A surviving baby born 24 weeks of gestational age and 490g weight without mechanic ventilation and surfactant replacement

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The infant weighing <500g at birth is still considered previable.[1] Recently, with the improvements in neonatology, extremely low birth weight neonates are capable of surviving. The survival rate of infants born from 22-25 weeks of gestation increases with each additional week of gestation. Babies born before 22 weeks of gestation have a survival rate of 0%. In advanced centers, babies born at 24 weeks of gestation have a survival rate of 33%. In these infants, the most striking complication, being the highest incidence is retinopathy of prematurity (ROP).[2] Approximately 30-50% of surviving children who weighed less than 750g at birth, or whose gestational age was less than 25 weeks had a moderate to severe disability, including blindness, deafness and cerebral palsy (CP). Many infants had more than one disability.[3] Among surviving infants born at 23-24 completed weeks, 20-30% had disabilities such as cerebral palsy, hydrocephalus, severe cognitive deficit, blindness, deafness or a combination.[2,5]

In this report, we present an extremely low birth weight infant, born at 24 weeks of gestational age and weighed 490g, survived without any disability except blindness in the right eye despite not being admitted in neonatal intensive care unit (NICU). The baby was born at 24 weeks of gestation via spontaneous vaginal delivery as the second of a twin to a 27-year-old healthy mother. The first of the twin, a male weighed 550g, died shortly after delivery. From her history, it was learned that the mother had been admitted to the hospital due to the premature rupture of membrane and uterine contractions at the end of the twenty-third week, she had regular checkup and ultrasound in the maternity hospital and was asked to be referred to a hospital having an NICU. However, the parents refused to be referred to another hospital, as they believed that the baby would not survive and due to financial problems. On the initial physical examination, her weight was 490g and length 28 cm. She was hypoactive, hypothermic, and acrocyanotic. The skin was slightly edematous, thin and gelatinous. Sucking reflex was weakly positive. The breathing was 72, and heart rate was 140 per minute. The rest of the physical examination was unremarkable. According to the New Ballard scores', it was appropriate to the one born at 24 weeks, and it was small for gestational age (SGA). She was put in the incubator and started to receive oxygen with hood, as a ventilator did not exist in the hospital. Peripheral oxygen saturation varied between 80-95%. Her skin was scrubbed with olive oil and an appropriate parenteral fluid and electrolyte therapy was provided. Breast milk feeding in drops was started on day 4, which was increased gradually. As she improved, an anemia was noted, for which fresh whole blood was transfused on day 11, 20, 33 and 37. On the 20th day she lost 20% of her body weight and was reduced to 420g. After 40 days her weight was 500g and started to be fed orally, she gained weight faster. On the 50th day she reached 620g and on the 90th, 1500g. Grade 5 ROP was defined in the right eye at the fourth week and was kept under control. At the end of the third month, the baby was discharged from the hospital. Her controls, physical and neuromotor developments were appropriate for her corrected age. On the last examination in the 14th month (corrected age 10th month), her length was 70cm, weight 7000g and head circumference was 41.5 cm. The physical examination finding was normal except blindness in the right eye. She was considered appropriate for her corrected age with Denver's developmental screening test.

Today, even in the most developed NICUs, extremely premature babies hardly survive. Even though, a baby born weighing between 500-600g and at 24-25 weeks manages to survive, disabilities will is unavoidable.[2] The birth of infants weighing 500g or less can be even more of a dilemma, as these infants are considered previable, yet some will respond to even the modest resuscitation efforts.[6,7] In addition, when faced with an infant weighing < 500g, some physicians may feel an obligation to proceed with maximal resuscitation and initiation of neonatal intensive care as such infants occasionally survive, even though they are below what is considered the stage of viability, which has been defined as either the point of ability to survive or the point of ability to grow and develop normally.[1] The baby was considered at 24 weeks of gestational age according to the last menstrual date, ultrasonographic scanning and New Ballard score, and she was SGA. The baby was put in an incubator in an appropriate level of humidity and warmness, and started to receive oxygen with hood. The body was scrubbed with olive oil every day. Eye and umbilicus care was carried out. She was given appropriate liquid, electrolytes, vitamins, calorie and begun prophylactic antibiotic, and the most importantly, fed with her mother's breast milk as soon as possible. With all these efforts, the baby improved and at the end of the third month, she was discharged healthy except for the blindness in one eye.

In a study, only 18 out of 382 babies born less than 500g (4.7%) were discharged alive from the hospital. Most of the babies were treated in NICU for weeks, and spent much money. Only one of the 18 infants discharged alive was considered to have appropriate weight for gestational age, the other 17 were SGA. Of the 18 infants discharged from the hospital alive, there were 13 survivors, to live beyond 3 years of age; the other 5 died during the first year of life from disabilities. Four infants had no disabilities, 4 had one disability (one CP and 3 mental retardation [MR]), and 5 had multiple disabilities (3 CP and MR; one with CP, MR and blindness, and one with CP, MR, blindness and deafness).[1] As the possibility of survival is low and the possibility of having disability is high and the high rate of costs, the decision of active resuscitation and carrying on intensive care is difficult in case of these babies.[6,7] It is pleasing that the neuromotor development of our patient is normal up to the 14th month; there is only one eye blindness. In the situation of chronic placental insufficiency and intrauterine stress, fetal maturation can be better and glucocorticoids, thyroid hormones, epidermal growth factors and cyclic AMP have positive effects on the lung maturation and production of surfactant. As the hyaline membrane disease (HMD) is commonly seen in male newborns, it is thought that androgens have negative effects on HMD's.[8]

In our patient, there was no explanation of having good maturity other than, stress factor as twins, and female born infant.

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Neonatal systemic candidiasis. *A 14-year review*

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The case records of all neonates admitted to the Special Care Baby Unit (SCBU), Al-Wasl Hospital, Dubai, United Arab Emirates (UAE) in a period of 14 years from May 1987 to April 2001 were analyzed, a total of 9060 admissions, 102 were diagnosed to have systemic candidiasis (1.1%). The mean gestational age was 29.3 weeks and birth weight 1131g. Fifty-two percent were premature, less than 1000g and only 2% were full term infants. All had undergone either umbilical, or peripheral vein catheterization and had received broad spectrum antibiotics except 2 with congenital candidiasis. Lethargy persistent pulmonary infiltrates, recurrent apnea, gastric intolerance and abdominal distension were the common clinical features. Persistent thrombocytopenia sustained more than 3 days was the most common finding in the peripheral smear. Two patients with congenital candidiasis presented with severe leukocytosis [white blood cells (WBC) count >25000/mm^3] without thrombocytopenia. Urine and blood were the most common site for isolation of candida. Twelve percent of death were attributed to candida. Amphotericin B was used in all babies and in 7 cases, 5 flucytosine was added. Five infants had transient rise of blood urea nitrogen >30mg/dL or serum creatinine level >1mg/dL or both.

This study is a retrospective analysis of culture-verified cases of neonates systemic candidiasis. The records were evaluated for gestational age, sex, birth weight, indwelling catheters, days on antibiotics at the onset of symptoms, treatment details and outcome. The clinical data were collected on