

# Case Report

## An Extremely Low Birth Weight Female Baby surviving in a Hospital in Addis Ababa

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### *Case summary*

This case report is about an extremely low birth weight baby who was born to 32yrs old Para-III lady at gestational age of 27<sup>+1</sup> week by date. The delivery was at Girum general Hospital. The mother had two previous pregnancies ended with intrauterine fetal death one at gestational age of 28 weeks and the other at gestational age of 32 weeks due to severe preeclampsia. This pregnancy was planned, wanted and supported.

The mother was having Antenatal Care (ANC) follow up for the current pregnancy and she was told to have hypertension a month back before the termination of the pregnancy for which she was taking medications. The ANC was at Myungsun Christian Hospital. Since it was not possible to control the hypertension, termination of the pregnancy was planed and the mother was given dexamethasone for 48 hrs before the termination.

As soon as termination of the pregnancy was decided, thorough discussion was made with both parents about the possible outcomes.

On14/9/2010, emergency C/S was done for severe preeclampsia. The outcome was an alive female baby weighing 645gm with Apgar score of 5&6 at first and fifth minute respectively. Immediately after stabilization, the new born was transferred to the hospital's Neonatal Intensive Care Unit (NICU).

Immediately after delivery the baby was in severe respiratory distress. It was possible to get surfactant and one dose was given (after termination was thought to be inevitable, parents were told to get surfactant and it was possible to bring it from abroad). With the diagnosis of preterm, extremely low birth weight, severe hyaline membrane disease and cesarean section delivery, she was put on mechanical ventilator, surfactant was given, umbilical catheter inserted, and ampicillin and gentamycin was started. She needed ventilation for two weeks. During he hospital stay she was treated for culture proven sepsis twice. She had apnea of prematurity till 35 weeks of post menstrual age and given aminophylline. During her stay in the hospital, the baby was transfused three times for severe anemia (due to anemia of prematurity). Oral vitamin D and iron was also started. She was oxygen dependent till 4 months of her chronological age. She stayed in the NICU for three months and discharged after arranging oxygen administration at home. The weight at discharge was 1565 gm. At discharge, brain ultrasound, and blood pressure measurement were done and found to be normal. After discharge ophthalmic evaluation was done and there was no evidence retinopathy of prematurity.

The following values indicate the growth and development patterns of the baby:

- *Girum General Hospital ,Addis Ababa Ethiopia*

**Weight:**

At birth- 645gm, At 3 month- 1565gm, At 6months- 3405gm, At 10months- 5600gm, At 15months- 6500gm, At 18months- 8000gm

**Development:**

At 6months- able to support head momentarily.

At 8 months- able to sit with support

At 10months- able to identify family face.

At 18months- able to walk with support and say mama and baba .

**Review of Literatures**

Delivery of Extremely preterm babies can be due to rupture of membranes or as a result of intended delivery for fetal distress and other obstetric complications. Data are showing that preterm deliveries are increasing both in absolute number and as a proportion of all births. For example in England in 2006 alone 0.3% of all births were extremely preterm. Similar trend is being reported in other Western European countries and the USA (1).Side by side the survival of very preterm babies is increasing progressively over the past decades due to the advance of medical care for such babies (2).The advent of modern perinatal and neonatal care has increased the survival rates of these babies to approach 3 in 4 live births. However such children have higher rates of adverse health outcomes and they deserve follow up over time (3). Practices like administration of maternal antenatal corticosteroids, improvements within organized neonatal and perinatal networks, administration of surfactant, maintaining normothermia and acid base balance, preventing hypoglycemia, increased use of non invasive continuous

At 19months-able to speak about 4words and stands without support momentarily.

In conclusion, this baby was born prematurely with extremely low birth weight and stayed in the NICU for 3months; she was treated for culture proven sepsis twice, and had bronchopulmonary dysplasia (she was oxygen dependent for more than 36weeks of the post menstrual age).

The purpose of this case report is to ignite questions in the minds of pediatricians and other professionals working in the field of neonatal care in our country so that we can work together in a better way to improve the outcome of extremely low birth weight babies. Could this baby be the first reported case in our country who has survived with such birth weight?

positive airway pressure than mechanical ventilator and improved neonatal nutritional practices have improved the survival of extremely preterm babies (1).

Whenever delivery of 22-26weeks gestation is expected, periviability counseling to the parents is strongly needed. The counseling process has to be understandable and comforting to the family. It is recommended that hospitals that provide high-risk obstetric and neonatal intensive care should have guide line for periviability counseling which should be informative, supportive and clear to the parents (4).

Extremely premature infants are at risk of developing both immediate and long term morbidities. Immediate neonatal morbidities such as necrotizing interocolitis, respiratory problems, patent ductus arteriosus and sepsis are some of the anticipated problems (1).

