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A Case Report on En Caul Delivery of Extremely Preterm Fetus

Anisur Rahman[1], Akash Das[1], Priscilla Mary[2], Sheik Haja Sherief[2], Sivakumar T[3]

[1]Pharm D. Interns, Department of Pharmacy Practice, Nandha College of Pharmacy, Erode, Tamilnadu.
[2]Department of Pharmacy Practice, Nandha College of Pharmacy, Erode, Tamilnadu.
[3]Principal, Nandha College of Pharmacy, Erode, Tamilnadu.

Corresponding Author: Anisur Rahman

ABSTRACT

En caul delivery is defined as the fetus which is delivered completely within an amniotic sac. It is very less common with an average of 1 in 70000 live births. Vaginal en caul delivery is considered to be rarest type when compared with cesarean. We present here a case report of 2 gravida delivering a neonate male en caul vaginally at the extremely preterm gestational age of 26 weeks. The neonate did not cry immediately. It was floppy with no spontaneous respiratory effort, hence intubated and regained spontaneous effort with pick up of heart rate. Owing to very preterm, appropriate for Gestational Age, Respiratory Distress Syndrome-Neonatal Depression and Early Onset Neonatal Sepsis, the baby was pronounced dead 9 days after delivery.

Keywords: En caul delivery, Respiratory Distress Syndrome, Live births.

INTRODUCTION

"The Birth of a toddler maybe a divine miracle. If the birth of a toddler maybe a miracle then an encaul birth which occurs once during rare period should be a spectacular."

At the pregnancy period, the fetus is enclosed within an amniotic sac which is also known as caul. When normal delivery occurs, the amniotic sac will rupture and the fetus is delivered through vaginal opening. In caul delivery cases, a piece of amniotic sac may be attached to the neonate usually at head or trunk of body. The en caul delivery is when the entire amnion delivered with the neonate inside. Cesarean en caul deliveries maybe performed intentionally with surgical techniques, but vaginal en caul deliveries occur spontaneously. During normal vaginal delivery the amniotic sac ruptures when going into labour. Sometimes the labor occurs without the sac breaking, and baby is born en caul. In this type of birth, the baby may be preterm.

The amniotic sac contains mostly water inside the womb. It begins to fill with amniotic fluid shortly after conception. This provides comfortable float of baby inside the sac and also with rapid growth and development. Amniotic fluid is light yellow liquid that helps in keeping the baby warm and also provide protection. Baby may drink the amniotic liquid to keep the watery environment right. This also helps to develop lungs, stomach, intestines, muscles and bones of the baby.

If baby is born en caul, the doctor makes a little opening at the sac. The water begins to drain out of the sac and thus sac shrinks a bit over the baby. En caul delivery is not much different. The difference is that patient may not feel water breaking.

The caul is considered harmless and is removed soon by physician. It can be removed by easily slipping away from child skin. If removed too quickly it may leave wounds on infant flesh leading to permanent scars.

Respiratory distress syndrome is a type of breathing disorder that commonly affects newborn. RDS occurs mostly in babies that are born preterm and less often in fullterm new born. Babies born before 28 weeks of pregnancy are mostly affected. It is because their lungs are not able to make enough surfactants. Surfactant is a foamy substance that keeps the lungs fully expanded for new born to breathe in air once they are born. Lack of these surfactants can lead to lung collapse and may cause breathe difficulty. This can lead to the increased oxygen demand for the body of the new born and can damage brain and other organs of the baby if left untreated. RDS develops within first 24 hrs of birth. Medical advances and better treatment options have facilitated better support for RDS babies to survive.

Chest X-Ray, Blood test and ECHO are the main diagnostic tests carried out to confirm RDS. It can be treated using surfactant replacement therapy, breathing support and oxygen and fluids.

Neonatal sepsis is a blood infection that may occur due to pre term delivery. It is caused by the microorganisms such as group B Streptococcus, E.Coli, Coagulase-Negative Staphylococcus etc. it can be treated using antibiotics.

