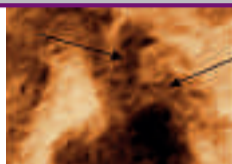




2010/1st edition No.2

FOCUS

Exclusive for Club Members EMEA – News and Facts.



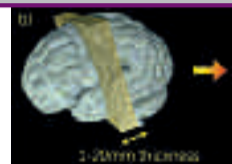
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www.volusonclub.net

Semi-Automated System for Measuring Nuchal Translucency (SonoNT)

EDITORIAL



Michael STOCKHAMMER

General Manager
GE Healthcare
Ultrasound Europe,
Middle East & Africa

Dear Readers,

The observant amongst you may already have noticed the new photo which accompanies this editorial: Heinz Gloor has left for his well deserved retirement, and I have the privilege of taking over as the new General Manager Ultrasound EMEA.

Everyone here at GE Healthcare is most grateful to Heinz for his hard work and commitment on behalf of Ultrasound over the past ten years, a period which has seen tremendous growth in technological innovation and state-of-the-art applications. Heinz played a major role in the generation of consistent technological breakthroughs and embedding them into Voluson ultrasound systems for the benefit of the OB/GYN community. This is a proven strategy and one we shall continue to follow.

The increasing sophistication of today's ultrasound technologies needs to be matched by modern and innovative ways of enabling Voluson users to get the most from their systems: This edition of VolusonClub FOCUS looks at several Voluson applications which are designed to accelerate and enhance the process of diagnosis. We also show you how the VolusonClub is using specialized courses, online resources and audio-visual materials to help you, our customers, stay at the forefront of technological developments in ultrasound for OB/GYN.

I look forward to meeting many of you at GE Healthcare events in due course. Until then, sit back and enjoy reading this edition of VolusonClub FOCUS.

Your
Michael Stockhammer

Fetal nuchal translucency (NT) thickness is the most effective marker of trisomy 21 and all other major chromosomal defects. Increased NT is also associated with many fetal defects, genetic syndromes and adverse pregnancy outcome.

The use of NT in the assessment of accurate patient-specific risks for chromosomal and other abnormalities necessitates adherence to a standard technique in order to achieve uniformity of results among different operators. Two important elements involved in assessing NT can introduce operator bias and either the under- or over-estimation of the measurement and consequent increase in the variability of measurements: Firstly, the selection of the exact place behind the fetal neck containing the maximum vertical distance between the nuchal membrane and the edge of the soft tissue overlying the cervical spine. Secondly, the accurate placement

of the calipers on the two lines.

In order to help avoid these problems, a semi-automated method of measuring NT thickness has been developed. After obtaining the appropriate image the operator places an adjustable box behind the fetal neck which encloses the area under examination (Figure 1). The box should include a large segment of the fetal NT, with clearly visible proximal and distal edges and containing the area with the maximum NT. The automated system then identifies the greatest vertical distance between the two lines. The automated system draws one line through the centre of the nuchal

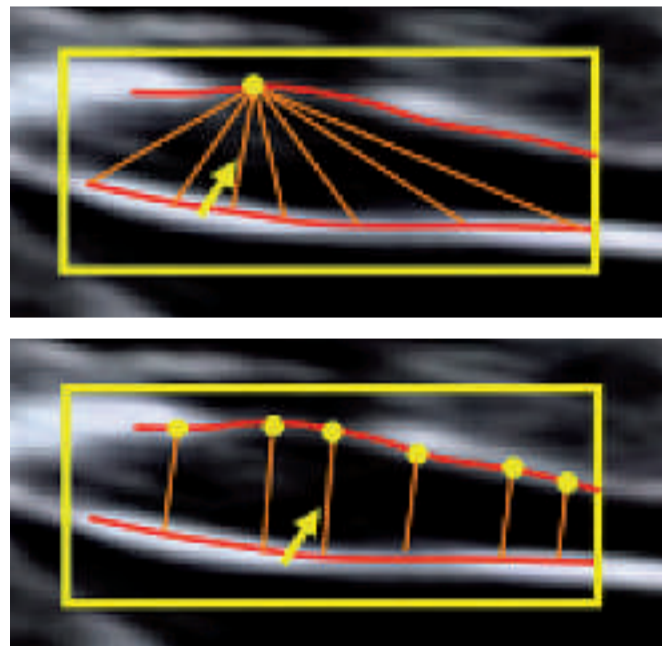


Figure 2. In the semi-automated method the system calculates the minimum vertical distance between the two lines at each point along the nuchal membrane (top) and computes the largest of these vertical distances as the SonoNT (bottom).



