



Center For Advanced Fetal Care Newsletter

Volume 3 Issue 4
Fall of 2012
Tripoli – Lebanon

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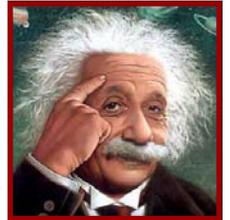
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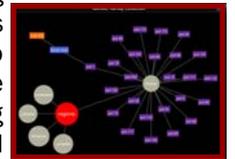
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Virtually There...

A year ago in the Fall issue of our newsletter, we wrote: “and with the super fast track that the ‘virtual’ is replacing the ‘physical’, it shall come as no surprise when the world congresses of today, as we have come to know them, become an extinct, compartmentalized, memory of the past”... And how true that is proving to be: with Twitter, Facebook, OnDemand and the like, we can now ‘virtually’ multi-exist anywhere with geographical and time boundaries obsolete...We can even make the brains of world geni available for study on our portable devices (Einstein’s brain on NMHMHC Harvey App). The lines between the ‘virtual’ and the ‘actual’ are getting thinner and thinner: we are delving more and more into the ‘black hole’ challenging metaphysical principles (<http://usat.ly/QCEuMx>) and constantly being challenged into trying to adapt to the conditions of ‘cyberspace’. Today, as we spend more time manning the space station in ‘actual’ cyberspace, medicine is further challenged into being able to deliver proper medical care and carry out ‘actual’ emergent surgical procedures at zero-gravity. Which brings us to the latest of medical innovations: a surgical device capable of stopping bleeding and containing bodily fluids at zero-gravity, an absolute requirement for preventing the contamination of the spacecraft (<http://usat.ly/SB0KbD>). As such, we dedicate this issue to the ‘virtual-turning-actual’. We present ‘actual’ studies, cases and ‘actual’ personal reports, and we guide you to the best in the ‘virtual’ medical world, in addition to our usual quarterly features. This is in the hopes of maintaining the focus on our ‘actual’ medical mission in the most exciting ‘virtual’ world of tomorrow...



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Part of Albert Einstein's Brain
NMHMHC Harvey App

Randomized Controlled Trial of Arabin Pessary in Singletons

The first randomized controlled study on the role of the Arabin pessary in the prevention of preterm delivery, at less than 34 weeks, was carried out by Goya et al (Lancet 2012; 379: 1800-1806). In the Presario Cervical para Evidar Prematuridad (PECEP) trial carried out in 5 hospitals in Spain, 385 pregnant women, age 18-43, with a short cervix less than 25 mm at the midtrimester scan, were randomized to one of two arms: to have an Arabin pessary placed (n=192), or to be expectantly managed (n=193). This study was not masked due to the nature of the intervention. Analysis was by intention to treat. The primary outcome was delivery prior to 34 weeks. The rate of spontaneous vaginal delivery was significantly less in the pessary group: 6% versus 27%, odds ratio 0-16, CI 0.08-0.37 (p < 0.001). There were no associated serious adverse effects reported in the women using the pessary. The authors conclude that in properly selected high-risk women, the Arabin pessary may prevent preterm birth.

Fetal Hydronephrosis as a Predictor of Neonatal Urologic Outcomes

The fetal renal pelvis is a marker for trisomy 21 and there is always concern as to what cut-offs are an indication for the postnatal need for surgery. As such, Shamshiraz et al addressed this critical cutoff in their retrospective study just published in the Journal of Ultrasound in Medicine (JUM 2012; 31: 947-954). They reviewed the records of neonates evaluated postpartum who had isolated hydronephrosis with an AP diameter ≥ 5 mm in the second trimester and ≥ 7 mm in the third. They had a total of 74 fetuses out of whom 53 had followup. The authors found that a second trimester AP diameter of 9.5mm had a 71.4% sensitivity and 81.1% specificity for postnatal surgery. However, a third trimester AP of 15mm was superior with a sensitivity of 85.7% and a specificity of 94.6%. The authors thus recommend following these fetuses and checking them in the 3rd trimester and arranging for post partum evaluation. A third trimester AP > 15mm is the best predictor.



AP Pelvis of 17.8mm at 36w4d

Actually There...Highlights from the 22nd World Congress of ISUOG, Held in Copenhagen-Denmark, Sept 8-12, 2012. By Malek Nassar, MD



The 22nd World Congress in Ultrasound Obstetrics and Gynecology (ISUOG 2012) was held in Copenhagen, Denmark September 8-12. Over 2000 international delegates attended and enjoyed a rich varied program addressing various topics in gynecological (fertility and oncology) and obstetrical ultrasound.