"According to folklose, Babies born encaul are destined for greatness"

CASE REPORT

A 19 year old female came to hospital on 2/1/2020 with the complaints of abdominal pain and cough with expectoration. She had history of amenorrhea for past 5 months accompanied with fever for past 3 days. There was no history of pregnancy testing and USG scan or antenatal checkup. There was no past medical or medication history. She was a 3rd degree consanguineous marriage since 2 years with a boy baby at age 1 year (FTNVD). She had regular menstrual cycle of 5/30 days not associated with pain and clots. Her bowel and bladder habits were normal. There was significant increase in WBC and decrease in Hb, HCT, MCV, MCH, MCHC values. On USG abdomen SLIUP showed 26 weeks of gestational age. On vaginal examination membrane was seen outside and hence taken into labor ward all of sudden on 2/1/2020. The patient was unaware of pregnancy. Patient delivered an encaul extremely preterm male baby on the same day. Baby was alive but did not cry immediately and also no spontaneous respiratory was observed. Suddenly handed over to the pediatrician and admitted at SNCU with ventilation. Mother was healthy and her treatment chart prescribed with antibiotics along with Ferrous sulphate tablet, calcium and paracetamol tablet. She was also blood transfused to treat anemic condition. She was counseled frequently on the baby critical condition. She was discharged against medical advice on 10/1/2020.

Baby was taken into SNCU on 2/1/2020. He was ventilated due to Respiratory Distress Syndrome (RDS). X ray suggested HMD and thus 4ml surfactant was loaded. He was prescribed with antibiotics and supportive care. The drug chart is displayed in table 1 below. On 3/1/2020 there was prolonged CRT for >4sec and weak peripheral pulses. Hence 8.4mg of dopamine in 10ml NS started as 1ml/hr. INJ.Vit K was given stat. The baby cry and activity was fair on 4/1/2020 along with normothermo, peripheral warm and oral suction positive. Tachycardia was observed with HR 194/min and resolved on its own. The baby went to apnea and bradycardia on 5/1/2020 where bag mask ventilation (BMV) was given and increased the heart rate and then connected to ventilation. Hb and Platelet levels were decreased. Baby again went to bradycardia suddenly where bilateral air entry was absent. CPR was started along with reintubation and adrenaline 1 dose o.1 mcg/kg/min provided. Baby returned to normal phase. 1 pint FFP was transfused. On 6/1/2020 the general condition of baby was poor and was under mechanical ventilation. On 7/1/2020 the baby

spontaneous respiratory effort was inadequate. Baby self extubated and went to bradycardia state where BMV was given to regain normal heart rate. Again baby tube blocked and went to bradycardia. It was reintubated with 2.5mm size ET tube to gain heart rate. On 8/1/2020 there were jerky movements on and off for baby. 14ml PRBC blood transfusion was taken place for 1 ½ hours. There was some bleed in the ventilated tube and hence blockage of tube happened leading to bradycardia. CPR was provided all of sudden and increased heart rate to >130. Reintubation processed and then connected to ventilation. On 9/1/2020 baby was on ventilation with no cry and activity very minimal. On 10/1/2020 around 8pm baby went to sudden cardiac arrest where CPR and inj. Adrenaline 0.1ml/kg IV didn't work out as heart rate doesn't increased and pupil was fixed. Hence baby was announced dead to parents.

Table 1

	DOSE	RTE	FREQ	2/1	3/1	4/1	5/1	6/1	7/1	8/1	9/1	10/1
INJ.AMPICILLIN	32.5µg	IV	Q12H	√	-	-	-	-	-	-	-	-
INJ.GENTAMICIN	75µg	IV	Q48H	-	√	-	-	-	-	-	-	-
INJ.TAXIM	70mg	IV	BD	-	√	√	-	-	-	-	-	-
INJ.AMIKACIN	25mg	IV	Q30H		√	√	-	-	-	-	-	-
10% CALIUM GLUCONATE @2.9ml/hr + 5 ml Dextrose	9ml+ 91ml	IV		-	-	√	√	√	√	-	-	-
INJ.AMINOVEN @0.5ml/hr	19ml	IV	OD	-	-	√	√	-	-	√	√	√
INJ.CAFFIENE	7mg	IV	OD	-	-	√	√	√	√	√	√	√
INJ.DOBUTAMINE 10mcg/kg @1ml/hr	0.3ml	IV	Onflow	-	-	√	√	√	√	-	-	-
INJ.MEROPENEM	30mg	IV	BD	-	-	√	√	√	√	√	√	√
INJ.VANCOMYCIN	14mg	IV	BD	-	-	√	√					
INJ.COLISTIN	56000 IU	IV	BD	-	-		√	√	√	√	√	√
INJ.ADRENALINE	0.2mg/kg/min	IV		-	-	-	-	-	√	√	√	√
INJ.PHENOBARBITONE	3.5mg	IV	BD	-	-	-	-	-	-	-	√	√

