Case Reports

Abha septuplets and total infant survival

Asindi Asindi, FRCPC, Ahmed Saleh, FRCOG, Adekunle Sobande, MRCOG, Fuad Abbag, FRCPC, Hind Moussa, MD, Rajesh Malhotra, MD, Soad Habeeb, MD.

ABSTRACT

Following the use of multiple fertility-enhancing drugs, a Saudi mother gave birth to a set of septuplets on the 14th of January 1998 at a gestational age of 32 weeks. All the infants (4 boys and 3 girls) are now 8 months old and healthy at the time of reporting. This is the first set of septuplets in Saudi Arabia, and the 2nd in the world known to have survived. High-order pregnancies and births are fraught with medical and socio-economic difficulties; caution should, therefore, be maintained in the use of fertility drugs.

Keywords: Septuplet births, total survival.


High-order pregnancy with births of 5 or more infants commonly excites both the medical and non-medical communities. With the increase in the use of fertility-enhancing drugs, there is a concomitant rise in the incidence of multi-fetal gestation.1 3 Following the use of induction agents, a Saudi mother gave birth to a set of septuplets in Abha Maternity Hospital, Saudi Arabia, on January 14th 1998 and all the infants are currently in their 8th month of life. This is the first set of septuplets in Saudi Arabia and the 2nd in the world who have survived. It is therefore desirable to communicate the scientific details of this pregnancy and births so that patients and practitioners alike are aware of the possibility of a successful outcome of such multiples. The main focus of this account is on the pediatric aspects, as the details of preconception management, pregnancy and delivery constitute the subject of a separate communication.

Abha, with a population of about 20,000, is the largest city in the Assir Province, which is in the Southwestern part of Saudi Arabia. Abha Maternity Hospital has 100 obstetric beds, 4 delivery rooms and a 20-bed Neonatal Intensive Care Unit (NICU). It is a Teaching Hospital for Obstetric and Gynecology training of medical students of the College of Medicine, King Saud University and concurrently serves as a tertiary referral centre for Obstetrics and Gynecology in Assir province.

Case Report. A 43-year old Saudi woman, presented in the 8th week of pregnancy for antenatal care in Abha Maternity Hospital (AMH). She was a mother of 2 boys and 2 girls aged 12, 9, 5 and 3 years. The last child was delivered by a lower segment cesarean section due to fetal distress and this was followed by 2 more pregnancies which ended in 1st trimester abortions.

The last abortion was followed by a period of secondary infertility, hence she consulted a health center where she was put on several drug regimens consisting of clomiphene citrate, norethisterone, human chorionic gonadotropin and menotropin in
various combinations and doses. She became pregnant in the 11th month of the medication (last menstrual period: 8.6.97).

On first presentation at AMH on August 5, 1997 for antenatal care (8 weeks by date), ultrasound scanning of the abdomen revealed 5 gestational sacs (quintuplets); but on repeating this examination at weeks 13, 18 and 22, only 4 sacs (quadruplets) could be demonstrated. Her height was 152cm. Blood group: A positive. She is a known gestational diabetic and the index pregnancy was complicated with diabetes mellitus and pre-eclamptic toxemia (PET). The former was controlled with diet only and the PET was managed with methyl dopa 750mg/day in 3 divided doses plus diazepam 5 mg at bed time. She also received regular vitamin C, folic acid and iron tablet supplements but turned down all offers for admission in the 3rd trimester for continuous bed rest prior to delivery. With the expectation of quadruplets and in view of a previous cesarean scar, a mandatory cesarean section was planned and the patient was therefore advised to report at the onset of labor pains. The expected date of delivery was 16.3.98. On January 14, 1998 she was admitted in an established labor with a blood pressure of 130/90 mmHg; the cervical os was 4-5cm dilated with a breech presenting. By emergency lower segment cesarean section, a set of septuplets (4 males and 3 females) was delivered at the gestational age of 32 weeks. There were 7 separate amniotic sacs and 7 placenta pieces, 2 of which were minimally fused with a clear line of cleavage; total blood loss was estimated at 650 milliliters. She had bilateral tubal ligation on consent. Four pediatric teams had been designated and 4 resuscitating stations were arranged. Extra hands had to be obtained from the NICU to meet the demands of the 7 babies.

The septuplets. Septuplets 2 and 3 required face mask oxygen only while the rest of the infants needed intubation with ambu-bagging in the delivery room. The estimated gestational age of the infants was 32 weeks. None of the infants received surfactant because it was not available. All the infants were physically normal; none had any detectable congenital malformation. They were all put on intravenous dextrose infusion as an initial source of calorie and later graduated through tube to bottle feeding. The bio-data of the infants at birth are provided in Table 1.

