

Successful term delivery cases of trans-abdominal cervicoisthmic cerclage performed at more than 18 weeks of gestation

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A 38-year-old nulliparous woman was referred to our clinic because of cervical incompetence at 19 weeks of gestation. Trans-abdominal cervicoisthmic cerclage was performed after failure of modified Shirodkar cerclage operation in the patient at 21 weeks of gestation via a laparotomic approach. Another 38-year-old patient, who underwent loop electrosurgical excision procedure conization for treatment of cervical dysplasia 4 years ago, presented for cervical incompetence. At 18 weeks of gestation, we performed trans-abdominal laparotomic cervicoisthmic cerclage without any post-operative complications. During antenatal follow-up, there were no obstetrical co-morbidities and finally she gave birth to a healthy infant at full term by cesarean section. We report two cases of women who underwent trans-abdominal cervicoisthmic cerclage surgery because of cervical incompetence as they were not suitable for trans-vaginal cervical cerclage. Both patients successfully maintained their pregnancy until full term after undergoing trans-abdominal cervicoisthmic cerclage at more than 18 weeks of gestation.

Keywords: Cervicoisthmic cerclage; Delivery; Uterine cervical incompetence

Introduction

Cervical incompetence causes repeated painless mid-trimester losses or preterm deliveries [1]. It occurs in 0.1% to 1.0% of all pregnancies and is present in up to 8% of women with recurrent second-trimester miscarriage [2].

Diagnosis is based on a history of painless dilatation and shortening of the cervix after the first trimester in the absence of preterm labor with no evidence of other clear pathology (e.g., bleeding, infection, ruptured membranes, or fetal congenital abnormalities). Structural weakness of the cervical tissue is thought to cause and contribute to these adverse outcomes [3].

To prevent premature rupture of membranes and preterm delivery, therapeutic or prophylactic cervical cerclage is recommended for the treatment of cervical incompetence during the late first trimester or early second trimester of pregnancy [4,5].

Conventional treatment is cervical cerclage via the vaginal approach. However, in some conditions, cervical cerclage cannot be performed vaginally or it will not be effective because of anatomic cervical distortions, either congenital or as a result

of previous surgical procedures [4]. Then, trans-abdominal cervicoisthmic cerclage (TCIC) can be considered.

Although there are no strict criteria, laparoscopic TCIC is not considered as an option after 13 weeks of gestation because the uterine size is too large to perform the operation. Compared with laparoscopy, the median gestational age for performing laparotomic cerclage is significantly higher (12 vs. 9 weeks) [5].

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To the best of our knowledge, there is no case report of TCIC performed at more than 18 weeks of gestation, because there is not enough space to perform the operation and there are concerns about obstetric complications such as preterm labor or premature rupture of membrane. However, it is definitely necessary to perform cerclage in spite of a late diagnosis of cervical incompetence after 18 weeks of gestation.

Therefore, we newly report two cases of successful full term deliveries after trans-abdominal TCIC surgery at a more advanced gestational age of more than 18 weeks.

Case report

1. Case 1

A 38-year-old nulliparous woman was referred to our clinic

because of cervical incompetence at 19 weeks of gestation. Before the diagnosis she had a symptom-free and painless cervical funneling with shortening of the cervix (17 mm) had been detected (Fig. 1A). She was admitted and modified Shirodkar operation was performed. After 2 days, the patient was discharged without amniotic fluid leakage and uterine contractions. On the next follow-up schedule, her cervical length was decreased (7 mm) (Fig. 1B). Because she was already in the 21 weeks of pregnancy, we had to consider the surgical difficulties such as insufficient exposure, bleeding risk and maternal and fetal morbidities of preterm labor or premature membrane rupture. Hence, we decided to perform laparotomic TCIC after consultation and we received informed consent from the patient.

