



Center For Advanced Fetal Care Newsletter

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A Midsummer Night's Dream...

...of global access to healthcare and education irrespective of gender, ethnicity or religion... It is inconceivable that in the day and age when man-made 'New Horizons' has travelled 9 billion miles to pass Pluto, water remains a **deadly drink** in third world countries. Until we eradicate **famine** and poverty, create equality, and ensure the rightful access to healthcare and education, our humanity is under the threat of extinction. As such, we dedicate this issue to this aspiration, '**A Midsummer Night's Dream**'. We turn to **Bill and Melinda Gates**, beacons of hope and inspiration. We urge our governing bodies to review the Lancet's recently published commission entitled "**Women and Health**". We present to you highlights from the annual congress of the **Fetal Medicine Foundation**, the assembly point of the global leaders in fetal and maternal medicine. We introduce to you **ISUOG's** new **CME Platform** and the **AIUM's** new **Case Challenges** both of which provide equal global access to education. We review for you Papageorgiou et al's brilliant study, published in the **Lancet**, which gave birth to the first international standards for fetal growth, in addition to our usual quarterly features. We hope that as this issue is reviewed, our commitment to this pivotal cause is further solidified, our stance as women's and fetal medicine specialists is unified, and that this farfetched view of our world takes on a more realistic existence. May our '**Midsummer Night's Dream**' become a fulfilled fantasy...



Midsummer Night's Dream



River Cam. July 2015. RS Abu-Rustum

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Effects of Exogenous Progesterone on NT

Giorlandino et al carried out an interesting study that was recently published in **AJOG**. In their study, the authors sought to assess the effect of exogenous progesterone on the fetal nuchal translucency at 11 - 14 weeks.

The study was a prospective observational case control study on 3716 women presenting for NT assessment with a fetal CRL of 45 - 48 mm. The women were divided into 2 groups: a group receiving exogenous progesterone and a control group. Subsequently, each of the women underwent 3 NT scan assessments and the largest NT was recorded. In a crude analysis, there was a statistically significant increase in the fetal NT in the group receiving exogenous progesterone ($P < .05$). There was a confirmed correlation between altered NT and gestational age ($P < .0001$) and progesterone exposure ($P < .05$) when using factorial analysis of variance model. However, there seemed to be no effect of the type of progestogen used, its dosage or route of administration in the various subgroups. The authors conclude the exogenous progesterone increases the fetal NT.

In various parts of the world, there is over and non-indicated use of progesterone to the point where patients may request it from their physicians. Healthcare providers must exercise caution in their prescriptions keeping in mind the ramifications and anxiety of a falsely elevated fetal NT.

Effects of exogenous progesterone on fetal nuchal translucency: an observational prospective study

Giorlandino, MD, Romero Espinal, MD, Francoise Pothier, MD, Thera Giannouli, MD, Lacey D'Amadio, MD, Abouk Abbas, MD, Francesco Pizzi, MD, Roberto Angeli, MD

Fetal Hemivertebra: Associations and Perinatal Outcome

Basude et al recently published a retrospective observational study in **UOG** addressing the accuracy of prenatal diagnosis of hemivertebra, the co-existence of other structural abnormalities and the perinatal outcome.

The study involved 88 cases suspected of having hemivertebra in the fetal or neonatal period over a 10 year period. Data was available on 67 of the 88 cases. There were 45 cases suspected in the antenatal period and 22 diagnosed postnatally. There were 20/67 isolated cases of hemivertebra and 47/67 with coexisting anomalies. The fetal/neonatal loss rate was lower in the isolated cases: 19% in comparison to 48%. The most common associated anomalies were skeletal, GU, VACTERL association, cardiac and CNS. The authors conclude that hemivertebra is a difficult antenatal diagnosis to make with a rate of 67%. The majority of cases are associated with other abnormalities which increases the rate of perinatal loss. These findings may be utilized when counseling families with an affected child depending on whether there are other concomitant findings.

