

Twin Caesarean Delivery "En Caul" – A Case Report and Review of Literature

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INTRODUCTION

Intact amniotic fluid membranes may serve to protect the extremely fragile preterm infant from some of the mechanical shearing forces caused by strong uterine contraction. A "caul" delivery occurs when part of the amniotic sac is still stuck to the neonate at the time of delivery, usually attached to the cephalic end or podalic end. An "en caul" delivery is a subtype of caul delivery, which occurs when the entire intact amnion (amniotic fluid sac) is delivered with the neonate inside.^{1,2} This article introduces the technique of "en caul" Caesarean delivery and reviews our experience.

Abdominal (or Caesarean) en caul deliveries can be performed intentionally with surgical technique, on contrary to vaginal en caul deliveries, which occur spontaneously; as a result, vaginal en caul deliveries are considered to be rarer though exact statistics are difficult to determine. According to some estimates, caul deliveries would be 1 - 2 %, or roughly 1 in 80,000, of all vaginal deliveries if no membranes were artificially ruptured (ARM / Amniotomy).^{2,3}

Most en caul births are low gravida, premature and low birth weight (LBW). Prematurity is a significant risk factor for various postpartum complications and is hazards. Previous case reports have poorly described pertinent maternal information beyond gestational age at birth (e.g., past medical history, past surgical history, familial history, and demographic data) which could be used to analyse additional risk factors for en caul birth.

PRESENTATION OF CASE

We describe a case of term size en caul delivery of twin (both) female infants at 37 weeks (by last menstrual period (LMP)) with a weight of 2200 grams and 1500 grams to a gravida 1, para 0 + 0, Asian Indian 16-year-old teenage female, married for 2 years, teenage pregnancy with multifetal gestation presented at 37 weeks by LMP and 36 weeks by earliest ultrasonography and was a booked case. The twins were healthy and normal in all parameters in their early neonatal period & mother was well till early puerperium. We present clinical parameters and observations for management of en caul birth and postpartum complications with a review of the existing literature of en caul in our study.

The patient presented with contractions and 3 hours of worsening lower abdominal pain. She did not have vaginal bleeding, spontaneous rupture of membranes, or decreased fetal movements. Her body mass index (BMI) was 26.3; rest of her vitals were within normal limits; pulse - 78 / min, BP - 168 / 114 mmHg. The cervical os was dilated to 1.5 centimeters and was 20 % effaced, station was 2; membranes were bulging, and the presenting part was high up and footling. The prenatal lab reports were within normal limits. The patient was admitted to the labour and delivery unit and an emergency lower segment Caesarean section (LSCS) was planned for severe pregnancy induced hypertension (PIH) and 1st twin breech footling. Antenatal steroid therapy was not administered due to the rapid progression to delivery and term size pregnancy, slow intravenous infusion of labetalol 10mg was given.

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Figure A.
Surgeons
Hand Goes in
between
Uterine Wall
and Amniotic
SAC



Figure B.
1st Twin
Delivered En
Caul



Figure C.
2nd Twin
Delivered En
Caul



Figure D.
Immediately
after Delivery

The patient delivered a 1st viable female at 36 weeks with an intact placenta of 2.2 kg which was within the amniotic sac as a unit "en caul." Followed by 2nd twin with intact en caul of 1.5 kg female by emergency LSCS by spinal anaesthesia at L5 - S1 level. The amniotic sac was immediately torn, and a female newborn was extracted,

assessed, and managed by a neonatologist. The amniotic fluid was clear with no visible abnormalities.



Figure E.
1st Twin
Post-Partum
Day 5



Figure F.
2nd Twin Post-
Partum Day 5

The delivery of the infant with placenta took 45 minutes by LSCS and intra operative BP was 186 / 124 and prophylactic magnesium sulphate was given by Pritchard regimen for post-partum 24 hours, along with inj labetalol 10 mg BD. Both the new-born's Apgar scores were 4, 6, and 8 at 1, 5, and 10 minutes, respectively for both twins. No lacerations / extensions or tears were noted, and the fundus of the uterus was contracted, and abdomen closed in layers.