Congress highlights included Dr. Sonia Hassan's brilliant presentation on the prediction and prevention of preterm labor. An intense discussion about the utility of universal sonographic screening, utilizing cervical length, with its impact on preterm birth followed the presentation.

New results in open as well as fetoscopic fetal surgery were presented, with promising results presented by Kohl et al from Germany on the treatment of spina bifida by fetoscopy. This minimally-invasive technique would considerably reduce the maternal risks, especially with respect to the weakness of the uterine scar.

And as is customary, Professor Nicholaides, in an overcrowded hall, presented a most up-to-date lively overview of screening for chromosomal and fetal anomalies. This was presented in the context of non-invasive prenatal screening, a major focus at this year's ISUOG. This topic was remarkably presented by Professor Diana Bianchi, addressing the ultimate clinical implementation of non-invasive testing: a screening or a diagnostic modality?

In addition, another highlight of the congress was the didactic and live scan demonstrations on evaluating the fetal heart, during both the first and second trimesters, by such leaders in the field as Carvalho and Chaoui...

There were several other intense presentations addressing the central nervous system, intra-uterine growth restriction among various other topics. But unfortunately concurrent sessions prevented the delegates from attending all sessions, a problem that ISUOG OnDemand 'virtually' solves, making available some 1058 presentations to view on line (www.isuog.org).

The success of ISUOG 2012 is a direct result of the tremendous efforts and dedication of Professor Tabor and the entire ISUOG team. And as such, we extend our sincerest appreciation to Dr. Tabor for her most distinguished 2 year presidency, which she has now handed over to Professor Ville. And to Professor Ville we wish the best of luck as he takes over the reigns, and dons his 'construction gear' and leads us into the future of this rapidly evolving specialty with its tremendous promise...

Perhaps, the greatest message which left the heaviest impact was that of the importance of collaboration between colleagues and among centers, a most critical requirement for progress and advancement in any field...That stated, we now aspire to have this spread globally reaching our region of the world, and specifically our country, in order to better the future of our mothers and the future generation...

With this, the 'actual' report on ISUOG 2012 now closes, until we shall hopefully meet again, in Sydney - Australia, in time for ISUOG 2013 on the 6th of October 2013...



2013: Year of Ultrasound. A Call For Action by SUSME and the AIUM...

With the ever evolving role of ultrasound, its portability, and its clinical versatility in the various medical disciplines where it may be used at any point-of-care setting, from central line placement, to fluid drainage, to trauma, to the outreach setting, in addition to its well known uses in obstetrical and medical care, it has been coined as the "stethoscope of the future" by the Society of Ultrasound in Medical Education (SUSME). As such, there is a move to incorporate ultrasound into medical education at an early stage and SUSME has teamed with the American Institute of Ultrasound in Medicine (AIUM) and they have launched '2013 Year of Ultrasound' at www.ultrasound2013.org in an attempt to raise awareness and widespread incorporation of ultrasound into medical curriculae. Most recently, Michael Blaivas MD, FAIUM, FACEP, president of SUSME, sent out a letter to the SUSME membership in which he made several suggestions to all educators in order to promote this campaign and start implementing the incorporation of ultrasound into the various medical curriculae. In his letter, Dr. Blaivas recommended that medical societies involved with ultrasound education may add a link to www.ultrasound2013.org on their websites. They may also wish to incorporate editorials in their respective journals addressing the role of ultrasound in the various disciplines, and they may plan specialized training sessions/workshops on point of care ultrasound for their members.

Of note is that several medical schools in the USA, at the forefront of which is the University of South Carolina, have integrated ultrasound into the medical curriculum of their medical students during all 4 years, a move that is gaining momentum as it has left a tremendous impact on the medical students, and has helped get them familiarized, at an early point in their medical careers, with this most sophisticated of imaging modalities. Dean Nassar at the University of Balamand Medical School is pioneering this move in Lebanon, with plans currently underway to introduce ultrasound into the first year medical students' curriculum in 2013.