Septuplet 1. Naif: He was ventilated in the delivery room with an ambu-bag via an endotracheal tube. On arrival in the NICU he was switched over to head box oxygen, which he needed for 48 hours. Enteral feeding was commenced on day 4; he tolerated very well and gained weight satisfactorily.

Septuplet 2. Nora: She did not have any problems and was fit for discharge on 28.2.98 (age 6 weeks) with a weight of 2000gm.

Septuplet 3. Sultan: He received 2 packed cell transfusions to correct unexplained drop in hemoglobin. From the age of 7 weeks he developed a left hydrocele but has otherwise remained well.

Septuplet 4. Hinda: She required face mask oxygen in the first 4 days of life. On the 3rd day she developed apnea of prematurity which responded very well to theophylline. She remained well thereafter.

Septuplet 5. Anood: She developed hyaline membrane disease from the age of 6 hours and required mechanical ventilation for 5 days only. Subsequent course in hospital has been uneventful.

Septuplet 6. Fahad: He had a severe hyaline membrane disease which required 10 days of mechanical ventilation with high settings. Following extubation, he remained oxygen dependent for more than 4 weeks and chest radiograph findings were consistent with chronic lung disease. This was managed with frusemide, theophylline and dexamethazone. In the 3rd week of life he had Klebsiella pneumonia septicemia and was treated with amikacin and cefotixin to which the organism was sensitive. At the age of 6 weeks he had completely reverted to normal.

Septuplet 7. Salman: He was well until the age of 6 weeks when he became dyspneic and oxygen dependent. Chest radiograph defined bilateral pneumonia and, subsequently, chronic lung disease. He responded satisfactorily to antibiotics and management for chronic lung disease as was applied on septuplet 6 and was fit for discharge at the age of 10 weeks.

All the infants tolerated enteral feeding satisfactorily, none requiring intravenous alimentation at any stage. Repeated evaluation of the cardiac system, central nervous system and the biochemical status of these children have revealed no abnormalities. We did not find any cause to perform cranial ultrasonography on any of the babies.

Table 1 - Sex, anthropometric measures, hemoglobin and blood group of the septuplets at birth.

<table>
<thead>
<tr>
<th>Septuplets</th>
<th>Sex &amp; Blood group</th>
<th>Weight (gm)</th>
<th>Length (cm)</th>
<th>Head cir.</th>
<th>Hemoglobin (g/L)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>M, ORh neg</td>
<td>1150</td>
<td>39</td>
<td>28</td>
<td>195</td>
</tr>
<tr>
<td>2</td>
<td>F, ARh neg</td>
<td>1200</td>
<td>36</td>
<td>29</td>
<td>154</td>
</tr>
<tr>
<td>3</td>
<td>M, ORh neg</td>
<td>900</td>
<td>36</td>
<td>25.5</td>
<td>180</td>
</tr>
<tr>
<td>4</td>
<td>F, ORh pos</td>
<td>950</td>
<td>36</td>
<td>25.5</td>
<td>148</td>
</tr>
<tr>
<td>5</td>
<td>F, ARh neg</td>
<td>1000</td>
<td>36</td>
<td>27</td>
<td>166</td>
</tr>
<tr>
<td>6</td>
<td>M, ORh pos</td>
<td>1050</td>
<td>37</td>
<td>28</td>
<td>166</td>
</tr>
<tr>
<td>7</td>
<td>M, ARh pos</td>
<td>950</td>
<td>37</td>
<td>26</td>
<td>178</td>
</tr>
</tbody>
</table>

circ. - circumference; Hemoglob. - Hemoglobin

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Table 2 - Status of the Septuplets at age 8 months.

<table>
<thead>
<tr>
<th>Septuplets</th>
<th>Body wt. (kg)</th>
<th>Remark</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>7.50</td>
<td>Fit for discharge</td>
</tr>
<tr>
<td>2</td>
<td>5.55</td>
<td>Fit for discharge</td>
</tr>
<tr>
<td>3</td>
<td>6.05</td>
<td>Fit for discharge, hydrocele</td>
</tr>
<tr>
<td>4</td>
<td>5.05</td>
<td>Fit for discharge</td>
</tr>
<tr>
<td>5</td>
<td>4.85</td>
<td>Fit for discharge</td>
</tr>
<tr>
<td>6</td>
<td>7.30</td>
<td>Fit for discharge</td>
</tr>
<tr>
<td>7</td>
<td>6.05</td>
<td>Fit for discharge</td>
</tr>
</tbody>
</table>

infants are in their 8th month at the time of reporting; all of them are fit for discharge (Table 2) but the parents are not yet ready to take them home.

**Family and social history.** The mother is a housewife and the father is a farmer. There are 3 other siblings from 2 previous marriages; one of them is married and lives apart. The family lives in their personal house of five rooms.

