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Beginnings!

With spring the cycle of life begins, and the hope embodied by that beginning heralds the brightness that is to come tomorrow...And no truer is that than with our beginnings and pregnancy. For with each pregnancy, there is hope for health and many dreams for a great tomorrow. Today, with mounting worldwide evidence to the value of screening in the first trimester, the first trimester scan is fast becoming the pillar of obstetrical care: the impact of that beginning is proving to be tremendous. Today, we are way beyond the positive test and ascertaining fetal heart tones in the first trimester. Professor Nicolaidis' nuchal translucency has started a snow ball effect in the first trimester with new markers being introduced on a constant basis. Today, we are way beyond simply measuring the nuchal translucency, we are now at the point of carrying out a full anatomy scan at the time of the NT assessment, performing fetal echocardiography, and most recently, screening for preeclampsia, assessing the cervical length for preterm labor and looking for prior uterine scars. This issue is dedicated to the first trimester. We present two very recent first trimester markers, namely Chaoui's intracerebral translucency (IT) for the early detection of spina bifida and Sepulveda's retronasal triangle for first trimester detection of facial clefts. We also present the highlights from ISUOG's Annual Scientific Meeting held in Cairo. We hope that this may ignite your interest and maybe serve as the beginning of your involvement in the first trimester and how it is revolutionizing prenatal care: to beginnings!

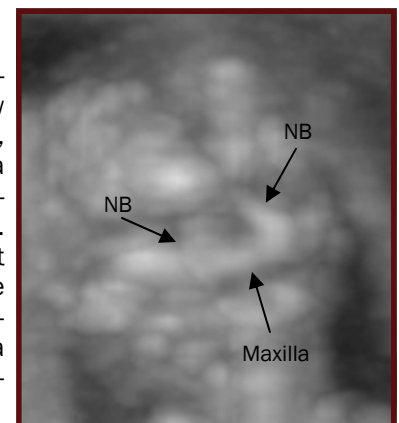
Intracerebral Translucency

In September 2009, Chaoui et al reported on the intracerebral translucency (IT), an area that can be seen in the same midsagittal plane used to measure the nuchal translucency. In reality, the IT represents the fetus' fourth ventricle and is bordered by the posterior border of the brain stem anteriorly, and the choroid plexus of the fourth ventricle posteriorly. Its presence may serve as a reassurance against an open neural tube defect. Currently, studies are ongoing to try and determine the sensitivity of the IT in the early detection of spina bifida. UOG 2009;34:249-252 and UOG 2010;



Retronasal Triangle

Diagnosing facial clefts, especially those of the palate, remains a major challenge in prenatal diagnosis. With the new technology that is available today, namely 3D sonography, this has become much clearer and more feasible. Sepulveda et al report on a 3D technique in the first trimester to visualize the facial bones that form the "retronasal triangle" (RNT). The RNT is formed by the 2 nasal bones and the palate. At this gestational age, there is less bone ossification and hence less bone shadowing making this visualization easier. Ascertaining the presence of an intact RNT reassures against a cleft of the palate. Sensitivity of this technique is under investigation. UOG 2010; 35:7-13.



Select Abstracts from the Annual Scientific Meeting of ISUOG held in Cairo, Egypt March 25-28, 2010



More than 600 delegates from over 54 countries attended the Annual Scientific Meeting of the International Society of Ultrasound in Obstetrics and Gynecology. Days 1 and 4 constituted of several workshops and days 2 and 3 were free communications. Below is a selection of some of the exceptional work that was presented.

First Trimester Screening After Infertility Treatment. Ann Tabor, MD.

Pregnancies conceived by assisted reproduction (ART) tend to have a lower acceptance for first trimester screening. One must bear in mind that the biochemical marker, namely PAPP-A, is altered in these IVF/ICSI pregnancies and the median PAPP-A is lower (0.9 MoM). The median Free BHCG is similar to normally conceived pregnancies. For this reason, risk calculation must take into effect the mode of conception as this may lead to more false positive results. This holds true for ICSI but not for frozen embryo replacement. Even when this is accounted for, pregnancies conceived by ART tend to have higher false positive rates when using first trimester screening and this must be kept in mind for counseling these patients.

