B D R News

The official newsletter of The Birth Defects Registry of India,

Volume 4 Issue 1: March 2004

PROCEEDINGS OF THE BIRTH DEFECTS REGISTRY MEETING HELD ON 31St JANUARY 2004.

The quarterly CME on birth defects was held on 31/01/04 at Mediscan Systems Chennai. BDRI founded for a social cause has entered the 4th year now. Dr. S. Suresh welcomed the audience. He announced about the inauguration of BDR Nodal center at Udumalpet, Tamilnadu on 01/02/04. The registry at Chennai is still lagging behind in strength he added. He once again emphasized that a larger coverage of deliveries is essential to make any conclusions on the trend of birth defects in a given region.

Mediscan Systems has launched "First Trimester Screening for Down Syndrome" for the first time in the south, which is in line with the preventive aspect of the goals set by the birth defects registry. Dr. Suresh said that last year, birth defects statistics in Chennai showed a very small percentage of reduction in Neural Tube defects (NTD), which again necessitates the interpretation of a larger volume of data to study the incidence. However, he requested the doctors from member hospitals to vigorously prescribe periconceptional Folic Acid to maintain the declining trend of NTD. He mentioned that, apart from USG, MSAFP assay in second trimester would efficiently pick up the neural tube defects.

Dr. Sujatha Jagadeesh called for more enthusiastic participation from members in CME program as it facilitates learning process. There were interesting case presentations on birth defects from Chennai BDR members. Dr. Suchitra Ravishankar proposed the vote of thanks at the end.

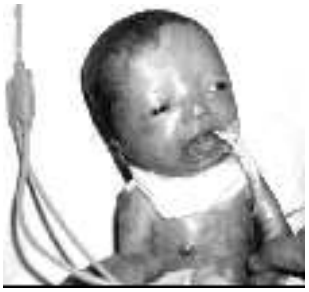
The excerpts of the presentation are given below.

RESTRICTIVE DERMOPATHY.

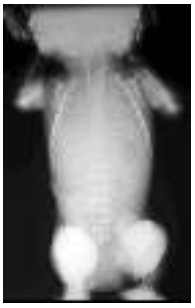
Dr. Sujatha Jagadeesh (Consultant Dysmorphologist, Fetal Care Research Foundation)

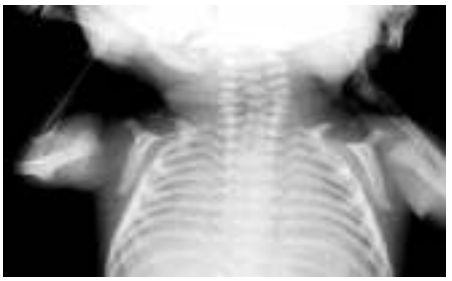
Dr. Sujatha Jagadeesh illustrated a case of restrictive dermopathy. Mrs.X, 25 years , non consanguinously married, primy gravida had an ultrasound at 25 weeks of gestation. She had complaints of discomfort in the epigastric region and an oversized abdomen during pregnancy. Her pedigree details were insignificant except that a few neonatal deaths were present with unknown reasons in the paternal line. She delivered a female child by LSCS (indication PROM) weighing 1.1 kg. The child looked abnormal and hence Dr. Sujatha was requested to attend on the baby. The baby on examination had the following features: boggy skull, wide fontanelle, opened sutures, broad forehead, dysmorphic facies, taut skin with mild icthyotic changes, joint contractures, prominent nipples with subareolar fluid collection and her general condition was found to be fair.

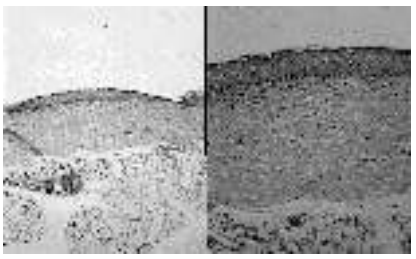
The baby's cranial and abdomen USG reports were normal.



Postnatal X-ray revealed hypoplastic clavicles.