Early post-operative period was uneventful, and babies were breast fed and vaccinated. Post-partum, mother and both babies were healthy and uneventful and were discharged on day 7 post-partum.

DISCUSSION

Although en caul births are exceedingly rare, we provide here clinical guidelines covering the scope of emergent management and treatment of possible complications of en caul birth. It is well known that the caul itself is generally harmless and easily removed.

However, if a situation arises where rapid rupturing of membranes is required, especially using sharp forceps or scissors, we advise caution. Sharp instrumentation can pierce or damage the delicate neonatal skin, which may result in permanent scarring. Premature neonates have particularly labile skin, so clinical dexterity during removal process is advised. The majority of en caul deliveries occur in premature neonates.^{2,3,4}

Our case is a term size twin pregnancy with 37 weeks delivered by LSCS en caul. En caul delivery may serve a clinically protective function in this high-risk cohort. In a

comparative analysis with premature vaginal non-en caul deliveries, the benefits of en caul delivery are manifold. First, intact amniotic membranes provide a protective buffer from mechanical forces, such as potential bruising injuries and other examples of labour and delivery trauma during strong uterine contractions. Cesarean delivery en caul is effective from pressure trauma and also results in less uterine injury.¹ Other benefits include the opportunity to complete a course of steroids, high cord pH, higher 5 -minute Apgar scores for extremely preterm infants, protection from cord prolapse, and decreased risk of entrapment of the head in the setting of an insufficiently dilated cervix.^{4,5,6}

REVIEW OF LITERATURE

We conducted a review of literature of the en caul case literature from 1975 to 2020, with PubMed, index words "en caul," "enclosed in an amniotic sac," "born in a caul," English only, and excluding meeting abstracts / conference presentations.

One case report documents vaginal en caul birth at 17 weeks of a nonviable fetus to a 35-year-old with no postpartum complications; unfortunately, the case had no further relevant details.² Another report describes a birth at 22 weeks and 6 days to a nulliparous woman; the infant died at 23 hours due to intraventricular haemorrhage and sepsis.⁵

A third case outlines a birth at 23 weeks and 2 days to a 1 + 2 para woman; the infant died at 19 hours due to pulmonary hemorrhage.⁵ There is also mention of a birth at 23 weeks and 5 days to a 0 + 2 para woman; the infant was discharged at 104 days of life with no further information available regarding her health.⁵ One short case report from 1975 described en caul birth at 34 weeks, living in the caul for 25 minutes on its way to the hospital and then undergoing immediate resuscitation.

Three years after the case, when the article was published, no complications were identified that could be connected to being en caul.⁷ Another case recounts a 23-week infant born via Cesarean section who lived without any complications.⁸ Respiratory distress, sepsis, and haemorrhagic complications are common postpartum sequelae for a new-born after en caul birth. From these case reports, however, it can be said that the preterm complications of en caul are similar to those of preterm non en caul delivery. The link between en caul birth and neonatal survival time is poorly understood at the current knowledge. Apart from prematurity, these published cases do not mention other risk factors. Gravidity previously hasn't been proposed as an independent risk factor for en caul birth with postpartum complications.

From the review of online literature, to the best of our knowledge, our case of en caul birth has the lowest age (16 years) group that has been reported; most of the other en caul cases have high age but, we can easily conclude that en caul birth may be an expected physiologic presentation and a rare occurrence that occurs randomly without particular effect but can be a saviour to preterm neonates from birth trauma.

CONCLUSIONS

Cesarean delivery en caul is undoubtedly an effective and easy method for preterm fetuses to save them from shearing pressure trauma and also results in less uterine injury.

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Disclosure forms provided by the authors are available with the full text of this article at jebmh.com.

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