A CASE REPORT OF PRETERM BIRTH IN TWIN PREGNANCY

1. DR. V. HEMAVATHY M.SC (N), M. A, M.Phil., Ph. D. Principal Sree Balaji College of Nursing,
2. DR. SATHYALATHASARATHI M.SC (N), Ph. D HOD of the OBG Department Sree Balaji College of Nursing,
3. P. SANGAVI M. SC (N) 1ST YEAR student of Sree Balaji College of Nursing.

Abstract:

Preterm twin pregnancies are high -risk obstetric conditions associated with increased maternal and neonatal complications. According to data from the World Health Organization (WHO) and the United Nations Children's Fund (UNICEF) together with the Partnership for Maternal, Newborn & Child Health (PMNCH) in 2020 an estimated 13.4 million babies were born too early. This case report presents a 27-year-old primigravida with spontaneous preterm labor at 29 weeks + 3 days of gestation with dichorionic diamniotic twins. With cephalic presentation Twin-1 (Male) and Twin-2 (Female) delivered through Normal vaginal delivery. Placenta delivered spontaneously after 10 mts of the delivery. After delivery mother did not get any complication like (PPH) Post Partum Hemorrhage. Both infants exhibited signs of respiratory distress and required positive pressure ventilation and NICU admission. Early resuscitation, thermal regulation, and respiratory support are provided to both neonates immediately. The twins responded well to ongoing NICU care with gradual improvement in clinical status. The healthy discharge of both preterm twins reflects a positive outcome achieved through early identification of preterm labor, skilled obstetric management, and comprehensive neonatal care.

Keywords: Twin pregnancy, Preterm delivery, 29 weeks of gestational age, Spontaneous conception, Normal vaginal delivery, Respiratory distress, Immediate resuscitation, NICU care, Neonatal outcome.

Introduction:

Premature birth is a global concern considered to be one of the main risk factors for neonatal mortality. It is the leading cause of death in children under the age of 5 years. According to data from the World Health Organization (WHO) and the United Nations Children's Fund (UNICEF) together with the Partnership for Maternal, Newborn & Child Health (PMNCH) in 2020 an estimated 13.4 million babies were born too early. Preterm survivors, especially those born extremely prematurely, may encounter lifelong health consequences, with an increased likelihood of disability and developmental delays, including adverse long-term neurodevelopmental and metabolic outcomes. The delineation of gestational age that distinguishes infants deemed too premature for intensive care from those who could gain advantages has undergone a significant shift over the last 50 years. Nowadays, the most immature infants routinely cared for by neonatologists in some parts of the world are born at 22 or 23 weeks of gestation. In current clinical practice, infants born within the range of 22–23 weeks of gestation represent a particularly vulnerable "grey zone." The medical and ethical challenges posed by infants born extremely prematurely are notable and the decision to commence intensive therapy for these infants is predominantly influenced by the hospital or the country of their birth. Twin pregnancies, especially those conceived spontaneously, are associated with increased obstetric risks such as preterm labor, preeclampsia, fetal growth restriction, and perinatal morbidity. Spontaneous twin gestation occurs without assisted reproductive technologies and has a lower incidence compared to ART-conceived twins. However, both types share similar complications. Preterm birth, defined as birth before 37 weeks, is observed in more than half of all twin pregnancies. Extremely preterm delivery (before 32 weeks) carries significant neonatal risks. At 29 weeks, the fetal lungs and other organ systems are still immature, making neonatal resuscitation and intensive care crucial. This case report presents a spontaneous twin pregnancy with vaginal delivery at 29+3 weeks, highlighting maternal management and neonatal outcomes.

Case report:

Patient Demographics: A 27-year-old primigravida at 29 weeks and 3 days gestation presented to the labour room with complaints of abdominal pain and leaking per vaginum. There was no history of trauma, fever, or vaginal bleeding. **Obstetric History:** Spontaneous conception, regular antenatal check-ups, no history of hypertension, diabetes, or infections. Ultrasound at 12 weeks confirmed a dichorionic diamniotic twin pregnancy. **On examination: Vitals:** Temp: 98.6^0 F, Pulse: 96 beats/mt, Resp: 24 breaths/mt**,** BP: 130/85 mm hg, SPO2: 98%, Weight: 61.7 kg. **Uterine size:** Corresponding to gestational age 28 cm, **Fetal heart rates**: Twin 1 FHS: 172 beats/mt, Twin 2 FHS: 168 beats/mt, **per vaginum:** Cervix 4 cm dilated, membranes ruptured since 12hrs,

Ultrasound: Confirmed a live dichorionic diamniotic twin pregnancy, both fetuses in cephalic presentation. In view of established labor and no contraindications, a decision was made for a monitored vaginal delivery.