First Trimester Uterine Artery Dopplers, Placental Volume and Ductus Venosus Flow as Predictors of Second Trimester Growth. Zaki et al.

This study was carried out on 100 singleton pregnancies at 11-13w6d. Mean pulsatility index (PI) of the uterine arteries, placental volume and ductus venosus (DV) flow for PI and peak velocity index were assessed in the first trimester. In the second trimester, at 20-24 weeks, the following fetal growth parameters were assessed: biparietal diameter (BPD), head circumference (HC), abdominal circumference (AC) and femur length (FL). Birth weight on 85/100 babies was obtained. This study showed that the PI of the uterine arteries had a negative correlation with all growth parameters and fetal birth weight ($P < 0.001$). Placental volume had a positive correlation with HC, AC and FL but not with BPD and birth weight. DV had no correlation with any of the parameters or with birth weight. The authors conclude that first trimester Dopplers of the uterine arteries may be used as a predictor for fetal growth.

Prevalence of Congenital Heart Disease in Fetuses with Extracardiac Abnormalities. Kamel et al.

This was a cross sectional study at the Cairo Fetal Medicine unit on 100 patients presenting with fetuses with extra cardiac abnormalities at 20-24 weeks, the most common being CNS abnormalities. All fetuses underwent fetal echocardiography and congenital heart defects were detected in 27.5%. Ventricular and atrial septal defects were the most common cardiac findings. The authors conclude that whenever an extracardiac abnormality is found, fetal echocardiography should be performed.

Prediction and Prevention of Preeclampsia. Baha Sibai, MD.

Some women are predisposed to the development of preeclampsia and this puts them and their fetuses at increased risk for serious morbidity and mortality. This risk may be affected by whether certain preexisting factors are present or absent. To date, no single biomarker has been proven to be of use in predicting recurring preeclampsia. More recently, several biochemical and biophysical markers have been under investigation in order to better predict those women at increased risk. Nonetheless, no dietary supplements or antihypertensives have been shown to be effective in prevention, though aspirin maybe of use in individualized cases. Dr. Sibai thus urges intensive maternal and fetal surveillance in the high risk group and those with a prior history of preeclampsia. He calls for more research to pinpoint the reliable markers and to devise new targeted effective preventative measures.

First Trimester Screening Program: The Tunisian Experience. Dalenda et al.

This was a prospective study over a 3 year period on 858 fetuses who presented for first trimester screening using nuchal translucency (NT) at 11-14 weeks. Fetal anatomy was also evaluated. 29 fetuses (3.38%) were found to have an NT $>$ 95th centile for gestational age. 17/29 underwent karyotyping and 5/17 had a chromosomal aberration. Of those with a normal NT, 3 additional aneuploidies were detected by the triple screen. The authors conclude that first trimester NT assessment has a specificity of 98%. In addition 2% of fetuses were found to have a structural abnormality : 3 major CNS, 6 cystic hygromas, 1 Dandy-Walker malformation, 5 pyelectasis, 1 choroid plexus cyst and 1 echogenic intracardiac focus.

Isolated and Unexplained Polyhydramnios: An Independent Risk Factor. Sherif Abdel-Fattah, MD.

