



# Successful cervical cerclage in a dichorionic diamniotic twin pregnancy: A case report

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## ABSTRACT

A 26-year-old primigravid woman presented with a dichorionic diamniotic twin pregnancy after 7 years of infertility. No formal ultrasound was performed until a morphology check at 19 weeks and 4 days of gestation, at which time a shortened cervix was identified. The patient was already on vaginal progesterone pessaries from conception, as per her infertility specialist, and was advised to change to a rectal route of administration. At 20 weeks and 5 days, progesterone pessaries were increased to twice daily. A repeat scan at 21 weeks and 4 days showed a funnelled cervix 29 mm in length, a closed portion of 4–6 mm and bulging membranes. A speculum examination at this time showed a shortened cervix, 5 mm open, with visible membranes. A cervical cerclage was placed at 21 weeks and 5 days. The patient was given oral antibiotics for 1 week and was continued on progesterone pessaries. The patient was managed through the twins clinic and had serial ultrasound scans throughout the pregnancy. She went on to develop gestational diabetes and pre-eclampsia. She had a caesarean section at 33 weeks and 4 days due to pre-eclampsia, with abnormal doppler scans. Cervical cerclage was removed at the time of the caesarean section. Both twins were admitted to the nursery for prematurity and progressed well. This case report illustrates how a cervical cerclage can be utilised successfully in a primigravid dichorionic diamniotic twin pregnancy.

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## 1. Introduction

Preterm birth (PTB) is the leading cause of death in children under 5, and approximately 15 million births are pre-term every year [1]. Cervical cerclage is the utilisation of synesthetic tape or sutures to support the cervix and reduce the risk and consequences of PTB. Cerclage is utilised in patients with a history or evidence of significant cervical incompetence or insufficiency. This is determined by one or more of the following: history of PTB; transvaginal cervical shortening on ultrasound and/or cervical dilatation; and clinical examination. Transvaginal cerclage is utilised first and most commonly, with transabdominal cerclage generally employed only for patients with prior unsuccessful transvaginal cerclage. There is well documented evidence of the success of transvaginal cervical cerclage in reducing PTB in singleton pregnancies, where there is a history of PTB and/or ultrasound or examination evidence of cervical shortening or dilatation [2]. Evidence surrounding

the use of cervical cerclage in twin pregnancies, however, is minimal and controversial [2,3].

## 2. Case Presentation

The case of a successful transvaginal cervical cerclage in a primigravid DCDA twin pregnancy is presented.

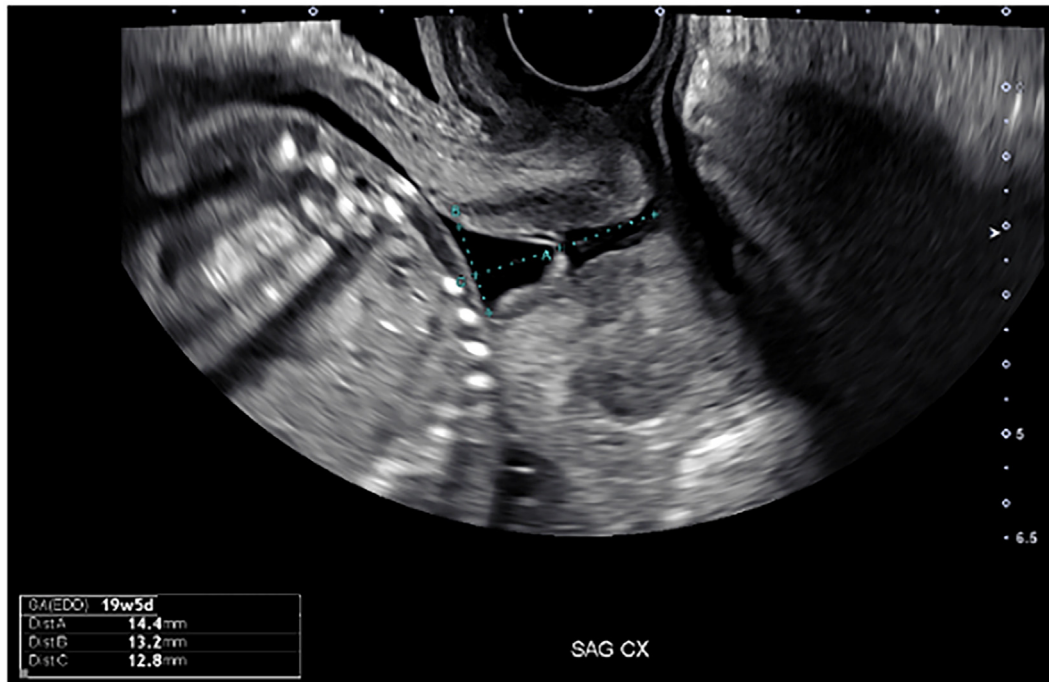
A 26-year-old woman, with a body mass index of 35, who had 7 years of infertility on a background of polycystic ovarian syndrome, conceived a DCDA twin pregnancy following subspecialty fertility consultation and letrozole for ovulation induction. She was on 1 progesterone pessary daily, vaginally, from the time of her fertility treatment. A dating scan with her fertility consultant at 6 weeks confirmed a DCDA twin pregnancy. At 15 weeks and 3 days she was reviewed in the local hospital twins clinic. She declined aneuploidy screening secondary to religious beliefs. No risk factors for or symptoms of cervical insufficiency were identified at this visit.