Fetal hemivertebra: associations and perinatal outcome

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Highlights from the Fetal Medicine Foundation's 14th World Congress Just Held in Crete, Greece from June 21 - June 25 2015. By Lama Daher, MD

Taking place in the north of Crete, in the heavenly town of Hersonissos, the **14th World Congress** was, once again, one of the most successful congresses to date uniting over 4000 delegates and specialists from all over the world to discuss the latest updates in fetal-maternal medicine.

The congress started with the joint session with the **IFMMS** (International Fetal Medicine & Surgery Society) that discussed the most recent advances and research in fetal surgery. The Leuven group discussed the results of the TOTAL trial that appeared promising but nonetheless still opens the door for a lot more future research involving perhaps Sildenafil or growth factors such as VEGF.

The world's leading experts presented their latest results on their different approaches for the repair of open spina bifida and CCAM, which initiated a vivid debate between the American open-approach presented by Adzick, and the Brazilian argument sustained by Pedreira pushing towards a more conservative approach. Pedreira's approach was definitely the highlight of the first day of this unforgettable congress. Cardiac pathologies had their good share at the congress this year with informative and well organised presentations given over several days combining interesting MRI images and cardiac clips in the evaluation of complex cardiac defects. As usual, Lebanese brilliance was also a contributing factor to the success of this congress with Prof. Rabih Chaoui's comprehensive and clearly presented talk addressing various interesting concepts and reflections on the use of the NT as a window allowing the diagnosis of a multitude of defects including palate pathologies. In addition, one of the most memorable talks, in the minds of all who were in attendance, was the outstanding talk of Prof. Alan Flake on the artificial placenta. It resulted in an endless wave of appreciation and applause.

Another interesting yearly topic extensively covered at the congress was monozygotic twins. There were detailed presentations given by Prof. Yves Ville in addition to a constructive debate between the Barcelona group led by Prof. Eduard Gratacos, and the Leuven group presented by Prof. Liesbeth Lewi on the conservative versus interventional decisions in selective IUGR and TTTS.

Cell free fetal DNA and its role in the diagnosis and screening of aneuploidies was again at the centre of the discussion with various presentations from different countries reflecting on their experience with combined screening and NIPT. A remarkable talk was given by Francesca Grati from Italy about the implications of fetoplacental mosaicism. There was a sense of agreement from the international experts on the limitations of the cfDNA in screening for sex chromosomal aneuploidies.

A most memorable presentation was given on the third day addressing fetal growth restriction. Another impressive talk was given by Prof. Basky Thilaganathan in which he presented the data from various cardiac studies on the re-emerging theory of maternal cardiovascular disorder, and not abnormal placentation, as the main underlying factor in the development of preeclampsia.

The Kings group once again questioned the efficacy of Metformin in gestational diabetes and their presentation initiated a back and forth discussion between the audience and Professor Gerard Visser which left the door open for additional interesting future research in order to uncover the underlying factors giving the results at hand. This discussion literally kept the delegates glued to their seats until midnight!

There were several other critical topics that were discussed at the congress covering other aspects of fetal medicine such as neurosonography and preterm birth. In addition, Prof. Elena Carrera presented interesting data while Prof. Edwin Guzman discussed the promising results on the use of a cervical cerclage in twins. The congress concluded with the simple, yet practical presentation by Prof. Carl Weiner on the importance of continued training in order to improve the quality of obstetrical care.

This year congress was undoubtedly a success, with a great audience, inspiring research amidst amazing dinners and parties. The countdown for next year's congress has started. The location is yet to be announced, but Prof. Nicolaides suggested Spain or Italy as possible locales. As always, there is no doubt that next year's congress shall prove to be another unique and outstanding educational experience... Stay tuned for more details at the **FMF website**.



Hersonissos, Crete



Attendance at Midnight!



Amazing Hospitality



Thank You!