Figure 1. Mid-sagittal section of the fetal head and upper thorax. Using the semi-automated method the operator places an adjustable box (yellow outline) behind the fetal neck enclosing the desired area for measurement of nuchal translucency thickness. The automated system draws one line through the centre of the nuchal membrane within the box and a second line along the edge of the soft tissue overlying the cervical spine.

membrane and a second line along the edge of the soft tissue overlying the cervical spine. The system then identifies the greatest vertical distance between the two lines.

Our research has shown that this semi-automated system substantially reduces the variability in NT measurements which result in using the traditional, manual approach. However, the semi-automated system still requires that sonographers be ap-

propriately trained - firstly, to obtain the correct mid-sagittal section of the fetus in the neutral position, and secondly, to place so that it includes a large segment of the fetal NT, with clearly visible proximal and distal edges, and containing the area with the maximum NT, but excluding structures such as the amniotic membrane, umbilical cord or intracerebral translucency that might lead to a false measurement. The lines drawn automatically by the system are displayed on the ultrasound image and the sonographer must, following review, confirm whether they have indeed been drawn through the appropriate structures before accepting the displayed measurement of fetal NT.

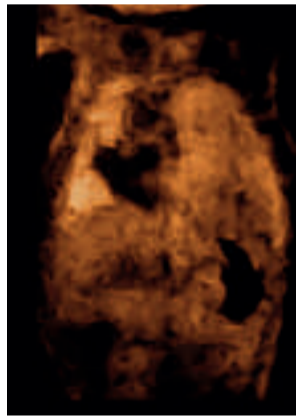
Prof. Kypros NICOLAIDES



K.S. HELING, R. CHAOUI, Prenatal Diagnostics & Human Genetics, Berlin, Germany

Using Minimum Mode in Prenatal Ultrasound Diagnostics

In recent years the use of 3D and 4D ultrasound in prenatal diagnostics has become widespread. One of the diagnostic techniques for processing volume data sets obtained using 3D, 4D or STIC is the minimum mode. This white paper presents our experiences in using minimum mode to image fluid-filled organs in normal fetuses and fetuses with malformations. The examinations were all performed using a Voluson 730 Expert and a Voluson E8.



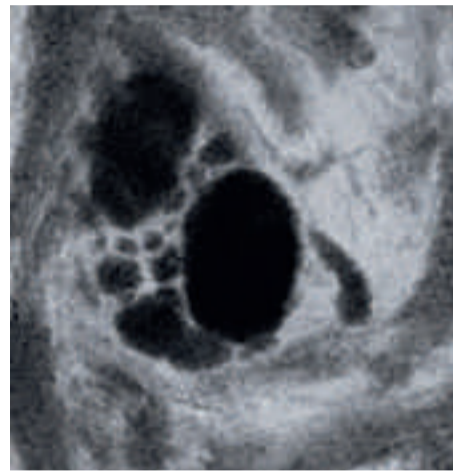
Diaphragmatic hernia: Right-sided diaphragmatic hernia, 22nd week of pregnancy. Frontal plane – stomach and heart are in different sites.

Minimum mode is better than colour Doppler for imaging vessels because the image sequence rate is higher and other fluid-filled organs are also displayed. 3D Colour Power Angiography can also be used for

imaging vessel malformations but this technique focuses on the flow of blood and provides no information about the surrounding tissue.

Images are obtained by setting the render mode to minimum. The B-mode image is set towards dark to obtain a contrast-rich image, and the volume image is quality set to high. The imaging of organs in minimum mode is most successful for the thoracic and abdominal organs. All the volumes in the present study were obtained using the static 3D volume mode. The best volumes were obtained from a sagittal longitudinal plane through the fetus with the fetus in a dorso-posterior position. Volume data sets obtained using a frontal longitudinal plane or a horizontal section are also usable but of an inferior quality.

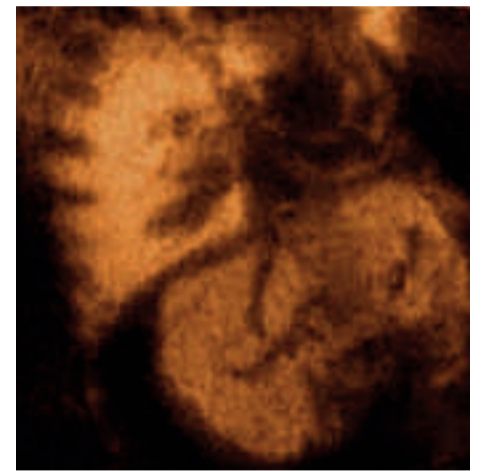
We were able to graphically show the spatial relationship of the organ systems, especially in the case of malformations. As it is possible to navigate within a volume data set, it is very easy to determine on which side of the body an organ is located (stomach, vessels, heart) and to show pediatricians and child surgeons images which are very similar to those of postnatal diagnostics.



