Successful delayed-interval delivery in the presence of clinical chorioamnionitis in the leading twin: A report of two cases

Shobini Sukumaran, BSc[1], Devendra Kanagalingam, FRCOG[2]

[1]University of Birmingham, Edgbaston, Birmingham, B15 2TT, UK, [2]Department of Obstetrics and Gynaecology, Singapore General Hospital, Outram Road, Singapore

SUMMARY

We present two cases of diamniotic, dichorionic twin pregnancies in which after the loss of the first foetus in the setting of clinical chorioamnionitis, both pregnancies were successfully managed by delayed-interval delivery. A four-stage protocol including aspects of management in this specific setting is proposed. We consider the importance of a selection process when managing conservatively, measures to promote latency and decisions regarding delivery of the foetuses. Whilst we report successful case studies of conservative management with delayed-interval delivery, we support a cautious approach and understand that in the setting of clinical chorioamnionitis of the remaining foetus, delivery is necessary.

INTRODUCTION

In a twin pregnancy, spontaneous delivery of the leading foetus usually results in delivery of the remaining foetus soon after. The events which led to the delivery of the leading foetus will continue to exert an influence, until delivery of the remaining foetus is completed.

There have been rare situations where the uterus becomes quiescent after the first delivery and delayed interval delivery (DID) of the remaining foetus is possible. However, in the setting of chorioamnionitis of the leading twin, ascending infection and chorioamnionitis of the remaining twin is a risk and prolongation of pregnancy with DID is not routinely recommended.[1]

Based on our developing experience and case reports, we put forward four stages of management when planning DID in this setting. We propose that clinical chorioamnionitis need not necessarily be a contraindication to successful DID.

PATIENT A

A 28-year-old, primiparous woman with a dichorionic, diamniotic (DCDA) twin pregnancy, presented at 20-week gestation with preterm prelabour rupture of membranes (PPROM). The cervix was four centimetres dilated at presentation with no painful uterine contractions. (Figure 1). The patient was counselled that prognosis is poor for PPROM, with the likely outcome being either miscarriage or severe preterm delivery. Options of either terminating the pregnancy or expectant management were discussed and the patient chose to manage conservatively. She received close surveillance for signs of clinical chorioamnionitis.

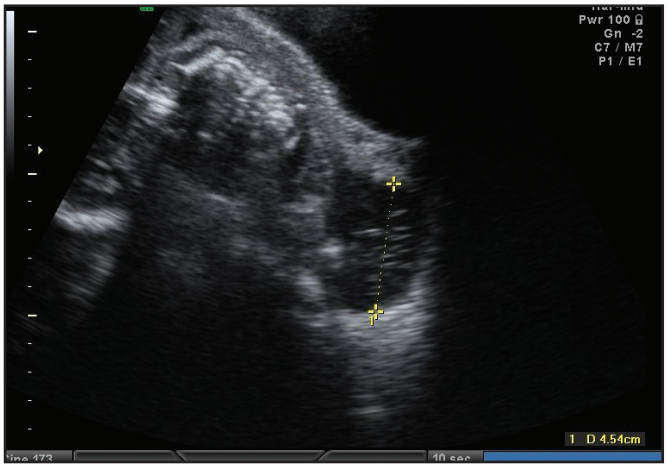

Fig. 1: 4cm dilated cervix (Patient A).

Cord prolapse of twin one occurred at 24^{+5} gestation. She was managed conservatively. Twin one was subsequently delivered stillborn. Cervical dilatation subsequently resolved. At 27^{+4} weeks gestation, the patient developed PPROM followed by maternal fever and abdominal pain. She underwent an emergency caesarean section in view of possible chorioamnionitis. Placental histology subsequently identified chorioamnionitis and severe funicitis in the umbilical cord of the earlier delivery. The delivery latency period was 20 days. After a stay in the NICU, the baby was discharged and is currently developing normally at two years old.

PATIENT B

A 34-year-old woman with a DCDA twin pregnancy, presented with bulging foetal membranes at 22-week gestation. She developed symptoms of chorioamnionitis and spontaneous miscarriage of twin one occurred shortly after. Clinical and laboratory evidence of chorioamnionitis resolved after antibiotic treatment and cervical dilatation returned to normal.