Skin biopsy showed, thickened epidermis, hyperkeratosis, para keratosis, thinning of dermis with little elastin and collagen bundles arranged in wavy parallel layers.

These postnatal findings were consistent with the lethal anomaly namely **Restrictive Dermopathy.** This is a single gene disorder with autosomal recessive type of inheritance and has 25% recurrence risk in every pregnancy. Major diagnostic criteria would be distinctive facies, taut skin, multiple joint contractures, enlarged fontanelle, dysplastic clavicles and pulmonary hypoplasia. Prenatal diagnosis is possible through fetal skin biopsy but it may not be diagnostic in all cases. Skin biopsy should ideally be performed at 24 weeks of gestation when the skin appendages are well developed. Molecular diagnosis is the only accurate procedure which is yet to be developed.

Genetic counseling

When the index case has been worked up, the best way to look for its recurrence in subsequent pregnancy is to closely monitor the fetus by USG and look for fetal movements to rule out joint contractures. Polyhydramnios should also be ruled out. The reason for polyhydramnios may be due to the stiffness of muscles resulting in difficulty of swallowing the liquor. **During discussion**, it was explained that joint contractures can

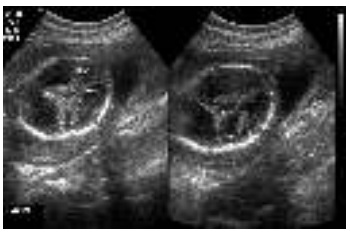
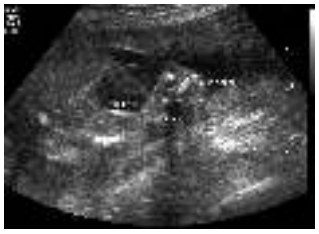
be looked for in late II trimester of gestation. Invariably the affected fetus would deliver by 31-32 weeks of gestation.

Differential diagnosis for this disorder are Pena Shokier Syndrome, Harlequin Fetus, Parana Hard Skin syndrome and Cerebro Oculo Facial syndrome. These are characterized by fetal hypokinesia, but the increased thickening of skin in restrictive dermopathy differentiates it from other icthyotic conditions.

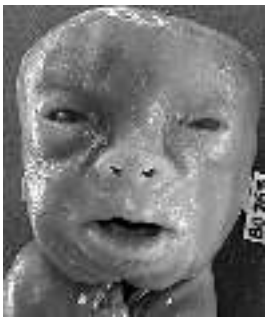
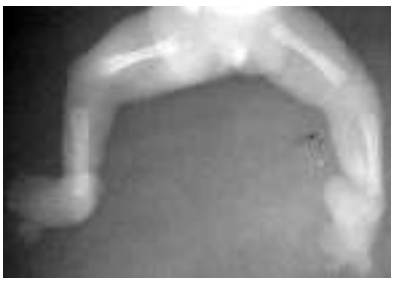
ULTRA SONOGRAM(USG) VERSUS AUTOPSY CORRELATION

Dr. Lata Muralidhar (Fetal Pathologist, Mediscan Systems)

Dr. Lata Muralidhar delivered a lecture on the merits of fetal autopsy over antenatal USG. She narrated a case of a 31 year old female with an obstetric history of G2 P1, non consanguinous marriage and with no significant medical problems. Her USG at 20 - 21 weeks of pregnancy had the following findings: non-immune hydrops, cystic hygroma and multisystem anomaly comprising of:
Central Nervous Sustem:dilated lateral and third ventricles, posterior fossa cyst, hypoplastic cerebellar hemispheres and cerebellar vermian agenesis,
Serous cavities: bilateral pleural effusion and minimal ascites.
Kidney Ureter Bladder: bilateral echogenic kidneys
Limbs : bilateral small tibia(0.8 cms), bilateral severely deformed feet
Cardio vascular system: small right ventricle, normal right and left atria, hypertrophic left ventricle, intact septa and aorta.

