

When triplets are born on different days: A case report about delayed delivery

Triplos que nascem em dias diferentes: Caso clínico sobre parto diferido

Marta Tibério de Almeida¹, Joana Ribeiro², Helena Carmo¹, Joana Curado¹, Marta Martins³

Hospital Garcia de Orta

Hospital Beatriz Ângelo

Abstract

Multiple pregnancies carry an increased risk of preterm birth, mortality and long-term infant morbidity. We report a case of delayed delivery following a trichorionic triamniotic pregnancy. The pregnant woman was hospitalized due to preterm premature rupture of membranes at 26 weeks. Tocolytics and corticosteroids were provided. Despite these efforts, the first fetus was born vaginally, 48 hours later. After delivery, antibiotics and tocolytics were administered to delay the birth of the remaining fetuses, which occurred after two weeks. All three babies are healthy, with normal neurological development, and the postpartum period was uneventful.

Keywords: Multiple pregnancies; Preterm premature rupture of fetal membranes; Premature birth; Newborn respiratory distress syndrome.

Resumo

As gestações múltiplas têm um maior risco de parto prematuro e morbimortalidade neonatal. Este artigo descreve um caso de parto diferido numa gravidez tricoriónica e triamniótica. A grávida foi hospitalizada devido à rutura prematura das membranas às 26 semanas, recebendo tocolíticos e corticosteróides. O primeiro feto nasceu por parto eutócico 48 horas depois. Após o parto, foram administrados antibióticos e tocolíticos, protelando em duas semanas o nascimento dos fetos restantes. Os três bebés estão saudáveis, com desenvolvimento neurológico normal, e o pós-parto decorreu sem complicações.

Palavras-chave: Gravidez múltipla; Rotura prematura das membranas pré-termo; Parto prematuro; Síndrome de dificuldade respiratória do recém-nascido.

INTRODUCTION

Multiple gestations, particularly triplets and higher-order pregnancies, pose increased risks for both mothers and newborns, primarily due to preterm delivery¹. Such pregnancies often result in higher rates of neonatal health issues and mortality, necessitating neonatal intensive care¹. In certain cases, particu-

larly before 30 weeks of gestation, delaying the delivery of the remaining twins can decrease morbidity, enhance infant survival, and increase birth weight^{1,2}.

1. Garcia de Orta Hospital, Almada Portugal, Gynecology and Obstetrics Department.

2. Beatriz Ângelo Hospital, Loures, Portugal, Gynecology and Obstetrics Department.

3. Garcia de Orta Hospital, Almada Portugal, Pediatrics Department.

The primary aim is to minimize prematurity, since it significantly impacts neonatal survival. The length of delay varies widely, ranging from 1 to 152 days³.

However, this approach is not without risks. Maternal complications, such as chorioamnionitis, postpartum hemorrhage and placental abruption, were observed in 39% of delayed-interval cases⁴. Continuous monitoring is crucial, ideally in a specialized perinatal care center. Although previous reports show encouraging results regarding increased intervals between multiple deliveries, the evidence mainly relies on anecdotal case reports, small case series, and literature reviews due to the rarity of this event. Large-scale randomized trials are lacking, and an optimal strategy for achieving successful delayed-interval delivery remains to be validated².

We report a case of delayed interval delivery in a triamniotic trichorionic triplet pregnancy. Clinical recommendations from the literature were strictly followed, so, after the first delivery, the pregnant was started on tocolytics and prophylactic antibiotics, and the umbilical cord was clamped, cut, and ligated as close to the placental insertion site as possible⁵.

CASE REPORT

A 36-year-old woman, with an uneventful medical and obstetric history apart from a recent SARS-CoV-2 infection, was admitted to the hospital at 26 weeks gestation due to preterm premature rupture of membranes in her spontaneous trichorionic-triamniotic pregnancy. She had been under monitoring at a district hospital. Ultrasound evaluations showed a healthy triple-placental, triamniotic pregnancy with low risk for Trisomies 13, 18, and 21 based on first-trimester screening. Normal fetal growth and morphology were observed for the first, second, and third fetuses (F1, F2, and F3), and the cervix measured 35 mm at 23 weeks. She was receiving acetylsalicylic acid (100 mg q.d.), progesterone micronized 200 mg (q.d.), iron and iodine supplementation.

During our initial clinical examination, the pregnant woman reported irregular contractions and a slight amniotic fluid leak, with a closed cervix measuring 26 mm. She received antenatal corticosteroids (two doses of betamethasone) and a prophylactic antibiotic re-

gimen (ampicillin 2 g and clarithromycin 500 mg). Two days later, at 26 weeks + 2 days, she went into labor and achieved a eutocic delivery of the first fetus after 12 hours. Magnesium sulfate was administered for fetal neuroprotection until delivery. A male neonate weighing 820 g was born alive with an Apgar score of 6/8/9 and umbilical vein pH of 7.20. Due to insufficient sample, umbilical artery pH was not obtained.

As the patient consented to a delayed-interval delivery strategy, the umbilical cord was clamped with Polyglactin 910 (*vicryl*®) 00 and placenta remained in utero. The pregnant was treated with intravenous tocolysis (atosiban) and received a 7-day prophylactic antibiotic course, which included 3 days of intravenous ampicillin (2 g q.i.d.), clindamycin (600 mg t.i.d.), and gentamicin (320 mg q.d.), followed by 4 days of oral cefuroxime (500 mg b.i.d.) and metronidazole (500 mg t.i.d.).