Highlights from the 4th Edition of Nouvelles Journées d'Echographie Foetale Held with the CFEF in Paris on May 14 - 17, 2015. By Georges Haddad, MD

This year, the 4th edition of NJEF (Nouvelles Journées d'Echographie Foetale) coincided with the 20th anniversary of **CFEF** (Collège Français d'Echographie Foetale) and was a most memorable occurrence. The scientific program was top notch, the atmosphere most relaxed and delightful, and the learning tremendous in beautiful Pullman Montparnasse in Paris.

The congress was held from May 14 to 17, 2015 and was the "place to be" for over 400 delegates and exhibitors who came not only from France, but also from all around the world. In addition, there were over 30 expert faculty members from all over the globe ready to pass on their teachings.

The congress covered all aspects of imaging from fetal medicine to gynecology. And as is customary, the congress commenced with practical workshops on an ample number of patients. This year, the use of simulators was introduced in gynecology. The experts also carried out live scan demonstrations utilizing the newest sonographic machines. There were clear take home messages with each clinical case.

The audience was able to interact directly with the presenters using PowerVote, providing answers to challenging cases covering the fetal brain and heart. In addition, some of the most popular sessions were informative sessions on how to utilize the CFEF website, how to plan the care of affected fetuses, and the latest advances in the first trimester, biometrics INTERGROWTH 21 and NIPT.

World-renowned speakers on the latest advances in imaging the challenging fetal heart, brain and spinal cord gave some of the most outstanding sessions.

Perhaps the most distinguishing feature of this annual congress is the camaraderie between delegates and speakers. This was ever apparent in the gala dinner where a slide show of images from the past 20 years was displayed.

And with the closure of yet another most successful meeting, dates have been set for next year's congress, which shall be filled with surprises and planned for May 5 - 8, 2016.



The Congress



The Gala Dinner

CFAFC Recommends ISUOG's New CME Platform

It is with much excitement that we share with you **ISUOG's** recently launched **CME Platform**. This invaluable new educational resource is available to **ISUOG members** where they may gain access, from all over the globe, to a wide variety of online learning material. The learning modules include **UOG** journal articles, videos from prior courses and congresses and finally **ISUOG Practice Guidelines**. Upon the completion of the learning module, a post test must be taken and participants may earn CME. In addition, a CME certificate may be automatically generated for the participants' records.

The platform covers a wide array of topics in both obstetrics and gynecology and the content is updated regularly and on a monthly basis. Current modules cover such topics as 3D in gynecology, the fetal CNS, the fetal venous system, evaluation of the SGA fetus, early pregnancy, fetal infections, NIPT and ISUOG guidelines, to name a few.

As has been customary with ISUOG, navigating through the user-friendly platform is easy and options are clearly displayed under 3 sections: obstetrics, gynecology and guidelines. There is also the option to search for content by topic.

In the future, delegates who may have participated in any of ISUOG's pioneering live-streaming events, have the option to visit the platform and take the relevant post test for the live-streamed activity in order for them to earn CME. One wonders if this is the beginning of the end of congresses and courses as we know them!



AIUM Abstract Submission



The annual convention of the **AIUM** returns to Las Vegas April 2 - 6, 2016. Abstract submission is now open through September 28 and registration commences on October 1. Don't miss out on a most unique educational opportunity which brings together all probe-handlers from various disciplines who use ultrasound in every imaginable way: education, point of care, Ob/Gyn and the final frontier! Visit the **AIUM website** for details.

Fetal Echocardiography Symposium at UCLA



For the 5th year in a row, the **UCLA Fetal Echocardiography Symposium** returns on October 24, 2015. This one day comprehensive symposium is clinically oriented and designed for all who are involved with fetal cardiac screening and fetal echocardiography. It has a diverse program which covers the recent guidelines, presents practical tips and pearls and has 2 live scan demonstrations. In addition, there will be case-based tutorial discussions, discussion of cardiac function as well as the opportunity to hear patient testimonials. Details at the **symposium website**.

AIUM Case Challenges



Check out the **AIUM's** newest addition: the **AIUM Case Challenge Library**. This endeavor allows **AIUM members** to test their diagnostic skills on a plethora of challenging cases. Once a diagnosis is made, a graph displays how one did in comparison to other participants. Subsequently, a page displays additional information such as differential diagnoses and key sonographic tips. CFAFC recommends that you join the challenge and consider submitting your interesting cases using the **online portal**.