At 19 weeks and 4 days the patient was referred to hospital after formal morphology ultrasound showed only a 3 mm closed length cervix, with cervical funneling to a maximum width of 15 mm. There were no morphological abnormalities in either foetus. The patient was asymptomatic. A speculum examination showed a closed cervix, with some length, though shorter than expected. The patient was admitted

Abbreviations: Dichorionic diamniotic, (DCDA); Twin 1, (T1); Twin 2, (T2); Umbilical artery pulsatility index, (UAPI); Amniotic fluid index, (AFI); Preterm birth, (PTB).

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**Fig. 1.** Ultrasound image of transvaginal cervical length at 19 weeks and 5 days.

overnight to hospital and had a repeat ultrasound scan at 19 weeks and 5 days (Fig. 1). This showed a funnelled cervix with a 14 mm closed length and a funnelled width of 13 mm. The patient was advised to change the route of administration of her progesterone pessaries from vaginal to rectal and was discharged home.

An ultrasound at 20 weeks and 4 days demonstrated a funnelled cervix with an open portion 15 mm in length and a closed portion measuring 6 mm. The width of the funnelled portion was 19 mm. Progesterone pessaries were increased to twice daily, rectally, at this time.

A repeat ultrasound scan at 21 weeks and 4 days showed a 29 mm length of funnelled cervix with a closed portion measuring 4–6 mm, and bulging membranes. At review after the ultrasound the patient had no abnormal symptoms. A speculum examination showed a 5 mm open cervix with some length, and visible bulging membranes. The case was discussed at the local hospital, and with maternal fetal medicine at two tertiary facilities. Given the bulging membranes and length of cervix, a cervical pessary was not recommended, due to likelihood of failure. The recommendation was for a transcervical cerclage or expectant management. Risks, benefits and limitations of evidence were discussed with the patient, who elected for a cervical cerclage. This was inserted at 21 weeks and 5 days. 1 Nylon was used in 2 layers and the cerclage was tied at a 12 o'clock position on the cervix. The patient was kept in hospital overnight and discharged the next day with a prescription for a one-week course of antibiotics, and continued on progesterone pessaries. The patient had a repeat scan later that week, 2 weeks after this and every 4 weeks thereafter. Cervical length remained stable at around 11 mm for the remainder of the pregnancy.

At a 30-week ultrasound examination, T2 had an UAPI on the 95th centile. At 32 weeks, ultrasound demonstrated slight growth discordance between T1 and T2, at 1.7 kg and 1.5 kg respectively, and an UAPI of >95% in T2. At this time, the patient also had an elevated blood pressure of 126/90 mmHg. She was diagnosed with gestational hypertension, commenced on nifedipine and admitted for observation. A late diagnosis of gestational diabetes was also made at this time, on the basis of elevated fasting blood sugar level in hospital

(the patient had not tolerated her routine glucose tolerance test). Her diabetes was well controlled with diet management and endocrinology input for the remainder of her pregnancy. The patient was discharged home after 1 day of observation with stable blood pressure on nifedipine. Thereafter, she had twice-weekly visits, which included a blood pressure profile, pre-eclampsia investigations and cardiocographs, in addition to weekly ultrasound scans to monitor fetal wellbeing.