DISCUSSION

Despite en caul deliveries being very rare, we have discussed here about a case of preterm en caul delivery baby status post vaginal delivery with its treatment and progressions. Cesarean delivery en caul is the easy and effective technique for extremely preterm fetuses as it protects them from trauma due to pressure and also from uterine injury as said by Chia-Hui Lin et al.[4] Cesarean also produce benefits towards steroids course, high cord pH, Apgar scores, cord prolapse and entrapment of the head as discussed by Rohail Malik et al. [1]. Here the baby was delivered through vaginal which increased the risk fold.

Vaginal birth can be effected in extremely preterm breech pregnancies with intact membranes by adopting the en caul delivery method as said by Richmond et al. [3]

It is usually advised to be cautioned during use of sharp instruments such as forceps and scissors during the rupturing of membranes as it may damage the delicate skin of neonatal leading to permanent scarring. Respiratory distress, sepsis, and hemorrhagic complications are the most common after en caul delivery. It is advised by Rohail Malik et al. [1] that a immediate head ultrasound is required to rule out possible cerebral hemorrhagic complications. Our case didn't have any record of head ultrasound which should be encouraged.

The en caul delivery are associated with significantly higher arterial cord pH values in extremely preterm infants as said by Barbara Stoelinga et al[2]. Hence in future cases, monitoring of arterial cord pH values should be initiated along with other parameters.

CONCLUSION

It can be concluded that the preterm en caul delivery babies require monitoring of the respiratory distress along with sepsis to prevent complications. SNCU should usually be preferred for 24 hours monitoring of the baby. Cerebral hemorrhagic complication is said to have more

complication and hence further more studies is required to prove the concept.

***Abbreviations*:**

BMV – Bag Mask Ventilation
CPR –Cardiopulmonary Resuscitation
CRT – Capillary Refill Time
ECHO - Echocardiogram
ET tube – Endotracheal Tube
FFP – Fresh Frozen Plasma
FTNVD – Full Term Normal Vaginal Delivery
GH – Government Hospital
HCT - Hematocrit
HMD – Hyaline Membrane Disease
MCH – Mean Corpuscular Hemoglobin
MCHC – Mean Corpuscular Hemoglobin Concentration
MCV – Mean Corpuscular Volume
NS – Normal Saline
PRBC – Packed Red Blood Cells
RDS – Respiratory Distress Syndrome
SLIUP – Single Live Intrauterine Pregnancy
SNCU – Sick Newborn Care Unit
USG – Ultrasonography
WBC – White Blood Cells

REFERENCES

1. Rohail Malik, Adil Sarfraz et al.,"Extremely Preterm (23 Weeks) Vaginal Cephalic Delivery En Caul and Subsequent Postpartum Intraventricular Hemorrhage and Respiratory Distress". Hindawi Case Report in Obstetrics and Gyenocology, Volume 2018, April 2018.
2. Barbara Stoelinga, Jessica Bienstock et al., "En Caul Delivery of Extremely Preterm Infants: Does It Make a Difference?", American journal of obstetrics and gynecology, Volume 195, Dec 2006.
3. Richmond, Jane R et al., "Extremely Preterm Vaginal Breech Delivery En Caul", PubMed.Gov Obstetrics and gynecology, Volume 99, June 2002.
4. Chia-Hui Lin, Shin-Yu Lin et al., "Extremely Preterm Cesarean Delivery "En Caul", Taiwanese Journal of Obstetrics and Gyenocology, Volume 49, September 2010.

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