The baby was terminated. Postmortem examination findings were augmentative to antenatal USG report. **Additional findings** were dysmorphic facies, absent fibulae, polysyndactyly, Dandy Walker malformation, colpocephaly, truncus arteriosus, left diaphragmatic hernia with herniation of part of liver, stomach, spleen, distal pancreas into left thoracic cavity, normal gastric intestinal tract, grossly normal kidney and early cystic dilation of proximal convoluted tubules seen on HPE and a normal placenta.

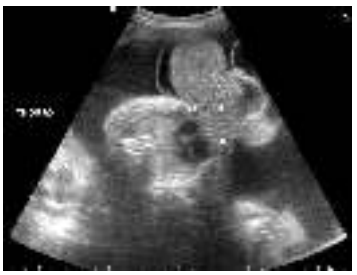
These were consistent with Fryns syndrome/ Oro-facial Digital syndrome Type IV. They have autosomal recessive type of inheritance with 25% recurrence in each pregnancy.

Dr. Lata concluded her talk saying that the pathologist acts like the pulse of the sonologist in arriving at a comprehensive diagnosis especially in challenging cases. This in turn facilitates appropriate counseling and plan for prenatal diagnosis in future pregnancies.

BODY STALK ANOMALY

Dr. Bhuvana .S. (Consultant Obstetrician and Gynaecologist, Sundaram Medical Foundation)

Dr. Bhuvana commenced her talk with a descriptive case history of a fetus with body stalk anomaly. This was chosen to highlight the importance of good obstetric management in tackling such rare cases. Mrs. P.25 years old , G3P1L1A1, was referred at 33-34 weeks for a scan. When she was examined clinically, her fundal height was corresponding to 36 weeks for a gestation of 33-34 weeks. Polyhydramnios was suspected and her blood sugar level was within limits: she was referred to Mediscan systems to rule out anomalies. The USG findings were right pleural effusion, liver, stomach and small bowel outside abdominal cavity with ascites, dilatation of pelvicalyceal system, normal limbs, short umbilical cord and single umbilical artery. All these features were consistent with Body stalk anomaly with polyhydramnios. Since it is a lethal anomaly, the couple was explained about the condition and it was decided to terminate the pregnancy.



On the same day patient developed contractions and after P/V examination, vaginal delivery was planned for her. Under strict aseptic conditions fetal ascites was tapped under USG guidance. About 900 cc of fluid was extracted.

At full dilation patient was shifted to the theatre as manual removal of placenta was anticipated due to the absence of umbilical cord. Under anesthesia breech extraction was done and placenta removed manually. A still born male baby weighing 2.05 kg was delivered. The baby was sent for autopsy. Postmortem findings were consistent with clinical examination at birth. Micrognathia, narrow and curved thorax, patent anus, normal esophagus, trachea and thymus , bilobed right lung with a partial fissure and left lung with two lobes were the additional findings**.**

Body stalk anomaly otherwise known as Limb body wall complex is also called Cyllosomus. The characteristic feature is the non fusion of the amnion and the chorion. Hence the amnion does not cover the cord but extends as a sheet from the margin of the cord to be continuous with the body wall and placenta. The incidence has come down due to the advent of USG and spontaneous abortions. Most popular theory in the genesis of this anomaly is the alteration in blood flow leading to disruption and incomplete development of embryonic tissue. This results in hemorrhagic necrosis and anoxia at 4-6 weeks of embryonic development. Other theory is the faulty folding of three axes with associated failure of obliteration of the coelomic cavity and abnormal folding of the amniotic sac.

In the normal sequence of events, the flat trilaminar embryo is transformed into a cylindrical fetus by parallel set of contiguous body folds: cephalic, lateral and caudal and the body of the embryo gets closed. The body stalk which is the forerunner of the umbilical cord forms and an intraembryonic coelum(peritoneal cavity) separates from an extra embryonic coelom (chorion). The amniotic cavity originally located dorsal to the germinal disc grows rapidly to encircle the fetus, obliterates the chorionic cavity and envelops the umbilical cord. A faulty folding process prevents obliteration of the chorionic cavity and development of umbilical cord resulting in a short cord adherent to placental membrane. Usually the cord is not visible. The association of abdominal defect and scoliosis should imply the diagnosis of Limb body wall complex anomaly. This is usually sporadic and has a low recurrence risk.