Laparotomic TCIC was performed successfully with an estimated blood loss of less than 50 mL. The total operating time

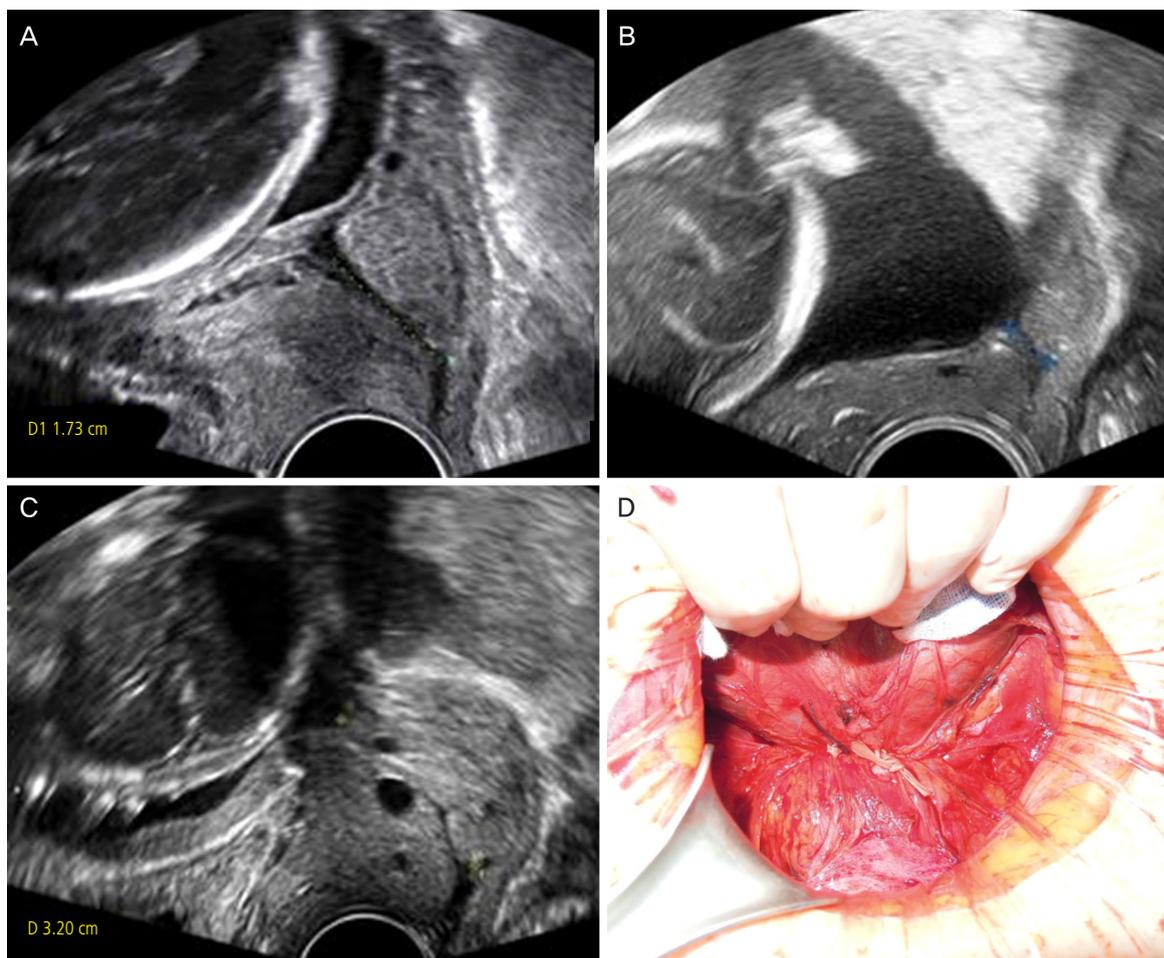


Fig. 1. Serial changes in cervical length of the patient (case 1). (A) At 19+4 weeks of gestation, the length of the cervix was measured to be 17 mm, (B) at 21+4 weeks of gestation, it was measured to be 7 mm and (C) after transabdominal cervicoisthmic cerclage it was measured to be 32 mm. (D) The photograph of the anterior side of the uterus after completion of transabdominal cervicoisthmic cerclage (case 2).

was 85 minutes. The patient was discharged on the 9th day of the operation. During her hospital days, we administered a beta-agonist intravenously to control uterine contractions.

