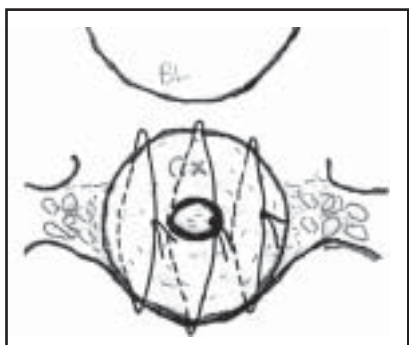
os during diagnostic laparoscopy/hysteroscopy demonstrated by easy passage of number 8 Hegar dilator and in those cases with history of cervical incompetence in the past pregnancy. While the latter two indications conform to the requirements for placement of suture, the former in our experience is seen as valid indication. The World Health Organization estimates 15% of all clinically recognizable pregnancies to end in spontaneous abortion, 50-60% of which are due to chromosomal abnormalities. Apart from the fetal factors, several maternal and probably paternal factors contribute to the causes of spontaneous abortion. The maternal factors responsible for abortion include both local and systemic conditions such as infections, medical diseases,

Table 1.

Statistics from May 2002 to April 2005

	Natural	IUI	IVF	Total
Delivered	21	32	56	109
Ongoing	10	9	21	40
Expelled	4	3	6	13
Lost in follow up	2	2	4	8
Total	37	46	87	170

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Wurm cerclage.



Performing cerclage.



After cerclage.

genital tract abnormalities, endocrine factors and other miscellaneous causes. It should be emphasized that the management to maintain pregnancy is reasonable only in those cases, in which the fetus is not seriously affected.

A study done by Crombleholme, et al.² on 75 cases of threatened abortion who were managed with a cervical cerclage in one group and tocolytic agents in a different group showed significant improvement in mean birth weight and maximum gestational age attained with a shift in the ratio of term to premature births after intervention. Maternal morbidity was low with a cerclage-related cesarean section rate of 6.8% and only 8% infectious morbidity. It is concluded that cervical cerclage should be considered in the management of recurrent pregnancy wastage even if the obstetric history is atypical.

Kubinyi, et al.³ did a comparative study on prophylactic versus therapeutic cerclage-operations carried out on 175 patients during a period of 5 years, the indications considered were previous history of one or more

spontaneous abortions after first trimester and insufficiency of the cervical os prior to pregnancy. They cited a carry home baby rate of 97.2% in the prophylactic group versus 67.2% in the therapeutic group. It would not be beneficial to provide treatment that would permit chromosomally and anatomically abnormal embryos to survive to term⁴.

Prognosis is better if cervical incompetence is diagnosed before pregnancy; but in majority of cases, diagnosis is done only after a pregnancy loss. The earliest sign of possible cervical incompetence is a reduction in cervical length and funneling. A more effective way of identifying the high risk group for early preterm delivery might be by TVS measurement of cervical length.

We have found that it is ideal to do the elective os tightening between 14-16 week of pregnancy, since the risk of abortion is higher when done earlier than 14th week or later than 16th week. Harger opines that prophylactic cerclage placement should be performed after the first trimester, to avoid the risk of spontaneous loss most likely attributable to

chromosomal anomalies⁵.

Althusius, et al. have shown that cervical cerclage with bed rest, reduces preterm delivery and improves perinatal outcome in women with a short cervical length and risk factors for cervical incompetence⁶. This has been true with all our patients.

The procedure itself predisposes to ascending infection, bleeding and rupture of the membranes and expulsion. Cervical tears or rarely uterine rupture is likely if the stitch is not removed early in labor, which can occur in 10% of deliveries. Since most of our patients had a high risk obstetric history, our cesarean section rate was higher. However, we did not encounter any complications with regard to post-procedure infection or at the time of cesarean. The sutures were always removed following the surgery. Of the 13 cases in our study, three fetuses had anomalies which were not evident early and hence underwent termination with misoprostol. Four cases had undergone fetal reduction prior to our cerclage which could be significant. The remaining six were cases of premature ovarian failure

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who had undergone hormone replacement therapy to grow their uteri prior to donor oocyte program. These patients are already prone to the risk of premature labor, and with an additional history of threatened abortion in current pregnancy, the procedure should be used prudently in this population.

In our study, the carry home baby rate was 89.3% and the pregnancy loss rate after the cerclage was 10.7%. (Excluding ongoing pregnancy and the cases lost in follow up.)

Conclusion

Cervical cerclage done in appropriately selected group of patients at the ideal time can

decrease fetal wastage up to 90%. Detailed eliciting of obstetric history aided with good clinical and sonographic evaluation can guide in the selection of patients for prophylactic cerclage thereby increasing the carry home baby rate. Perhaps it should be used with more discretion when performing on patients who have undergone fetal reduction or have had a necessitated growth of the uterus.

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