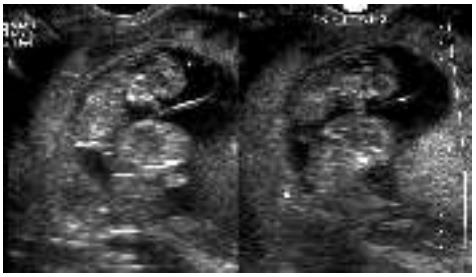
During discussion, it was said that certain features such as ascites, normal limbs and mild scoliosis were quite unusual in this particular condition. The rationale behind the procedure opted for delivering the fetus was also explained. The tapping of fluid around the placenta and manual removal of placenta were inevitable to prevent the inversion of the uterus and other consequences as there was little space between the fetus and the placenta and the baby was at full term.

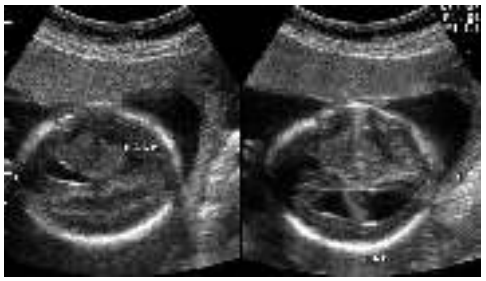
MULTIPLE GESTATION--COMPLICATIONS

Dr. Arnab Basak (Consultant Obstetrician and Gynaecologist, E.V.Kalyani Medical Centre).

Dr. Arnab Basak presented two interesting cases with multiple gestations and discussed the difficulties in decision making and the complications involved in delivering the babies in such circumstances.

Case I: Mrs. PRS with an obstetric history of G2 P1 L1 had attended the clinic at two months of amennorrhoea for antenatal check up. Clinically all her vital parameters were within normal limits. On bimanual pelvic examination, her uterine size was larger than the period of gestation. Her USG report revealed twin gestation, diamniotic, monoichorionic twins at 9 - 10 weeks of gestational age corresponding to her expected date of delivery. The targeted scan at 20 weeks showed all biometric parameters of both the fetuses A&B were corresponding to the period of gestation. However, the lateral ventricles of twin A measured 1.1cm and the occipital horn 0.9cm which were just above the normal limits.



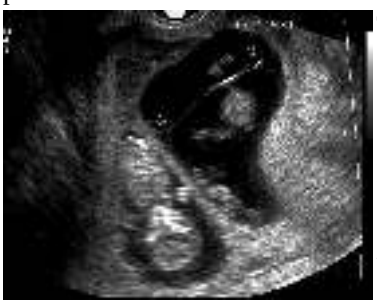


Karyotype and TORCH were not ordered as this was an isolated finding. The patient was advised a repeat scan after 6 weeks. At 27 weeks, repeat USG showed IUFD of fetus A with spalding sign. The growth parameters and Doppler study were normal in the other fetus. The patient was counseled once again about the single fetal demise and it was decided to continue the pregnancy under close watch. A baseline coagulation profile was done and the platelets, APTT with INR, PT with INR, fibrinogen were within normal limits. USG and coagulation profile were repeated every 2-3 weeks and no abnormality was detected in the surviving fetus. Labour was induced at 37 weeks and the delivery was uneventful. A female baby weighing 2.35 kilograms was born along with a macerated female fetus weighing 450 grams. Placentation was diamniotic and monochorionic. The baby was investigated with CBC, total IgG, fontanelle USG and Echocardiography. All were within normal limits.