The knots were positioned successfully, and the cervical length was considered satisfactory during pregnancy (3.6 cm at 34 weeks of gestation) without any complications (Fig. 1C, D). A healthy infant weighing 3,280 g was delivered by elective cesarean section at 38+0 weeks' gestation. The knot was left in situ at after cesarean section for the next pregnancy.

2. Case 2

A 38-year-old primipara patient, who had a history of recurrent abortion was referred to our clinic at 16 weeks of gestation because of short cervical length (25 to 27 mm) assessed by transvaginal sonography. She had a history of loop electro-surgical excision procedure conization for treatment of cervical dysplasia, 4 years ago.

One week later, the cervical length was decreased (cervical length 18 mm) and on the next follow-up day. On the vaginal examination, the patient had 1-cm-size endocervical mass inside of the cervical canal with bleeding. There was the risk of heavy bleeding that can be aggravated by additional cervical procedure such as vaginal cerclage so that we made a decision to perform TCIC at 18 weeks of gestation combine with cervical mass excision.

Laparotomic TCIC was performed under spinal anesthesia. Estimated blood loss was 50 mL, and the operating time was about 70 minutes. There were no perioperative complications. Subsequently, the patient was discharged on the 4th day after the operation.

TCIC knots were intact on the isthmic portion of the uterus and the length of the cervix was 3.4 cm at 22 weeks of gestation. A male infant weighing 2,990 g was delivered at 38 weeks of gestation with Apgar scores of 9 at 1 minutes and 10 at 5 minutes after delivery. The cerclage tape was removed after cesarean delivery.

Discussion

Cervical incompetence can be managed with trans-vaginal cervical cerclage, but occasionally, the patients with cervical weakness who have an extremely short, deformed, or scarred cervix cannot be adequately managed in this manner [6].

In these patients, TCIC could be another option. However,

when performing TCIC, there are no strict criteria for laparoscopy or laparotomy. Also, there are only a few studies comparing laparoscopic TCIC and laparotomic TCIC. In addition, there is a paucity of information about the timing of surgery during pregnancy [2].

In our department, laparoscopic TCIC is performed in selected cases, usually under 15 weeks of gestation without any contraindications. In our experience, laparoscopic cerclage was difficult to perform at more than 16 weeks of gestation; hence, the laparotomic approach would be safer to perform.

In the previous literature, there are few reports of laparotomic TCIC at more than 16 weeks of gestation and there are no reports of subsequent full-term deliveries after TCIC performed at more than 18 weeks of gestation. Depending on the gestational age, there are difficulties in manipulating the uterus. Excessive manipulations can induce uterine contractions and it can cause preterm delivery or premature rupture of membranes, thus increasing maternal and fetal morbidities. Moreover, there is a risk of bleeding because of the highly vascular area close to the ureters and parametrial veins with insufficient space to perform surgery [6]. For performing TCIC at more than 18 weeks of gestation, a very skillful surgeon who has many years of experience is needed. To the best of our knowledge, this is the first report showing that trans-abdominal laparotomic cervicoisthmic cerclage was performed successfully at more than 18 weeks' gestation, leading to a full term delivery.

TCIC could be an effective surgical treatment for cervical incompetence at more than 18 weeks of gestation. We suggest that the limitation of operating time of laparotomic TCIC could be overcome in our study and application of proper laparotomic TCIC can be performed in women with cervical incompetence at more than 18 weeks of gestation.

Conflict of interest

No potential conflict of interest relevant to this article was reported.

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