Delivery details: Twin I (Male): Delivered vaginally, Birth weight: 1.2 kg, APGAR: 4 at 1 min, 7 at 5 min, required resuscitation with bag and mask ventilation, shifted to NICU for further care. **Twin II (Female):** Delivered 8 minutes later, Birth weight: 1.1 kg, APGAR: 5 at 1 min, 8 at 5 min, received oxygen support and admitted to NICU, Placenta delivered spontaneously. No postpartum complications.

Neonatal resuscitation and NICU care:

Both neonates required immediate resuscitation as per NRP protocol. Initial steps included thermal protection, airway clearance, and tactile stimulation. Positive pressure ventilation was initiated using bag-mask ventilation for both twins. Oxygen saturation and heart rate were monitored. Following stabilization, both were admitted to NICU. The umbilical vein catheterisation was made in the NICU infants were placed under the radiant warmer, they were intubated and 100% oxygen was given. Then the saturation was 90 - 95%. 20 ml of 0.9% sodium chloride and 10% glucose (1,5 ml/h) were administered. Blood gases analysis has been performed (results in the table 1 and table 2). Respirator ventilation of newborns was continued in the neonatal intensive care unit. Respirator settings for the female infant were: SIMV f 50/min, PIP 20 cm H 2 O, O 2 5 cm H 2 0.9-1.0, PEEP O, Ti 0.35 sec; and for the male infant: SIMV f 45/ min, PIP 20 cm H 2 O, O 2 1.0, PEEP 5 cm H 2 O, Ti 0.36 sec. Basic tests have been performed. Heart rates were 160-170 beats/min, and saturations were 90-95%. The infant's temperature was between 33.0°C and 35.5°C. The weight of the female infant was 1100 gm, and the male infant 1200 gm. 10% glucose (1,5 ml/h), dobutamine (5 mcg/kg/min), and surfactant (200 mg/kg) were given. A temporary increase in saturation to 98% was achieved. The female infant intubated with a 3.0-guage tube through the mouth to a depth of 7 cm had a big, bloated, tensed abdomen. Again, a chest x-ray was made.

Table: 1 Blood gas analysis from male infant:

Male infant	**Blood gas analysis Venous blood Fo_2: 21.0%, temp- 37.0^0 c**	**Reference values**
Blood Gas Value		
pH	7.400	7.350 - 7450
pCO_2	41.9 mm Hg	32.o – 45.0
pO_2	45.3 mm Hg	83.0 – 110
Electrolyte Values		
cNa^+	131 mmol/L	135 – 146
cK^+	3.4 mmol/L	3.5 – 4.6
cCa^{2+}	1.59 mmol/L	1.15 – 1.29
cCl^-	102 mmol/L	90 – 110
Metabolite values		
cLac	1.4 mmol/L	0.6 – 1.6
cGlu	91 mg/dl	70 – 105
Oximetry Values		
ctHb	13.5 g/dl	12.0 – 17.0
sO_2	89.6 %	
Acid Base Status		
$cHCO_3^-$(P)c	25.4 mmol/L	
$cHCO_3^-$(P,st)c	25.1 mmol/L	
ABE_C	1.0 mmol/L	
SBE_C	1.1 mmol/L	
$ctCO_2(P)_C$	59.8 Vol %	
cBase(Ecf)c	1.1 mmol/L	
Calculated Values		
$Anion\ Gap_c$	3.9 mmol/L	
Anion Gap, K^+ c	7.3 mmol/L	
CtO_2c	16.7 Vol %	
P50c	20.18 mmHg	
Hct_c	41.4 %	
Baro.	748 mmHg	

Table: 2 Blood gas analysis from female infant:

Female infant	Blood gas analysis Venous blood Fo_2: 21.0%, temp- 37.0^0 c	Reference values
Blood Gas Value		
pH	7.403	7.350 - 7450
pCO_2	48.6 mm Hg	32.o – 48.0
pO_2	40.0 mm Hg	83.0 – 108
Electrolyte Values		
cNa^+	132 mmol/L	135 – 146
cK^+	2.8 mmol/L	3.5 – 4.5
cCa^{2+}	0.85 mmol/L	1.15 – 1.29
cCl^-	97 mmol/L	90 – 110
Metabolite values		
cLac	1.3 mmol/L	0.6 – 1.6
cGlu	69 mg/dl	90 – 120
Oximetry Values		
ctHb	12.7 g/dl	12.5 – 15.5
sO_2	70.0 %	95.0 – 99.0
Acid Base Status		
$cHCO_3^-$ (P)c	29.7 mmol/L	
$cHCO_3^-$ (P,st)c	27.9 mmol/L	
ABE_C	4.5 mmol/L	
SBE_C	5.1 mmol/L	
$ctCO_2(P)_C$	69.9 Vol %	
cBase(Ecf)c	5.1 mmol/L	
Calculated Values		
Anion Gap_c	5.7 mmol/L	
Anion Gap, K^+ c	8.6 mmol/L	
CtO_2c	12.3 Vol %	
P50c	29.43 mmHg	
Hct_c	39.0 %	
Baro.	749 mmHg	