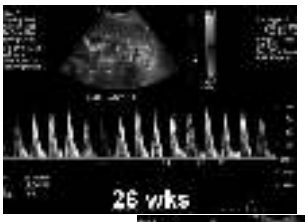
During discussion, decision regarding the time of delivery of the fetuses was reviewed. The onset of Disseminated Intra Vascular Coagulation (DIC) begins 5 weeks after IUFD. However in this case, the pregnancy progressed uneventfully till 36-37 weeks. A lively debate ensued on the timing of delivery as to whether we could have waited for spontaneous labour instead of induction.

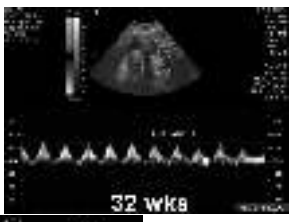
Case II

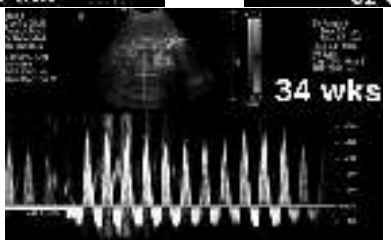
Mrs. GA, aged 25 years, primi gravida had conceived with ovulation induction treatment at Ghana. Her USG at 10 weeks revealed viable twins of diamniotic and dichorionic gestation. Her routine antenatal check up at the clinic here was normal. Her USG was corresponding to 22 weeks of gestation and all the parameters of fetus A were normal. In fetus B all the long bones were less than 5th percentile. Thorax was normal and placentation was dichorionic and fused.



The patient was counseled and the findings were attributed to either symmetric IUGR or skeletal dysplasia. Karyotyping was not done as it was not indicated here. She underwent serial ultrasounds at an interval of 4 weeks. At 26 weeks fetus A was normal and in fetus B all the parameters fell below 5th percentile and it was corresponding to 22 weeks of gestation. Doppler showed high resistant flow in the umbilical artery and normal in the middle cerebral artery.







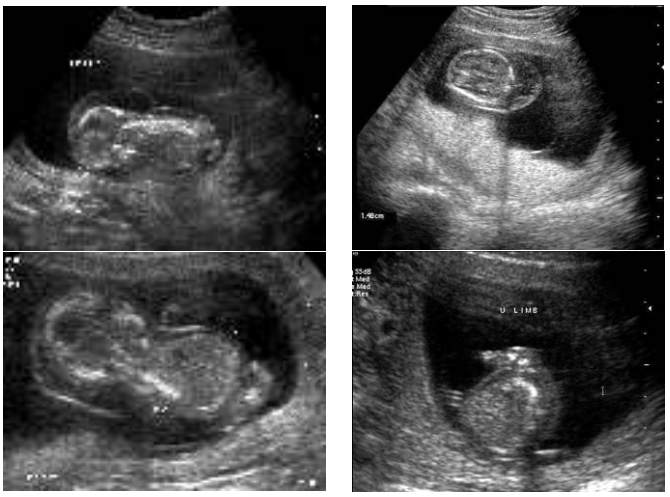
At this time the patient was counseled regarding the poor prognosis for fetus B and she was advised closed monitoring with 2-3 weekly serial scans. The patient had fluctuations in BP readings and she was hospitalized for 36 hours and discharged. USG at 32 weeks showed fetus A with breech presentation. Fetus B had the same previous findings corresponding to 26 weeks. Doppler showed absent diastolic flow in the umbilical artery and increased diastolic flow in the middle cerebral artery. The liquor volume was diminished. Follow up ultrasound at 34 weeks showed fetus A in flexed breech presentation with EFW 1510gms and fetus B with EFW 1170gms and anhydramnios. Doppler showed reverse diastolic flow in umbilical artery and increased flow in middle cerebral artery. Patient delivered a live female baby by LSCS at 36 weeks, weighing 2.8 kgs. Fetus B was a still born female child who even had a FH the previous day in USG. The surviving fetus was investigated following birth and was found to have polycythemia, Hgb 18.5 gms% and Hct 65%. Autopsy examination was not done for fetus B.

During discussion, the need for placental examination to look for placental vascular anastomoses in twin gestation was highlighted. It was said that the hemoglobin level of the surviving baby was similar to that expected of a newborn and hence polycythemia could not be established. However it was stressed that the baby needs periodical evaluation.