SANA Medical NGO Update



SANA has celebrated its 4th Anniversary on May 19 with over 1000 patients seen and a multitude of ever expanding educational activities. The past 3 months have been the busiest for SANA with 16 total missions and the initiation of the first integrated ultrasound course into the midwifery student curriculum at the Lebanese University, Tripoli. SANA had the honor of reflecting back on its 4 years on the **ISUOG Outreach Blog**.

CFAFC News



CFAFC's Reem S. Abu-Rustum has been appointed to chair the **AIUM Clinical Content Task Force**. She has been included amongst the **ISUOG International Faculty** and accepted to join **ISUOG 3D SIG** (special interest group). She also participated in the Ob/Gyn Resident Ultrasound Course at the **American University of Beirut Medical Center**. She is ever so grateful at having been giving all these invaluable opportunities.

Landmark Article from the Lancet

International standards for fetal growth based on serial ultrasound measurements: the Fetal Growth Longitudinal Study of the INTERGROWTH-21st Project

Aris T Papageorghiou, Eric O Ohuma, Douglas G Altman, Tullia Todros, Leila Cheikh Ismail, Ann Lambert, Yasmin A Jaffer, Enrico Bertino, Michael G Gravett, Manorama Purwar, J Alison Noble, Ruyuan Pang, Cesar G Victora, Fernando C Barros, Maria Carvalho, Laurent J Salomon, Zulfiqar A Bhutta*, Stephen H Kennedy*, José Villar*, for the International Fetal and Newborn Growth Consortium for the 21st Century (INTERGROWTH-21*)†

Papageorghiou et al have recently published a landmark article in the **Lancet** as part of the INTERGROWTH-21st PROJECT. The study, known as the Fetal Growth Longitudinal Study (FGLS), aimed to develop international growth and size standards for fetuses similar to the WHO's 2006 international growth standards for infants and children up until the age of 5.

This was a multicenter observational study carried out in 8 countries: Pelotas, Brazil; Turin, Italy; Muscat, Oman; Oxford, UK; Seattle, WA, USA; Shunyi Country, a suburban district of the Beijing municipality, China; the central area of the city Nagpur (Central Nagpur), Maharashtra, India; and the Parklands suburb of Nairobi, Kenya. In these locales, most of the health and nutritional needs of mothers were met and they were receiving good prenatal care. A cohort of women at low risk for development of intrauterine growth restriction and with reliable early dating were selected to undergo serial ultrasound scans for fetal biometric measurements from 14 weeks of gestation until birth. They were scanned at 5 week intervals and the following was obtained: BPD, OFD, HC, AC and FL. Using second-degree fractional polynomials, the best 5-fitting curves for the measurements were selected. In order to account for the longitudinal design of the study, these curves were then further modeled in a multilevel framework. Of 13108 women who were screened for the study, only 4607 (35%) were eligible. Of those, 4321 (94%) were included in the analysis since they delivered healthy fetuses without any major complications or fetal malformations.

For each of the 5 growth parameters, there were small mean differences between the observed and smoothed centiles for the 3rd, 50th and 97th centile. As such, the curves for the 3rd, 5th, 10th, 50th, 90th, 95th and 97th centiles for each of the 5 measurements were calculated according to gestational age. The resulting curves represent the international standards for fetal growth.

This landmark study establishes the global new growth standards to be incorporated into clinical practice whenever fetal biometric measurements are obtained sonographically for comparisons across populations.



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CFAFC expresses its sincerest appreciation to Drs. Elie Barakat, Lama Daher, Linda Daou, Georges Haddad, Nabil Helou, Mark Sklansky, Sammy Tawk and ISUOG Secretariat for their contributions to this issue.

*"And though she be but little,
She is fierce!"*
A Midsummer Night's Dream
William Shakespeare

For any interesting case reports, comments, suggestions or announcements to be included in our newsletter, please send an e-mail to rar@cfafc.org.