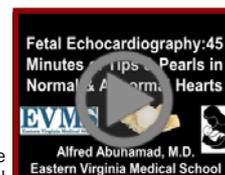
There are several useful links that may be useful in order to commence and integrate ultrasound into the medical curriculum and CFAFC recommends the following:

- 1- www.susme.org: The main website of SUSME. It can serve as the main guide and resource with some 21 available in depth learning e-modules. In addition, it offers free membership to students allowing them access to the modules and the various activities of the society.
- 2- www.ultrasound2013.org: The current campaign put forth by SUSME and the AIUM raising awareness as to the importance of ultrasound education at all levels. This would also be the perfect site on which to share experience and stay updated as to the latest news and developments.
- 3- www.ultrasoundfirst.org: The campaign put forth by the AIUM stressing the safety, affordability and effectiveness of ultrasound as a first line diagnostic modality across many disciplines. The site provides free access to the "Sound Judgment" article series, a most informative series that will ignite the interest of the students and the trainers as well...
- 4- www.aium.org/communities/usMedEd.aspx: This is the link to AIUM's "Ultrasound in Medical Education" community, a special interest group focused on the integration of ultrasound into the medical education of students and residents.

So with the upcoming 2013 designated as the 'Year of Ultrasound', let us intensify our 'actual' collective efforts, irrespective of where we may 'virtually' be, and pave the way for the future generation of doctors, to further empower them by enhancing their diagnostic accuracy, as well as their procedural capabilities, through the use of ultrasound...



CFAFC's Recommendation: Abuhamad's 45 Minutes of Tips and Pearls in Normal and Abnormal Hearts, Sept. 10, ISUOG 2012...



From an expert on fetal echocardiography comes a magnificent presentation on tips and pearls for evaluating the fetal heart...Abuhamad's expertise and mastery of the heart is ever so evident in this most practical, concise and heavily illustrated lecture that is a must to anyone evaluating the fetal heart. In his presentation, Abuhamad presents the 15 most critical points for proper evaluation of fetal cardiac anatomy and ascertainment of abnormalities. We thus present these pearls but urge the reader to watch the presentation on ISUOG's OnDemand (www.isuog.org) for maximal benefit...The 'virtual' proves most enlightening, and extremely worthwhile...

1- Ascertain fetal situs. There is a high association between situs inversus and Kartagener's syndrome. 2- In cases of situs ambiguous, determine the relationship between the aorta and IVC. If both are on the right side, then there is a high chance of right isomerism. If the IVC is absent then there is a high chance of left isomerism. 3- For a proper 4 chamber view there must be a full rib on each side. 4- Train yourself to assess the cardiac axis which should be around 45 degrees. Left axis deviation may signify underlying Tetralogy of Fallot (TOF), common arterial trunk (CAT) or Ebstein's anomaly. 5- Learn to recognize the morphological uniqueness of the right ventricle (RV) which is heavily trabeculated and with an inlet and outlet on different levels, in comparison to the smooth single leveled left ventricle (LV). 6- When checking for a ventricular septal defect, starting from the the apical view, look for the confirmatory T-line created by turbulent flow as it hits the septal edge. This differentiates a septal defect from echo dropout. 7- The area behind the left atrium at the level of the 4 chamber view is a must-see area to determine the presence of the inferior pulmonary veins ruling out anomalous pulmonary venous return. 8- Check for the normal off-setting between the mitral (MV) and the tricuspid valves (TV) to rule out an AV canal. The TV is more apical in its insertion. 9- Follow the aorta out of the LV and note the angle at which it exists. Loss of this angle may signify TOF or a double outlet ventricle. 10- To ascertain transposition of the great arteries, abandon the parallel-exiting vessel sign, rather follow each outflow to make sure that the bifurcating vessel, which is the pulmonary artery, is exiting the morphological RV. 11- To differentiate CAT from TOF, note the origin of the pulmonary artery. If it is from the RV then it is most likely TOF as in CAT the pulmonary artery originates from the trunk itself. In addition, if there is any regurgitation in flow across the semilunar valves, think CAT. 12- Ebstein's anomaly involves apical displacement of the TV. To differentiate it from a dysplastic TV, note the origin or the regurgitant jet from deep within the RV. 13- To diagnose pulmonary and aortic stenosis note the echogenicity of the valve and whether the leaflets completely disappear in systole as they should. In addition check the peak systolic velocity and look for any post valvular vessel dilatation. 14- Coarctation of the aorta remains a challenging prenatal diagnosis with high false positive rates. As such, look for ventricular disproportion and the presence of a narrow aortic arch. The 3 vessel view remains most useful in making this diagnosis. 15- No matter which "car" you drive, do not be a "back seat driver", grab the transducer and start scanning the fetal heart...Add CFAFC's pearls for perfection, the 3P's: patience, practice and perseverance!