**Discussion.** High-order pregnancies (>5 fetuses) of up to 12 multiples have been severally reported. In September 1997 there was a septuplet birth in Dahran in the Eastern province of Saudi Arabia but only one of them survived (media report). Also in November 1997, a set of septuplets was born in Iowa, United States of America all of whom survived. The present Abha multiples is the 2nd set of septuplets ever in the world to survive. To our knowledge, no higher order births such as octuplets and above have ever survived. That each of the 7 fetuses was within a separate gestational sac with a separate placenta, and they were not of the same sex and blood group, strongly suggests multi-zygosity from separate ovulation in this mother. The multi-ovulation was most probably due to an over-stimulation of her ovaries by the fertility drugs.

The increased frequency of multiple births following administration of agents such as human chorionic gonadotropin, human menopausal gonadotropin, menotropin and clomiphene has been well documented. The mother of the Iowa septuplets was reportedly induced with menotropin. The report of the Office of Population Censuses and Surveys 5-year study in the UK documents that 36% of mothers of triplets and 70% of mothers of quadruplets and above had received drugs for induction of ovulation. Multiple births have, however, been observed in the absence of ovarian hyper-stimulation in many instances.

Prematurity/low birth weight with its concomitant increase in perinatal morbidity and mortality constitutes the main complication of multiple pregnancies. Other problems include positional defects such as talipes due to intrauterine overcrowding, congenital malformation, conjoined twins, twin-to-twin transfusion. The last 3 of these listed complications appear to be confined to monozygotic multiples. Of all reported cases of high-order pregnancies none has been carried to term; and the chance of survival is proportional to the duration of the pregnancy. The Abha and Iowa septuplets have survived probably because their gestational age was above 30 weeks. The bulk of Dahran babies and other previously reported cases had succumbed soon after birth due to extreme immaturity, which was incompatible with survival. With improvement in neonatal care, perinatal mortality and morbidity among high-order multiples appears to be on the decline; the literature indicates a trend towards favorable outcome for multi-fetal pregnancies.

There is a policy in some centres to recommend selective embryo reduction, usually to twins or triplets when there are 4 or more fetuses, to increase the chance of delivering infants mature enough to survive with intact intellectual faculties. Methods used include transabdominal or transvaginal injection of potassium chloride into the thoracic cavity of the fetus with the guide of ultrasound. Such selective termination or fetocide would not be acceptable in Saudi Arabia on religious grounds. On an individual basis, it is very likely to cause an enormous psychological trauma to a good number of the parents. Also, this procedure can induce total pregnancy loss or extreme premature delivery below 24 weeks whereby the spared infants will have no reasonable chance of survival. Preventing higher-order pregnancies is clearly the best option given the high cost to parents, services and fetal wastage.

It is not uncommon that ultrasonographic scanning of multi-fetal pregnancy can miss the exact number of fetuses even in the best of hands. In the case under report, serial scanning had revealed 4 or 5 gestational sacs. Such omission can result in inadequate preparation for the reception of the babies regarding resuscitating sets, incubators and ventilators and personnel. For example only 4 pediatric teams, instead of 7, attended our septuplet delivery. A delay in getting adequately set for all the infants in this type of case can obviously be deleterious. Perhaps there is wisdom in suggesting that, for every multi-fetal delivery, preparation should be made for more than the number expected. It is noteworthy that these very low birth weight infants including 2 of them who developed hyaline membrane disease, survived without the use of exogenous surfactant.

The Iowa babies were hospitalized for about 3 months but the Abha septuplets have so far stayed beyond 7 months as at the time of compiling this report. The obvious drain on the hospital resources in the care of high order births can be formidable and is of national importance. Even though medical services are free in Saudi Arabian Government Hospitals, prolonged ventilator and incubator occupancy, consumption of drugs, diapers, milk formula and nursing time can deprive on-coming
admissions into some nurseries. Nevertheless, the welfare of new admissions into our NICU has not been compromised as a result of the prolonged hospitalization of these septuplets.

Multiple births can be quite taxing to the family in the provision of feeds, accommodation, dresses and education of the children. In the present case, there are already 6 siblings plus the parents occupying one accommodation and it is expected more difficulties will arise. This may explain why the parents of our septuplets have been reluctant to take home any of the babies since they were all consecutively declared fit for discharge between the ages of 6 and 10 weeks. The family definitely and urgently needs a bigger house, maids, and cartons of milk, diapers, and a multi-seat vehicle among other items. We intend to discharge these infants in a piece meal order.

In view of all the unfavorable medical and socio-economic ramifications of high-order pregnancy, it is best to avoid it. The authors of this communication are deeply concerned over the ease with which fertility drugs can be obtained. A case such as this is an eye opener and calls for a strict control on fertility drugs. The prescription of fertility-enhancing medication should be limited to tertiary referral hospitals for Obstetrics and Gynecology where patients can be subjected to a thorough prior investigation and adequate supervision while on the drugs.

References