

Transabdominal Cervicoisthmic Cerclage: Initial Experience

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SUMMARY

Pregnancy outcome before and after insertion of transabdominal cervical cerclage is evaluated. The series also reports on the first cases of second pregnancies with the original suture left *in situ*. It is our view that transabdominal cervical cerclage should only be performed in units that have specialists in Perinatal Medicine.

INTRODUCTION

Cervical incompetence/insufficiency is widely acknowledged as predisposing women to mid-trimester abortion and premature delivery. Cervical cerclage by vaginal approach increases the fetal salvage rate.¹ There is a small subset of women with cervical incompetence for which the transvaginal approach is not effective. This group of women was first described in 1965 by Benson and Durfee² and expanded by Novy.³ These investigators stated that women with specific clinical findings may benefit from the transabdominal approach (Table 1). In this paper, all cases of transabdominal cervicoisthmic cerclage (TCC) performed in the Royal Maternity

Hospital, Belfast are discussed. The technique described is a modification of the original procedure in that no dissection of the uterine vessels is performed. This helps to decrease the risk of vascular trauma.⁴ Further, we report on the first group of women who have had two successful pregnancies with the original abdominal suture having been left *in situ*.

METHOD

Between 1982 and 1996, 12 women were selected for TCC. All patients had the suture inserted during pregnancy by one surgeon (J C Dornan).

The clinical material consisted of twelve patients with a past history of 53 pregnancies and delivery of only eleven surviving children, two of whom had cerebral palsy. All women had either previous mid-trimester miscarriages and/or premature deliveries. Table II illustrates the pregnancy history at the time of insertion of the TCC. The main indication for performing TCC was the presence of a short or damaged cervix and/or failed vaginal cerclage procedures.

TABLE I

Specific clinical conditions in women that may be helped by abdominal cervical cerclage in pregnancy

1. Congenitally short or extensively amputated cervix.
 2. Marked scarring of the cervix, as after unsuccessful transvaginal cerclage.
 3. Deeply notched multiple cervical defects.
 4. Penetrating forniceal lacerations.
 5. Subacute cervicitis.
 6. Wide or extensive cervical conization.
 7. Cervicovaginal fistulas after abortion.
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TABLE II

Pregnancy history at time of insertion of transabdominal suture

<i>Case</i>	<i>Parity at insertion of TCC</i>	<i>Term deliveries</i>	<i>Pre-term deliveries</i>	<i>Abortions</i>	<i>Number of living children</i>	<i>Previous operations, relevant medical history</i>	<i>Cervical status</i>
1	0+5	0	1	4 (1 set of twins)	None	None	Short
2	2+1	0	2	1	None	Cone biopsy of cervix	Scarred
3	1+1	0	1	1	None	None	Short
4	0+2	0	0	2 (twins)	None	Subfertility	Short & scarred
5	1+4	0	1	3	One	Failed vaginal cerclage x 1	Short
6	2+2	0	2 (twins)	2	None	Failed vaginal cerclage x 1	Short
7	4+4	4	0	3	Four	Cone biopsy of cervix, failed vaginal cerclage x 1	Short & scarred
8	0+5	0	0	5	None	Hysteroscopic removal of vaginal septum, failed vaginal cerclage x 1	Soft in non-gravid state, easily dilated
9	2+5	2	0	5	Two	Failed vaginal cerclage x 2	Short & scarred
10	2+2	1	1	2	Two	Failed vaginal cerclage x 1	Short & scarred
11	2+4	0	2	4 (1 set of twins)	One	None	Soft, short cervix
12	2+1	0	2	1	One	None	Short

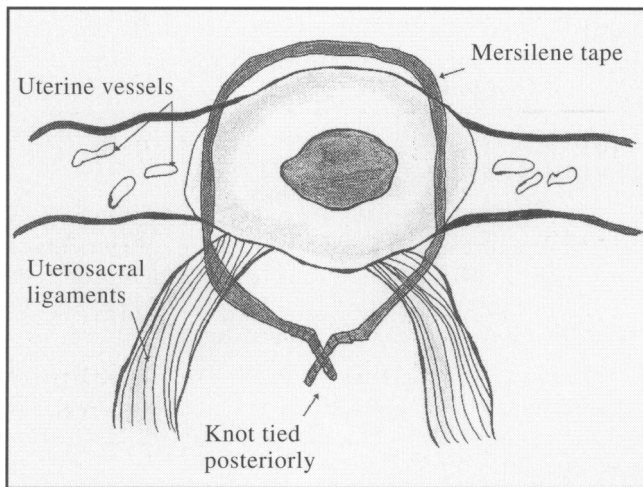
SURGICAL PROCEDURE

In all cases, the abdomen was opened through a transverse suprapubic incision. The bladder peritoneal fold was dissected off the anterior cervical aspect and the bladder was pushed caudally until the supravaginal cervix could be seen and palpated in the midline with good exposure laterally. On the side of the uterus, the cervical branch of the uterine artery was identified in the broad ligament. The uterine vessels were gently displaced laterally when inserting the suture. This facilitated the opening of a connective

tissue window and allowed Mersilene tape to be inserted between the artery and the upper end of the cervix on both sides. The suture material was 5 mm wide with round bodied needles on both ends (RS22 Ethicon Ltd, Edinburgh). In all cases the suture knot was tied posteriorly, leaving the ends 3 cm long (Figure 1). The peritoneal fold was closed and the abdomen closed in layers. Postoperatively, appropriate analgesia was given. No patient received prophylactic tocolytic agents or antibiotics.