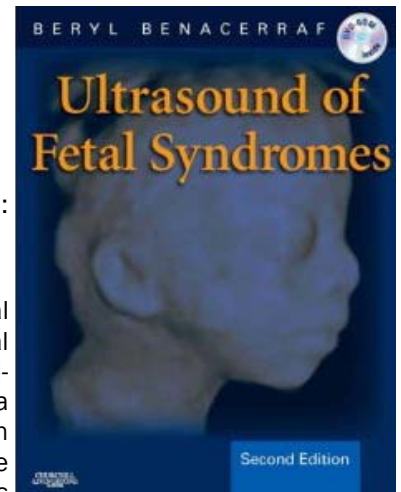
This was a retrospective review, over a 7 year period, on 136/280 singleton fetuses who met the inclusion criteria of isolated unexplained polyhydramnios, normal anatomy scan, normal glucose challenge test, and no isoimmunization or fetal infection. Of the 136, 131 were liveborn, 2 in utero demise and 3 neonatal deaths (one as a result of prematurity). 13 (9.5%) had abnormalities detected later on in gestation or at birth. The author concludes that isolated polyhydramnios, irrespective of degree, warrants intensive in utero as well as postnatal screening for concomitant abnormalities.

CFAFC's Literary Recommendations Ultrasound of Fetal Syndromes

Written by: Beryl R. Benacerraf, MD. Churchill Livingstone. Second Edition. Nov 2007: 672 pages. With DVD. \$151.20

ISBN-10: 0443066418, ISBN-13: 978-0443066412. www.amazon.com

An exceptional textbook written in a unique approach by one of the pioneers of obstetrical ultrasound, Professor Benacerraf. The approach used in this invaluable reference to fetal syndromes is to enable the sonographer to reach a diagnosis through the sonographic findings present. Here, for each finding, there is a corresponding section in the textbook with a differential diagnosis of all the possible syndromes accounting for that particular finding. In addition, a list of all other possible associated findings is included as well. It is in 4 large chapters. The first chapter is "Differential Diagnoses" where each sonographic finding is listed. Chapter 2 is "Syndromes" where each syndrome is described in details as to what can be detected by ultrasound, differential diagnosis, heredity, natural history and outcome, as well as suggested readings. Chapter 2 also includes a section on all teratogens, their effects and sonographic findings. Chapter 3 deals with findings of borderline significance and chapter 4 addresses fetal anomalies and syndromes associated with monochorionic twins. This textbook is a comprehensive reference to a most complicated subject. It is simply an indispensable reference to all who are performing fetal ultrasound and dealing with prenatal diagnosis.



THIS AND THAT

Call for Abstracts

Abstract submission will open June 1, 2010 for the annual Convention of the American Institute of Ultrasound in Medicine. This meeting is to be held in New York April 14-17, 2011 and encompasses all areas of ultrasound with designated pre-congress as well as main session in Obstetrics and Gynecology. Visit www.aium.org for more details and information.

ISUOG

The International Society of Ultrasound in Obstetrics and Gynecology is a leading organization with an extensive educational role whether it be through their annual congress, or through the sponsored courses and the society's website. Several webcasts and lectures may be viewed on-line. Those are available to members and registered individuals at www.isuog.org. In addition, membership entails one to reduced registration fees and a copy of the monthly "White Journal", one of the leading journals in the specialty.

FMF

In its continuous efforts for education, the Fetal Medicine Foundation has added an educational video on fetal echocardiography as well as a new section on anomalies that may be viewed free of charge at: www.fetalmedicine.com.

Upcoming Local Meetings

CFAFC is ready to announce any of your upcoming local and regional meetings in our quarterly newsletter. Please send contact information and conference dates to rar@cfafc.org.

Hot Off The Press...

Structural Anomalies in Early Embryonic Death. Bryann Bromley, MD, Thomas D. Shipp, MD, Beryl R. Benacerraf, MD.