Animal study has shown that ventilation can cause pulmonary injury. As a result of the ventilation there is a stress response and release of inflammatory cytokines in small and medium sized airways (5).

The Swedish study found that extremely immature babies are smaller in weight, height and head circumference than matched control groups of children born at term when compared at the age of eleven years old. They exhibit catch-up growth in weight and height up to eleven years but they don't have catch-up growth in head circumference after the first six months of life (6). Similarly the EPICure study has also revealed that extremely premature babies who were born at 25 completed weeks of gestation had lower weight, height, and head circumference compared with full-term classmates when they reach early school age (7). Intracranial hemorrhage particularly cerebroventricular hemorrhage is more frequent in preterm babies than in term infants. Developmental delay, learning difficulties, and behavioral problems also occur more commonly in children who were born extremely premature (8). Rate of cerebral palsy also increases as gestational age decreases in very preterm babies. For those less than 26 weeks of gestational age it ranges from 16-28% and for those less than 32 weeks the range of occurrence is about 6-9%. In very preterm babies cognitive deficit may become more apparent with increasing age. Language and behavioral problem is another sphere of development where such babies are found to have lower than the controls. Visual and hearing disability is also gestation dependent. For example, 10% of those with gestational age less than or equal to 26 weeks were found to have severe visual disability as compared to 2% of those born at greater than or equal to 28 weeks of gestation (9, 10). The Dutch prospective study found out that 12.6% of young adults who were born very preterm and/or with a very low birth weight had moderate or severe problems in cognitive or neurosensory functioning (11).

But a longitudinal study done in Norway indicated that there is no difference in social

functioning and school performance among low birth weight young adults and normal birth weight young adult control groups (12).

Babies who are born with low birth weight are at risk to experience differences including higher blood pressure, lower insulin sensitivity and lower pulmonary function as compared to the normal birth weight babies when they become young adults (13, 14).

Prematurity has also an effect on the lung on long term basis and pulmonary problems are also common immediately after birth. In a prospective cohort study, it was associated with lower FEV1 and exercise capacity in those who are born at gestational age less than 32 weeks and/or birth weight less than 1500gm compared with healthy term control subjects when they become young adults (15, 16, 17). More chest deformity and increased respiratory morbidity is also seen in children born extremely premature as compared to class room controls at the age of eleven years (18).

Bronchopulmonary dysplasia (BPD) is the lung complication that can be anticipated in very preterm babies. Babies with BPD can have an excess of respiratory symptoms at school age and more abnormalities on pulmonary function testing than preterm survivors without BPD (9). Many of the survivors who are born at less than 28 weeks gestational age develop bronchopulmonary dysplasia and some can be oxygen dependent sometimes for years (8). Structural pulmonary abnormalities such as emphysema is also common in such individuals (19).

In chronic neonatal lung disease supplemental oxygen at home is recommended. In such condition oxygen administration at home has many benefits. It reduces or prevents pulmonary hypertension, reduces intermittent desaturations and airway resistance as well as promotes growth and neurodevelopment.

Supplemental oxygen at home is also preferable with regard to the quality of life and psychological impact for the infant and family as compared to hospital stay. Chronic neonatal lung disease is the main reason for administration of oxygen at home. For example, in June 2007, 60% of children who needed home oxygen in England and Wales were due to chronic neonatal lung disease (20). In one study out of those who need supplemental oxygen due to BPD after 36 weeks of post menstrual age, the median duration of oxygen need was up to 2.5 months of age (21).

Retinopathy is another complication seen in extremely premature babies. Ethnic wise screening for retinopathy of prematurity found out that black and Asian preterm babies have a higher risk of developing retinopathy of prematurity compared to the white preterm infants (22).

Mortality of preterm babies is predicted by gestational age and birth weight and there is a progressive decrease in mortality over time except in those less than 24 weeks of gestational age (9). Other factors such as being female sex, adequate administration of antenatal steroids and caesarean delivery are reported to favor increased survival in extreme preterm babies (1).

## **Lessons learned**

With regard to child health, Ethiopia is striving to attain the millennium development goal which is going to end in 2015. Without taking action to reduce neonatal mortality, it doesn't seem that it is possible for the nation to achieve the target for reducing the under five mortality rate. Prematurity is one of the major causes of neonatal death in the country. Hence to attain the millennium development goal with regard to child health, we need to improve the care for preterm babies. I believe that having well staffed and well equipped neonatal intensive care unit is one solution for such a problem. The survival of this baby with such birth weight can be a good testimony for my idea. The baby required mechanical ventilator, several times transfusion, twice treatment for culture proven sepsis, oxygen administration for several months, surfactant administration and intensive follow up and nursing care. All these have contributed to the survival of this baby. To improve the survival of the preterm babies we need to improve the existing neonatal intensive care units and establish new ones, provide continuous medical education for the staff working on the field and make available some drugs like surfactant.

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