THIS AND THAT

Upcoming SMFM



The 33rd Annual Meeting of the SMFM will be held in San Francisco February 6-11, 2013. For details on the exciting pre-congress program, scientific program, registration as well as hotel information, please visit www.smfm.org

ISUOG Outreach Update

ISUOG Outreach has expanded its reach well into Asia with its first Level I training mission carried out in Mongolia Sept 24-28, 2012. The mission was under the leadership of Dr. Philippe Jeanty together with a distinguished group of international volunteers who provided a total of 18 trainees, over the course of 5 intense days, with didactic and hands-on training, upon the completion of which the trainees received their ISUOG certification. Details on this and other missions can be found at <http://isuogoutreach.wordpress.com/>

Recommended App: Manual of Obstetrics & Gynecology



This is an invaluable app containing a wealth of diagnostic and management recommendations for a wide array of obstetrical and gynecological conditions. This app utilizes a systematic approach and contains a number of tables, and is comprehensive in addressing every aspect of women's care from routine annual screening, to prenatal care, to interpreting fetal monitoring, to recognizing major medical conditions, in addition to presenting the most common medical management to such life threatening maternal conditions as preeclampsia and postpartum hemorrhage.

CFAFC Congratulates LSOG on FIGO



CFAFC extends its heartfelt congratulations to Dr. Faysal El-Kak, president of the Lebanese Society of Ob/Gyn (LSOG), who has been elected as a member of the Executive Board of the International Federation of Gynecology & Obstetrics (FIGO) for a 6 year term.

CFAFC Recommends: DeepDyve



DeepDyve (www.deepdyve.com) teams up with major medical and non-medical publishers, making access to various articles in select journals feasible. Any interested reader can query DeepDyve's database on a particular subject and then rent the articles of interest for as little as \$1.4. The PDF's to the rented articles are then stored 'in the cloud' and they can be read from any computer or portable device. A list of the current available medical journals available on DeepDyve may be accessed at www.deepdyve.com/browse/subject-areas/medicine. DeepDyve offers a 14 day free trial, in addition to special discounted monthly rates.

Hot-Off-The-Press: Value of the Fetal Plantar Shape in Prenatal Diagnosis of Talipes Equinovarus. Liao et al. Journal of Ultrasound in Medicine 2012; 31: 997-1002.

Talipes equinovarus (TE) is one of the most commonly encountered anomalies in the fetal musculoskeletal system. It may be an isolated finding or present together with other structural fetal abnormalities. Though it does not signify any underlying aneuploidy when isolated, it nonetheless is an important prenatal diagnosis to make in order to alert the family, avoid any postnatal unexpected diagnoses, and provide immediate postnatal care. However, due to fetal positioning and in-utero compression, there oftentimes is false positive diagnosis of TE which may raise parental anxiety. As such, Liao et al sought to investigate various antenatal sonographic findings in an attempt to improve the sensitivity and decrease the false positive rate of prenatal diagnosis of fetal TE. They compared 27 sets of abnormal feet to 129 sets of normal feet, at 18-39 weeks, with respect to the following sonographic characteristics of the fetal plantar shape: the width, length, width-to-length ratio and the bimalleolar angle. Of the abnormalities, 15 fetuses had bilateral TE and 12 were unilaterally affected. In addition, 16 fetuses had isolated TE and 11 had other structural abnormalities namely spina bifida, cardiac abnormalities, gastroschisis, diaphragmatic hernias and other limb deformities. There was statistically significant correlation between all three measurements and advancing gestational age in the normal group of fetuses. Utilizing t-tests, the authors demonstrated a statistically significant difference between the affected fetuses and the controls in that the affected fetuses had shorter and wider feet than the normal controls. In addition, the abnormalities had a statistically significant negative correlation between the width-to-length ratio and the bimalleolar angle where a higher ratio was associated with a smaller angle indicating a more severe degree of deformity. The authors conclude that the prenatal evaluation of the width-to-length ratio is an invaluable tool in the prenatal diagnosis of TE. In the affected fetuses, the fore-foot adduction and the hind-foot varus contribute to a large width-to-length ratio and a small bimalleolar angle resulting in increased curvature and a deep medial skin crease. As such, the shape of the plantar surface of the fetal foot is an invaluable guide in prenatally diagnosing TE.