Figure 1

Diagram of Mersilene tape around the uterine isthmus, medial to uterine vessels.



RESULTS

There were no complications following the procedure. Blood loss in each case was minimal. Table III illustrates the outcome of the pregnancies. In Case 9, delivery of a male infant was performed at 29 weeks, for obstetric reasons, following intrauterine demise of his twin. Three patients have since conceived again with the original TCC *in situ* and have had a successful outcome. Six patients still have the suture *in situ* as they hope to conceive again. None of these nine patients have reported any problems with the suture *in situ*. In this cohort of patients, the fetal salvage rate was 21% before insertion of TCC, and 94% after insertion of TCC.

DISCUSSION

Transabdominal cervicoisthmic cerclage is an uncommon procedure but is finding an increasing

TABLE III

Details of insertion of transabdominal cerclage and pregnancy outcome

Case	Week of TCC insertion	Mode of Delivery	Neonate(s) – weight in grams	Subsequent Pregnancies
1	12	C/S at 38 weeks	3410 g, A&W	C/S at 37 weeks, A&W Suture removed
2	14	C/S at 37 weeks	2900 g, A&W	C/S at 37 weeks, A&W Suture removed
3	12	C/S at 37 weeks	2815 g, A&W	Suture removed
4 Triplets	9	C/S at 35 weeks	1712 g, A&W 2046 g, A&W 1826 g, A&W	Suture still <i>in situ</i>
5	11	C/S at 37 weeks	3390 g, A&W	Suture still <i>in situ</i>
6 Twins	12	C/S 36 weeks	2500 g and 2400 g, both A&W	Suture still <i>in situ</i>
7	12	C/S at 37 weeks	3120 g, A&W	Suture removed
8	13	Classical C/S at 37 weeks	2770 g, A&W	Suture still <i>in situ</i>
9 Twins	12	C/S at 29 weeks	825 g – Stillbirth, 820 g, A&W	C/S at 37 weeks, A&W Suture removed
10	12	C/S at 37 weeks	3150 g, A&W	Suture left <i>in situ</i>
11	12	C/S at 37 weeks	3200 g, A&W	Suture left <i>in situ</i>
12	12	C/S at 37 weeks	2820 g, A&W	Suture removed

C/S = Caesarean section

A&W = Alive and Well

place in the management of repeated pregnancy loss due to cervical incompetence. All sutures in this series were inserted during pregnancy. There is still insufficient experience with pre-pregnancy cerclage to assess its efficacy. Mahran advocates insertion during pregnancy at a gestational age of between 10 and 14 weeks.⁴ He felt that a laparotomy in the non-pregnant state might interfere with subsequent conception. Further, during pregnancy the tissues are softer and more pliable, facilitating the opening of the connective tissue window in the broad ligament lateral to the cervix and medial to the uterine vessels. Other reports suggest that the tension applied to the Mersilene band is more accurately judged during pregnancy.⁵ This procedure was a modification⁴ of the technique described by Benson and Durfee.² They had advised dissection of the uterine vessels through the connective tissue window which is usually present at the level of the internal os. However, most of the bleeding complications reported by them was the result of this dissection. In this series, no injury to vessels in the parametrium occurred during placing of the suture using the lateral displacement technique.

The outcome in this series is better than previously reported.^{5,6} Criteria for patient selection must be strict. Transabdominal cervicoisthmic cerclage should be considered:

1. in patients who have had normal term deliveries but then experienced repeated fetal loss after a distinct traumatic event (e.g. extensive cervical conization causing a short or a absent cervix).
2. when the cervical operator feels that he/she has compromised the competence of the cervix.
3. in patients with proven cervical incompetence who have failed to respond to vaginal cerclage procedures.

Further, although TCC is recognised as a therapeutic option in carefully selected patients who have cervical incompetence,^{5,6} experience in the United Kingdom is limited given the small number of suitable patients and the potential increased morbidity of the procedure.⁵ It is recommended that patients be offered TCC in units that have subspecialists in Perinatal Medicine and where expertise has been acquired with sufficient numbers of cases.

In previous reports,⁶ the suture was removed after delivery. In this series, patients were given a choice: nine patients had the suture left *in situ*, three of whom conceived again and had a successful outcome to their pregnancies. This is the first series to report second pregnancies with the original suture having been left *in situ*.

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