The pregnant remained under constant surveillance. Vital signs were assessed daily, and laboratory analyses (complete blood count and C-reactive protein), were conducted daily while adhering to the antibiotic regimen, subsequently transitioning to assessment every other day. Throughout this period, she maintained relative bed rest, with allowances for personal hygiene and visits to the neonatology unit. Thromboprophylaxis was administered with daily enoxaparin 40 mg and compression stockings. Fetal monitoring involved bi-daily cardiotocography and obstetric scans. At 26 weeks + 6 days, an ultrasound scan revealed that F2 was in breech presentation, weighing approximately 754 g (6.6th fetal growth percentile). The umbilical artery pulsatility index and venous duct evaluation were normal, but the cerebroplacental Doppler ratio was below the 5th percentile. F3 was in a transverse position, weighing around 790 g (10.3rd fetal growth percentile), both with normal amniotic fluid volume and no signs of placental abruption. Subsequent scans, one week later, showed normal Doppler evaluations for both fetuses.

The pregnant underwent spontaneous labor at 28 weeks + 1 day. Since the F2 was in a breech presentation, a cesarean section was chosen as the safest delivery method according to our protocol. Magnesium sulfate for fetal neuroprotection was not re-administered. Following the extraction of F2, uterine cavity

collapse complicated the delivery of F3, necessitating a vertical incision (T incision) for safe fetal extraction. F2, a male neonate weighing 920 g, had an Apgar score of 6/9/9. F3, a female neonate weighing 884 g, had an Apgar score of 8/9/9.

The placental pathology report indicated advanced maturation in the placentas of F1 and F2. The placenta of F1 showed low-grade early and late fetal vascular perfusion with focal chronic histiocytic intervillitis <10%. The placenta of F3 exhibited stromal vascular dysplasia, possibly linked to decreased placental functional capacity. No signs of chorioamnionitis were observed.

The postpartum period was uneventful, and the mother was discharged from the hospital four days after the cesarean section.

The first neonate, born at 26 weeks and 2 days, was admitted to the neonatal intensive care unit (NICU) with nasal continuous positive airway pressure (nCPAP). Initially, he experienced respiratory distress syndrome (RDS) grade I-II, without requiring surfactant therapy. On the 6th day of life, he developed *Staphylococcus epidermidis* septicemia, necessitating invasive mechanical ventilation (IMV) for 5 days, extended to 12 days due to hospital-acquired pneumonia. Following this, he remained on nCPAP until day 37 and developed chronic lung disease (CLD) of prematurity, requiring long-term low-flow oxygen support.

The second and third neonates, delivered via cesarean section at 28 weeks + 1 day, also experienced RDS grade I-II, not severe enough to require surfactant treatment. They required less than a day of IMV upon NICU admission and subsequently received nCPAP for nearly a month. Both developed CLD of prematurity, necessitating ongoing low-flow oxygen support. The second neonate had a grade 1 intraventricular hemorrhage on the left side without associated complications.

The first baby was discharged from the hospital approximately three months after birth, weighing 2600 g, the second baby was discharged two months after birth, weighing 2235 g, and the third baby was transferred to a local hospital five weeks after birth and discharged home a month later, weighing 1990 g.

All three triplets had normal metabolic screening. They relied on oxygen support until they were eight months old and experienced several viral respiratory

infections and recurrent wheezing. Fortunately, none of the triplets developed retinopathy of prematurity or hearing impairment. At the 12-month follow-up, there were no significant differences in psychomotor development and growth between the twins, although the full impact of prematurity on their development may require further evaluation.

DISCUSSION

Asynchronous twin birth, although not a novel approach, presents challenges for obstetricians due to its relative rarity. Decision-making regarding delayed delivery requires careful consideration, including clear communication of risks and benefits, patient preferences, and informed consent. The existing scientific evidence is primarily based on case reports, small case series and literature reviews. The lack of large-scale randomized trials may lead to reporting bias favoring positive outcomes, potentially obscuring the true risks and benefits.

In our case report, the first twin was born eutocic and faced a prolonged hospital stay of about 3 months due to bacterial infections necessitating systemic antibiotic therapy and prolonged ventilatory support. The subsequent twins were delivered via cesarean section two weeks later, did not encounter severe infections or require systemic antibiotics. Although their hospitalization in a tertiary hospital was shorter with fewer complications, the female twin required a similar duration of hospitalization in a local hospital.

All three infants developed chronic lung disease of prematurity, requiring prolonged oxygen therapy and experiencing recurrent wheezing episodes. Follow-up at 12 months revealed appropriate growth and psychomotor development for age in all triplets. The mother did not experience any complications.

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AUTHORS' CONTRIBUTIONS

Marta Almeida: Conceptualization, Writing – original draft, Writing – review & editing. Joana Ribeiro: Writing – review & editing. Helena Carmo: Conceptualization, Writing – review & editing,

Resources. Joana Curado: Writing – review & editing, Resources. Marta Martins: Writing – review & editing, Resources.

CONFLICT OF INTEREST

Authors declare they have no conflicts of interest.

INFORMED CONSENT

The patient gave informed consent for publication.

CORRESPONDENCE TO:

Marta Tibério de Almeida

E-mail: martalmeida_92@hotmail.com

<https://orcid.org/0009-0000-1370-2392>

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