At 33 weeks and 1 day, she was diagnosed with proteinuric pre-eclampsia (urine protein-creatinine ratio of 132), admitted, and steroid covered. At 33 weeks and 4 days an ultrasound examination showed T1 to be 2116 g, on the 40th centile, with a head circumference on the 3rd centile, an abdominal circumference on the 50th, and normal AFI and doppler scans. T2 was 1783 g, on the 8th centile (previously 25th centile), with a head circumference on the 23rd centile, an abdominal circumference on the 7th centile (previously on the 45th), and normal AFI, but a UAPI on the 95th centile and a middle cerebral artery pulsatility index <5th centile. The patient remained admitted and was closely monitored with cardiocographs. The patient had an elective caesarean section at 34 weeks and 3 days, secondary to the aforementioned ultrasound findings and progressive pre-eclampsia. The cervical cerclage was removed at the start of the procedure.

T1 was 1830 g, with no resuscitation required. T2 was 1710 g, with Apgar scores of 3 at 1 min, 8 at 5 min and 9 at 10 min, and received CPAP on day 0 of life for transient tachypnoea of the newborn. Both twins were admitted to the nursery secondary to prematurity. The patient was admitted for 5 days postnatally secondary to her pre-eclampsia, as per protocol. Her antihypertensive medication was ceased on day 2 post-delivery and her blood pressure remained well controlled. She was discharged on day 5 postnatally. The twins were discharged at 4 weeks of life from the nursery with good progression.

### 3. Discussion

Transvaginal cervical cerclage in twin pregnancies is controversial, with data showing varying and inconclusive results. Commonly

indications for cerclage are split into history indicated, ultrasound indicated and examination indicated [3]. The patient in this case report received a cerclage secondary to both ultrasound and examination findings.

A recent review of the literature looked at the efficacy of cerclage in twin pregnancies with each of these 3 indications. There is conflicting evidence surrounding the efficacy of cerclage based on history [3]. A case-control study found a prolongation in PTB by 5 weeks on average [4]. Conversely, a meta-analysis found no benefit of cerclage in this case [5]. In a 2015 retrospective cohort study in asymptomatic twin pregnancies with a cervical length on ultrasound of  $\leq 15$  mm and cerclage inserted before 24 weeks, there was a prolongation of pregnancy by 4 weeks, and PTB at  $<34$  weeks of gestation decreased by 49% [6]. Another meta-analysis also identified better outcomes if the cervical length was  $<15$  mm at insertion [5]. Conversely, a further meta-analysis described no harm or benefit of cerclage placement based on ultrasound [7]. Examination-indicated cerclage is the most supported, with a meta-analysis identifying a prolongation of pregnancy of 6.8 weeks if the cervix was dilated at least 10mm<sup>5</sup>. These results were seen again in a randomised control trial that found a 5.4-week prolongation of pregnancy [8].

A systematic review and meta-analysis of 23 trials compared one or more of expectant management, progesterone, vaginal pessaries and cerclage for preventing PTB in twin pregnancies [9]. This study concluded that none of the aforementioned interventions made a statistically significant difference on PTB rates when compared with expectant management, regardless of indication for intervention [9]. A significant limitation of this study is the lack of patients who received cerclage as an intervention. Of the 6266 women included in the systematic review, only 44 received cerclage [9]. This highlights the lack of information surrounding the efficacy, benefits and risks of transcervical cerclage in twin pregnancies.

This case report describes an ultrasound- and examination-indicated transcervical cerclage, in a woman for whom progesterone pessaries had been unsuccessful. Although the patient delivered at 34 weeks and 3 days, this was an iatrogenic PTB secondary to the development of pre-eclampsia with fetal compromise. It is impossible to say whether the cerclage would have avoided PTB altogether, but it can be concluded that this cerclage was successful in ensuring a viable pregnancy and avoiding delivery prior to 34 weeks. This case demonstrates a successful transcervical cerclage in a selected twin pregnancy with significant cervical shortening on ultrasound and examination, and emphasises the importance of continued surveillance and multidisciplinary team involvement. Overall, there is no consensus on cerclage in twin pregnancies. Further research is required with appropriately powered studies to provide conclusive evidence on cerclage in selected twin pregnancies [2,3].

## Contributors

Gajana Jeyaram was responsible for development of the project idea, development of the article structure, researching the literature, and writing and editing of the manuscript.

Amanda Henry was responsible for patient clinical management, and manuscript drafting and editing.

## Conflict of Interest

The authors declare that they have no conflict of interest regarding the publication of this case report.

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## Patient Consent

The patient gave consent after delivery and discharge for this case report to be published.

## Provenance and Peer Review

This case report was peer reviewed.

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