Management:

IV Antibiotics Inj. Augmentin, Inj. Amikacin, Inj. Metronidazole given for 7 days, Inj. Caffeine citrate is administered to treat apnea, IV fluids administered, gradually after 7 days intubation extubated then the infants were put in the NIV support then the target saturation and Vitals were achieved, Then the infants put in to O2 support after 24 hours no any other complications vitals are normal then the infants are put in to Room Air.

Non-pharmacological management:

Thermal regulation is maintained under radiant warmer and (KMC), Infants are kept in (KMC) Kangaroo Mother Care thrice a day for 2hours, (EBM) Expressed Breast Milk started initially through NG tube feeding and then one baby is kept in room air Paladai feeds is started 30- 35 ml per feed infants are tolerated feeds well, (NNS) Non-Nutritional Support is provided to the infants to promote Sucking Reflex, (HMF) Human Milk Fortifier is provided to the infants intermittently to meet the nutritional needs of the baby's, Daily weight monitoring is done to monitor the infant's growth and development.

Nursing management:

Avoided cold stress by pre-warming linen and equipment**,** Monitored for signs of respiratory distress (grunting, retractions, nasal flaring)**,** Administered oxygen therapy as prescribed NIV, CPAP, Hood**,** Suctioning is done whenever is needed**,** (EBM & HMF) given 3rd hourly to the infants**,** Administered antibiotics and IV fluids as prescribed**,** Monitored Vitals, input and output, Sucking reflex exercise is given**,** Maintained strict hand hygiene before and after handling the baby**,** Proper documentation done, Proper communication done to the Docter regarding neonates' condition and improvements.

Outcome:

Twin 1 weight gain: 1 kg 780 gms, Twin 2 weight gain 1 kg 720 gms, with appropriate NICU care, Nursing management and family support the neonates Twin 1 and Twin 2 attained the targeted weight. The infants shifted to room side from NICU and proper health education regarding handling of the preterm baby's is taught to the mother and family members. Advised to continue the (KMC), (EBM), (NNS), Paladai feeds every 3rd hourly the infants discharged from the hospital after 34 days from the birth date Advised the mother to review both infants after 2 weeks.

Discussion: Spontaneous twin pregnancies, while less frequent than ART-conceived twins, are similarly prone to early complications including spontaneous preterm labor. Preterm birth remains the leading cause of neonatal mortality and morbidity in twin pregnancies. Normal vaginal delivery of twins at 29 weeks is rare and requires comprehensive preparedness. Key factors influencing positive outcomes include: Prompt recognition of labor onset, Skilled birth attendants, Immediate neonatal resuscitation and NICU availability, Antenatal corticosteroids (if given) can further improve fetal lung maturity (not administered in this case due to rapid labor). This case demonstrates successful maternal and neonatal outcomes with vigilant monitoring and coordinated obstetric-neonatal care.

Conclusion:

The healthy discharge of both preterm twins reflects a positive outcome achieved through early identification of preterm labor, skilled obstetric management, and comprehensive neonatal care. Despite being born at 29 weeks and 3 days of gestation, both neonates responded well to NICU interventions, including respiratory support, thermal regulation, nutritional management, and infection prevention. Their gradual weight gain, stable vital parameters, and attainment of developmental milestones signified readiness for discharge. This case highlights the critical role of coordinated multidisciplinary care and family involvement in promoting the survival and well-being of preterm twins.

References:

Book reference:

- DC Dutta's, Text Book Of Obstetrics, Jaypee brothers medical publishers (p) Ltd, seventh edition-November 2013, page no- 206 – 210, 314 - 318.
- Myles Text book for midwives, Edited by Diane M. Fraser, Margaret A. Cooper, Fifteenth Edition, page no- 354 – 355, 433 – 449.
- American Academy of Pediatrics, American Heart Association. Textbook of Neonatal Resuscitation (NRP). 8th ed. 2021.

Journal reference:

- Aneta Michalczewska, et al, A case report of preterm homebirth in twin pregnancy, Emergency Medical Services – March 2024, XI, 1: 49-54.
- Doddamani RM et al. International Journal of Contemporary pediatrics, December 2003, Vol 10, Issue 12, Pg no- 1 to 4.