This article was accepted: 28 December 2018
Corresponding Author: Shobini Sukumaran
Email: sxs1107@student.bham.ac.uk

At 25^{+6} weeks gestation, PPROM occurred followed by signs of chorioamnionitis. She was managed with IV antibiotics and magnesium sulphate for neuroprotection. Labour ensued, but cord presentation was subsequently diagnosed necessitating an emergency caesarean-section. Histological analysis confirmed the presence of neutrophilic infiltrates in the placenta. The delivery latency period was 29 days. The baby was discharged, after a stay in the NICU and is presently developing normally at three years old.

DISCUSSION

Stage one- Initial Assessment

Traditional indications for DID are pregnancies[1] in which the leading twin has delivered due to:

1. Spontaneous preterm labour
2. Cervical insufficiency
3. PPROM

If the leading twin is delivered because of chorioamnionitis, we propose that DID be considered if other clinical features are supportive, as explained further below.

Informed consent

Following delivery of a leading twin from chorioamnionitis, DID can only be carried out after accepting the following risks

1. Risk of chorioamnionitis in the non-presenting foetus, in which case either delivery of the baby or termination of pregnancy (if pre-viable) would be necessary, to protect the mother's life.
2. By achieving latency, there remains a considerable risk of severe preterm birth and comorbidities such as cerebral palsy. The consequence of avoiding a miscarriage may be having a severely disabled child.[2]

Stage two- Delivery of the leading twin

In both cases, the delivery of the first twin occurred during a peri-viable gestational period, which can complicate decisions.

In patient A, delivery of twin one occurred shortly after cord prolapse at 24 weeks. At viable gestations, cord prolapse is usually an indication for delivery by caesarean section. This patient was managed expectantly due to poor prognosis from

1. PROM from 20 weeks which resulted in an increased risk of pulmonary hypoplasia in twin one
2. Severe prematurity of twin one. Additionally, if delivery of twin one had been attempted, twin two would also have to be delivered.

In Patient B, termination of the pregnancy was an option, but the patient opted for expectant management.

Supplementary measures to promote latency

Tocolysis is generally beneficial in optimising foetal maturity and providing an adequate interval for corticosteroid administration. Cervical cerclage[3] has also been proposed as a means to promote DID. We avoided these interventions because the presence of chorioamnionitis at the time of delivery of the first twin is considered an absolute contraindication to these measures.

Stage three- Interval between deliveries

During the interval period between deliveries, there was clinical monitoring for chorioamnionitis. Digital vaginal examinations were avoided unless there was a strong suspicion that delivery was imminent and cervical length monitoring by TVUS was used to assess changes in cervical morphology. We would expect resolution of both the signs of chorioamnionitis and cervical dilation, as a pre-requisite to subsequent DID. In both our cases, the latency interval was similar to that reported (19 days).[4]

Stage four- Delivery of the second twin

The key decisions to be made at this stage include the mode and timing of delivery. With expectant management, delivery is determined by onset of preterm labour or complications such as chorioamnionitis.

In cephalic-presenting twins, the optimal mode of delivery is vaginal. This was indeed attempted in Patient B, but cord presentation was diagnosed in advanced labour, necessitating a caesarean section. Patient A had signs of chorioamnionitis, which warranted urgent intervention with an emergency caesarean section.

CONCLUSION

Our two cases illustrate that DID can be successful, even when the underlying cause is clinical chorioamnionitis and the key prognostic predictors are resolution of both cervical dilatation and clinical signs of infection after delivery of the leading foetus. We postulate that if clinical chorioamnionitis is localised to the amniotic sac of the leading foetus, such as in DCDA twins, DID may have a good prognosis. A cautious approach is necessary and if there is evidence of chorioamnionitis of the second twin, delivery is essential.

ACKNOWLEDGEMENTS

We acknowledge the financial support of the Arthur Thomson Trust, Birmingham UK.

REFERENCES

1. Feys S Jacquemyn Y. Delayed-interval delivery can save the second twin: evidence from a systematic review. Facts Views Vis Obgyn 2016; 8(4): 223-31.
2. Wood N, Costeloe K, Gibson A, Hennessy E, Marlow N, Wilkinson A. The EPICure study: growth and associated problems in children born at 25 weeks of gestational age or less. Arch Dis Child Fetal Neonatal Ed 2003; 88(6): F492–F500.
3. Zhang J, Johnson CD, Hoffman M. Cervical cerclage in delayed-interval delivery in a multifetal pregnancy: a review of seven case series. Eur J Obstet Gynecol Reprod Biol 2003; 108(2): 126-30.
4. Arabin B, van Eyck J. Delayed-interval delivery in twin and triplet pregnancies: 17 years of experience in 1 perinatal center. Am J Obstet Gynecol 2009; 200(2): 154 e1-8.