Normal Plantar Shape



Abnormal Plantar Shape



3D Surface Rendering



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CFAFC would like to thank Dr. Bitar, Dr. Nasr and Dr. Nassar for their contributions to this issue.

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

Double Vessel Sign: The Key to the Prenatal Diagnosis of Interrupted Inferior Vena Cava with Azygous Continuation. By Bernard Nasr, MD and Fadi Bitar, MD

A 25 year old primigravida presented for routine evaluation at 22 weeks. Evaluating the fetus revealed levo-cardia with a right sided stomach consistent with abdominal situs inversus (Figures 1-2). A double vessel sign, made up of the aorta (Ao) and a dilated azygous vein (Az), seen at the level of the 4 chamber view (Figures 2-3) was noted, diagnostic of an interrupted inferior vena cava (IVC) with azygous continuation. Upon evaluation of the second vessel, pulse wave Doppler confirmed the flow pattern to be consistent with venous flow, confirming the second vessel as the azygous vein (Figure 4). Two pulmonary veins were seen inserting into the left atrium ruling out total anomalous pulmonary venous return (Figure 2). Pediatric cardiology confirmed the findings. There were no other fetal abnormalities noted and amniocentesis was performed revealing a normal fetal karyotype of 46XX. The family declined any further evaluation by MRI to further ascertain the presence of polysplenia, and they elected termination of pregnancy. Postmortem examination was declined. In the absence of any additional information, and with an interrupted IVC, our case most likely represents left atrial isomerism.

Heterotaxy syndromes are complex challenging prenatally encountered cases. The prognosis largely depends on the severity of associated cardiac abnormalities. In addition, postnatal bowel obstruction caused by intestinal malrotation may be life-threatening. Polysplenia and asplenia may be associated findings and help differentiating right from left atrial isomerism.

In conclusion, as this case illustrates, determining fetal situs is critical for carrying out a proper evaluation. In addition, the double vessel sign at the level of the 4 chamber view is key to the diagnosis of interrupted inferior vena cava with azygous continuation. Though this is highly suggestive of left atrial isomerism, further workup is necessary to confirm the diagnosis.

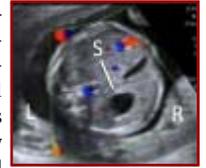


Figure 1



Figure 2



Figure 3

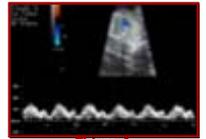


Figure 4

Upcoming Congresses

COURSE TITLE	DATES	LOCATION	WEBSITE ADDRESS
Annual Congress of the Lebanese Society of Obstetrics & Gynecology	November 15-17, 2012	Beirut, Lebanon	www.lsog2012.com
15th Mid-Atlantic Ultrasound Symposium	November 16-17, 2012	Virginia Beach, VA	www.evms.edu/continuing-medical-education/evms-cme-15th-annual-mid-atlantic-ultrasound-symposium.html
21st Annual Ob/Gyn Update for Clinical Practice	Nov 29 - Dec 2, 2012	Ft Lauderdale, FL	www.cmebyplaza.com/Registrants/GoHo12/About.aspx
Fetal Medicine Foundation's Advanced Ultrasound Course	December 1-2, 2012	London, UK	www.fetalmedicine.com/fmf/
6th International Obstetrics & Gynaecology Conference Oman	December 5-7, 2012	Muscat, Oman	www.obgyninternationalconferenceoman2012.com
The Fourth Phoenix Fetal Cardiology Symposium	January 16-20, 2013	Phoenix, AZ	www.fetalcardio.com
Maternal - Fetal Imaging 2013	January 25-27, 2013	San Antonio, TX	http://www.cvent.com/events/maternal-fetal-imaging-2013/event-summary-e352eac8b29d4ca79c643ab41ed7e00f.aspx
1st Congress of the Saudi Maternal Fetal Medicine	February 5-7, 2013	Riyadh, Saudi Arabia	www.sogs.org.sa/en/Event/1st-congress-of-the-saudi-maternal-fetal-medicine
33rd Annual Meeting of the Society of Maternal Fetal Medicine	February 11-16, 2013	San Francisco, CA	www.smfm.org/Annual%20Meeting%20Page.cfm?ht=me
36th Annual Advanced Ultrasound Seminar: Ob/Gyn	February 14-16, 2013	Lake Buena Vista, FL	www.aium.org/cme/events/sem2013/sem2013.aspx