CASE REPORT

Successful laparoscopic transabdominal cerclage in uterus didelphys

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SUMMARY

The incidence of uterus didelphys is around 3/10 000 women. It is a class III Müllerian duct anomaly resulting from a complete non-fusion of the paired Müllerian ducts between the 12th and 16th weeks of gestation. Although the prevalence of cervical insufficiency in women with uterus didelphys is unknown, the incidence of cervical insufficiency in women with Müllerian anomalies has been reported as high as 30%. We present a case of successful pregnancy outcome following a laparoscopic transabdominal cerclage in a woman with uterus didelphys and cervical insufficiency. The case demonstrates that laparoscopic transabdominal cerclage can be performed successfully in women with uterus didelphys and a satisfactory obstetric outcome can be achieved.

BACKGROUND

Laparoscopic transabdominal cerclage is one of the options for the surgical treatment of cervical insufficiency. This approach has traditionally been indicated for women who either had a previous failed transvaginal cerclage or had large portions of their cervix removed to treat cervical dysplasia or malignancy.

Several authors, including ourselves, have demonstrated that a transabdominal cerclage, placed either before pregnancy or in the first trimester, results in very good obstetric outcomes in these high-risk patients.^{1–3} Furthermore, a laparoscopic transabdominal cerclage has the same good outcomes as the laparotomy with significantly reduced surgical trauma.^{2,3}

We present a case of successful pregnancy after placement of a laparoscopic transabdominal cerclage in a woman with uterus didelphys after two previous mid-trimester losses due to cervical insufficiency. To the best of our knowledge, there is only one published case of laparoscopic transabdominal cerclage in uterus didelphys with subsequent successful obstetric outcome.⁴

CASE PRESENTATION

We present a case of a 27-year-old Caucasian woman (gravida 4, para 2, no living children) from regional Australia with known uterus didelphys and a partial longitudinal vaginal septum who presented after two mid-trimester pregnancy losses.

The patient's first pregnancy occurred in the left uterus, which is the slightly bigger and dominant. After silent shortening and dilation of the cervix, the membranes ruptured and she went on to

deliver a stillborn baby at 22 weeks gestation. In her second pregnancy, again in the left uterus, a transvaginal cerclage was placed after ultrasound evidence of a shortened cervix. Despite a surgically uneventful transvaginal cerclage placement, she progressed to a spontaneous onset of labour and delivered at 24 weeks gestation. The infant died at 10 days of age.

A few months after the second mid-trimester loss, the patient was referred to us for a laparoscopic transabdominal cerclage. As she had two separate and distinct cervices, two sutures were placed laparoscopically, one on each cervix (figure 1). The technique we used was described in our previous publications with minor modifications for uterus didelphys.²

A few months later she conceived spontaneously again with a singleton in her right, slightly smaller uterus. The pregnancy progressed well, the cervix remained long and closed, but at 21 weeks gestation, she was diagnosed with fetal death in utero on an ultrasound scan.

The transabdominal cerclage on the right cervix was removed laparoscopically in order to avoid the need for a classical caesarean section. The patient proceeded to a vaginal delivery of the demised fetus. The post mortem showed a normal fetus with signs of hypoxia. Placental insufficiency was the most probable cause of death. The technique for laparoscopic cerclage removal at 21 weeks gestation has been published.⁵

On a subsequent procedure, at the patient's request, our team removed the vaginal septum. A copper intrauterine device was inserted in the right uterus. The rationale was to try to achieve a

Figure 1 Laparoscopic transabdominal cerclage placement on each cervix in the case of uterus didelphys.

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pregnancy in the left, dominant uterus with a cerclage still in situ.

The patient conceived again a few months later with a singleton in the left uterus. The pregnancy was managed with regular antenatal care and close follow-up.

After 26 weeks gestation, she had fortnightly ultrasound scans for fetal growth and well-being as well as regular electronic fetal monitoring. The cervix remained long and closed throughout the pregnancy at around 34 mm.

At 32 weeks gestation, the patient reported reduced fetal movements for a few days. Ultrasound scan showed reduction in weight percentile from 60% to 20%, reduced fetal movements, reduced amniotic fluid and borderline umbilical artery flow by Doppler studies. She was given two doses of intramuscular betamethasone (11.4 mg), 24 h apart, and a caesarean section was performed at 32 weeks and 2 days gestation. A male infant was delivered weighing 2085g with Apgar scores of 8 and 9. He spent 4 weeks in the special care nursery and was discharged weighing 2650 g.

DISCUSSION

Uterus didelphys is a class III Müllerian duct anomaly. It represents 11.1% of all uterine anomalies and occurs in 0.03% women.^{6,7} Uterus didelphys occurs when the paired Müllerian ducts failed to fuse between 12th and 16th weeks of gestation, resulting in duplication of uterus and cervix, with or without a vaginal septum. Longitudinal vaginal septum, either complete or partial, and urinary tract anomalies are present in 75% and 23% of cases, respectively.^{8,9}

The prevalence of cervical insufficiency in women with uterus didelphys is unknown but Golan *et al*¹⁰ reported a 30% incidence of cervical insufficiency in women with Müllerian anomalies. In his review, which consists of 98 cases of Müllerian anomalies, vaginal cerclage is associated with a statistically significant increase in the rate of term births and concurrent reduction in spontaneous late miscarriages (50% compared with 21%, $p < 0.001$).

Benson and Durfee first described transabdominal cerclage in 1965 as an alternative technique reserved for women who are not candidates for the transvaginal approach.¹¹ This includes women with extremely short cervixes and women with scarred or deformed cervixes due to previous cervical treatment or surgeries. It was later expanded to include women who have had previous failed transvaginal cerclage(s).¹² Laparoscopic transabdominal cerclage placement was first reported in 1998 with the advantage of reduced postoperative pain and adhesions and faster recovery when compared to laparotomy transabdominal cerclage.¹³

A review of 14 studies, published between 1990 and 2013, involving 678 patients concluded that the rates of third trimester delivery and live birth after abdominal cerclage via laparoscopy and laparotomy are high and comparable.¹ Our own recently published series comparing transabdominal cerclage via laparoscopy and laparotomy in a total of 84 pregnancies showed that laparoscopic transabdominal cerclage is a safe and effective procedure with success rates and obstetric outcomes similar to those in the laparotomy approach.² We reported

perinatal survival rate of 98%, mean gestational age at delivery of 37 weeks and 83% of deliveries at ≥ 34 weeks gestation.

There is very limited experience for laparoscopic transabdominal cerclage in women with uterus didelphys. Minor modifications of the previously described technique with attention to anatomical landmarks make the approach feasible. The cerclage can be placed on both cervixes or only on the cervix of the dominant uterus.

Learning points

- ▶ Laparoscopic transabdominal cerclage can be performed successfully in women with uterus didelphys, with minor modifications to the conventional technique.
- ▶ The technique gave a good obstetric outcome in a woman with uterus didelphys and two previous mid-trimester losses, including one with a transvaginal cerclage.
- ▶ Laparoscopic removal of cerclage is feasible in the second trimester to avoid the need for a hysterotomy in case of fetal death in utero.
- ▶ Insertion of a copper intrauterine device in one uterus enabled conception in the other dominant uterus, which already had a previously placed cerclage in situ.

Contributors AA and PH were responsible for the planning, reporting and editing of the work.

Competing interests None declared.

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