J. Ultrasound Med. 2010; 24:445-453.
www.jultrasoundmed.org/cgi/reprint/29/3/445

The purpose of this pictorial essay was to shed light on the causes of first trimester embryonic death, where in many cases, no etiology of the loss is ever found. With 2D ultrasound, little information is provided. In cases of early embryonic death, most fetuses have a ground glass appearance and it is difficult to assess their contours for structural abnormalities. In addition, due to maceration, little information is available on pathology reports on structural abnormalities at this point in gestation. In contrast, using 3D surface rendering, provides information as to the contour of the fetus. This pictorial essay describes a series of fetuses with in utero demise with a crown-rump length (CRL) of 12-27mm compared to normal healthy fetuses of the same CRL. All were examined using 2D ultrasound and a 3D volume was obtained on all, surface rendering used, to examine the contours of the fetuses. The most common findings were abnormal curvature of the spine, prominent cervical flexure and facial anomalies. None of these findings were seen on 2D ultrasound except for a pair of conjoined twins. For this reason, the authors conclude that 3D surface rendering in case of early embryonic death may help shed light on the etiology. Having this additional information may help the family in the healing process. This pictorial essay suggests to us the concept of "Sono Autopsy". For this reason, obtaining a 3D volume for off line analysis should be considered in these early demises.



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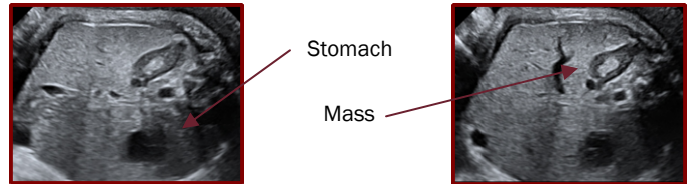
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Case Presentation By Bernard Nasr, MD



Clinical Case

34 yo G2 P1001, with an uncomplicated prenatal course overseas, presented for routine obstetrical care at 36w2d. Sonographic evaluation revealed an appropriately grown fetus with normal amniotic fluid and a normal anatomical survey. However, there was a hyperechogenic 1.5 x 1.5 solid mass in the right upper quadrant within an echolucent area. There was no significant flow on color Doppler. The adrenal gland could not be visualized. Impression was a neuroblastoma. At 39 weeks, a healthy 3400 gram female was born. Twenty four hour urine collection revealed high levels of catecholamines confirming the diagnosis of a neuroblastoma. Currently at 3 months of age, there has been 75% regression in tumor size without the administration of any chemotherapy.

Special Notes

Neuroblastoma occurs in 1/10000 live births and 40% may be diagnosed beyond the second trimester. Sonographic appearance varies from cystic to solid to complex with intramural calcifications. Visualizing the adrenal glands does not exclude this diagnosis. There may be concomitant polyhydramnios and fetal hydrops. There is right side predominance. Intrauterine metastasis is rare but placental, cord and liver metastasis may occur in Pepper syndrome. Neuroblastomas may occur in Beckwith-Wiedemann and fetal alcohol syndrome. Survival rate is 90% with the possibility of spontaneous in-utero or postnatal resolution.

Upcoming Congresses

<u>COURSE TITLE</u>	<u>DATES</u>	<u>LOCATION</u>	<u>WEBSITE ADDRESS</u>
8th Annual Advances in 3D/4D Ultrasound	May 21-23, 2010	Atlanta, Georgia	www.iame.com
XXII European Congress of Perinatal Medicine	May 26-29, 2010	Granada, Spain	www.ecpm2010.org/eng/index.html
Advanced Ultrasound Course in Obstetrics and Perinatal Medicine	June 12-14, 2010	St. Petersburg, Russia	www.gaoordi.ru/news/id/001298.shtml
9th World Congress in Fetal Medicine	June 20-24, 2010	Rhodos, Greece	www.fetalmedicine.com/fmf/courses-congress/conferences/
20th World Congress of the International Society of Ultrasound in Obstetrics and Gynecology	October 10-14, 2010	Prague, Czech Republic	www.isuog.org/WorldCongress/2010/
66th Annual Meeting of the American Society of Reproductive Medicine	October 23-27, 2010	Denver, Colorado	www.asrm.org/Professionals/Meetings/annualmeeting.html
National Conference on Ob/Gyn Ultrasound	November 5-7, 2010	Chicago, Illinois	www.iame.com
Obstetrical Ultrasound in the High Risk Patient	November 12-14, 2010	Las Vegas, Nevada	www.iame.com