A RARE CASE OF RECURRENT ACHODROGENESIS

Dr. Akila Ayyappan, (Consultant Obstetrician and Gynaecologist, Public Health Centre)

Dr. Akila Ayyapan presented a case of a mother who gave birth to fetuses with achondrogenesis which was recurrent.Mrs. X aged 24 years, was married consanguinously (III degree) for 4 years. She has had one spontaneous abortion. Her family history revealed that her sister's child has Acromelia. During her second pregnancy, routine USG was suggestive of Thanatophoric dysplasia/ Achondrogenesis. The fetus had a short neck, very short limbs, protuberant abdomen and gross subcutaneous edema. She was advised termination as this was a lethal skeletal isorder. The baby's autopsy findings were consistent with **Achondrogenesis** which is an autosomal recessive single gene disorder. When she conceived for the third time after a year, her USG at 13 - 14 weeks again showed an affected fetus with lethal short limb skeletal dysplasia. As this was suggestive of Achondrogenesis, the fetus was terminated. No autopsy was done this time. Postnatal clinical findings were narrow thorax, protuberant abdomen, short limbs and nuchal thickness. After a gap of one year, she conceived again. Her USG at 14 weeks were very similar to her previous conceptions and the fetus was terminated this time also.



Dr.Akila elaborated on the history and evolution of this skeletal dysplasia. She explained the two types of achondrogenesis and the minor variations that exist between them to arrive at a correct diagnosis. While talking about the pathophysiology of this condition, she said that in addition to skeletal abnormalities due to mutations in DTDST (diastrophic dysplasia sulphate transporterType I Achodrogenesis) and in Collagen 2 A1gene(Type II), severe pulmonary hypoplasia was thought to be related directly to the underlying pathology in collagen expression. This can be detected prenatally or at birth due to its classical clinical, radiological, histological and molecular findings. She cautioned saying that radiological features may vary and no single feature is obligatory. Distinction between the types on radiographs is always not possible. Degree of ossification is age dependent and caution is needed when comparing radiograph of different gestational age. HPE shows normal cartilage matrix in Type I and condensed collagen fibres in Type II. In type II epiphyseal cartilage becomes grossly distorted. Management requires a multidisciplinary approach to ensure the most accurate diagnosis and optimize family counseling.

During discussion it was mentioned that this condition does not warrant karyotyping as this is a single gene disorder. When there is repeated recurrence as mentioned in the case discussed above, it is wiser to go in for adoption to preserve the physical and mental health of the mother.

WE ARE MARCHING AHEAD----------

Dr. M. Jeyanthi of Venkateswara Nursing Home has taken the initiative to start a birth defects registry at Udumalpet, Tamilnadu. This Nodal centre will be covering nearby Pollachi and Valparai districts in data collection. The inaugural function took place on a grand scale. The dignitaries present were Dr.P.M Balasubramaniam (State Vice President IMA), Dr. Tamaraiselvan (President IMA, Udumalpet Chapter), Dr.Raj Ganesh, Secretary,IMA, Udumalpet Chapter) and Dr.Vijayalakshmi (President, IMA, Udumalpet Women's Wing). Dr. Indrani Suresh lighted the kuthuvillaku to mark the inauguration which was followed by a lecture on the" Scope of birth defects registry in India" by Dr. S. Suresh. The audience was receptive and we hope to get the best possible cooperation in the national endeavor from the members of Udumalpet birth defects registry.

An appeal

Help a national cause Join the Birth defects registry. If you are already a member of the registry, please motivate a friend to become a member of the registry. If you are not a member kindly contact us. Let us work together to build a healthier nation.

This news letter is available online at http://www.mediscansystems.com. Issued four times in a year -January, April, July and October. Published by Fetal Care Research Founation, 203, Avvai Shanmugam Salai, Royapettah, Chennai - 600 014. For Private circulation. Printed at The Print Shoppie (Print Supplies), Ayanavaram, Chennai - 600 023.