Prenatal Diagnosis of Vein of Galen Malformation

23-year-old primigravida in a non-consanguineous marriage was referred at 33 weeks of gestation. The patient had no significant medical history. Her earlier scans were reportedly normal.

On evaluation, there were dilated cardiac cavities, mainly in the right heart, along with a cardio-thoracic area ratio of 0.5 (>1/3), consistent with cardiomegaly (Fig. 1). Dilatation of the superior vena cava (Fig. 2) and the left brachiocephalic vein (Fig. 3) was also noted. No other cardiac abnormalities were present. In addition, an axial B mode ultrasound image through the fetal brain (Fig. 4) showed a cerebral midline anechoic tubular structure above the midbrain with positive blood flow on Doppler examination (Fig. 5) draining into a dilated sagittal sinus. The ultrasound findings were consistent with a Vein of Galen aneurysmal malformation together with its subsequent high output cardiac failure. This was confirmed by MRI.

Vein of Galen aneurysmal malformation (VGAM) remains a rare intracranial cerebral vascular abnormality, although being the most common symptomatic cerebrovascular malformation presenting in neonates and infants. The malformation is due to an arteriovenous fistula between the primitive choroidal vessels and the median prosencephalic vein (MPV) that develops during the 6th to 11th weeks of gestation. The high output left-to-right shunt will generally result in cardiac failure leading to hydrops fetalis in severe cases.

With the advent of antenatal ultrasound, the diagnosis of VGAM is generally made in utero. It is mostly reported in the 3rd trimester since it usually appears late in pregnancy. Detection of a midline supra-thalamic cerebral anechoic tubular structure, showing prominent flow on Doppler examination and contiguous with a dilated sagittal sinus, is generally sufficient for the diagnosis. Associated ultrasound features include cardiomegaly, enlarged neck vessels and ventriculomegaly.

Reproduced with Permission from: Tawk S, Helou N, Barakat E, Daou L (2015) Vein of Galen aneurysmal malformation: Prenatal ultrasound diagnosis. EURORAD. DOI: 10.1594/EURORAD CASE.12651.



Figure 1



Figure 2

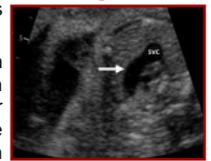


Figure 3



Figure 4



Figure 5

Upcoming Congresses

COURSE TITLE	DATES	LOCATION	WEBSITE ADDRESS
2nd Fetal Cardiac Symposium	Sept 10 - 12, 2015	Chicago, IL	www.fetalcardiacsymposium.com/
Fetal & Women's Imaging	Sept 10 - 12, 2015	Seattle, WA	www.worldclasscme.com/conferences/fetal-and-womens-imaging1/
6th Annual Fetal Echocardiography Normal and Abnormal Hearts	Oct 1 - 3, 2015	Las Vegas, NV	www.edusymp.com/product/details/806
XXI FIGO World Congress	Oct 4 - 9, 2015	Vancouver, Canada	http://figo2015.com
25th Annual Congress of ISUOG	Oct 11 - 14, 2015	Montreal, Canada	www.isuog.org/WorldCongress/2015/
5th Annual Fetal Echo Symposium at UCLA	Oct 24, 2015	Los Angeles, CA	www.cme.ucla.edu/courses/event-description?registration_id=96321
12th World Congress of Perinatal Medicine	Nov 3 - 6, 2015	Madrid, Spain	www.wcpm2015.com
10th Annual Patient Safety in Obstetrics 2015: Reducing Risk and Improving Outcome	Nov 6 - 7, 2015	Orlando, FL	www.edusymp.com/product/details/809
3rd Annual Advances in Prenatal Molecular Diagnostics	Nov 16 - 18, 2015	Boston, MA	www.healthtech.com/prenatal-diagnostics
19th International Annual Congress of LSOG	Nov 19 - 21, 2015	Beirut, Lebanon	www.lso.org.lb/