Urogenital tract: Image of a polycystic kidney. Minimum mode makes it easy to differentiate between the various cysts.

Possible future developments include the volume calculation of fluid-filled organs using vocal technology and the use of minimum mode with 4D ultrasound.

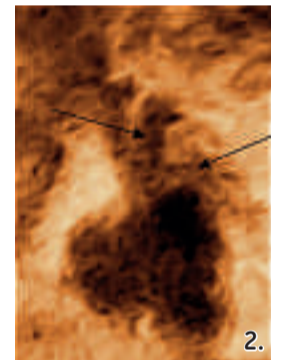
To conclude, we found that minimum mode makes differential diagnosis in fetuses with malformations faster and easier.



Thorax: Dilated bronchi in a case with unilateral bronchial atresia.



1. Parallel course of the great vessels in a fetus with transposition of the great arteries. 2. Common arterial trunk with right sided aortic arch (arrow left) and a narrow pulmonary artery (arrow right).



ViewPoint 6 at ISUOG 2010 Gains in Efficiency & Quality of Care

ViewPoint is a comprehensive data management system designed for Maternal Fetal Medicine, Obstetrics and Gynecology practices and other diagnostic ultrasound users. The system provides ultrasound review, reporting and image archiving capabilities, and is compatible with the Voluson and LOGIQ product families as well as 3rd party ultrasound systems.

Breakthrough 2011: ViewPoint 6

With the release of ViewPoint 6 many customer requirements and requests have been addressed to further improve workflow and efficiency. The user interface has been greatly improved, making the application more intuitive, faster and easy to use. Furthermore, flexibility for adapting the reports and the termin-



ology to the individual customer has been increased. Standard reports can be defined by users and can be filled by 'one click'. 6 additional languages have been added to provide a complete workflow solution for ultrasound departments around the world.

Greater efficiency for sonographers and physicians



With the installation of the ViewPoint system, certain clinics have been able to increase their exam volume by up to 50 percent without extending their hours, adding staff or reducing exam times. The difference is the increased efficiency of viewing the exam and generating reports. ViewPoint's structured reporting capabilities significantly reduce the administration involved in patient exams. Drop-down menus and the new Quick Report functionality help make doctors and sonographers more efficient. Sonographers also appreciate the automatic data transfer for measurements and images from the ultrasound machines. The examination can be reviewed and the report finalized at the physician's workstation during the day - usually after the exam has been completed and before the patient leaves the office.

Digital Image Archive for enhanced evaluation

Users reported that ViewPoint's digital image review capabilities have given the

sonographers a greater sense of freedom in scanning. With thermal paper records of the scans, sonographers felt limited by the number of images they could record. Now they can record all the images they wish, review them immediately, and decide which are most pertinent and representative. The physicians can review images at the workstation, compare them with previous studies and discuss the findings before the patient leaves the office.

Reports that help generate referrals

The ViewPoint system is able to produce highly professional, easy to read reports that are as brief or as detailed as physicians want. Key images and charts can be included to help referring physicians understand the findings.

Clear benefits

More than 2000 ultrasound labs globally have made tremendous gains in efficiency, quality of care, and communications as a result of installing ViewPoint for reporting and image management.



New offerings available exclusively to VolusonClub members only!

EDUCATION

2nd VISUS course in Zagreb, Croatia 22-23 October 2010

The course will be organized again by Prof. Podobnik and his team. This theoretical and practical course takes place in Poliklinika Podobnik, Croatia's most modern private maternity hospital.

1st VISUS Course in Slovakia 29-31 October 2010

This course will be held at the Lučivná Castle and is being organized by MUDr. Róbert Dankovčík and the Center of Prenatal Diagnostics s.r.o., with a group of well known local and international speakers.

3D/4D Course Zamość, Poland 10-12 December 2010

This course covers theoretical basics of volume ultrasound in fetal and gynecologic imaging and includes practical training in volume acquisition and review using on 4D View. The course is run by Dr Marcin Wiechec and Dr Agnieszka Nocun.

...further details at www.volusonclub.net

VolusonClub members profit from a variety of exclusive services and we are glad to announce our latest offerings.

White Paper Collection:

Stay up to date with the latest scientific developments in fetal ultrasound and ultrasound for gynecology. The VolusonClub has just published a collection of nine white papers, each written by a renowned expert in the



field, which are now exclusively available to club members. The authors include Prof. Pilu, Dr. Volpe, Dr. Benoit and Dr. Paladini, to name just a few. Visit the Offers section on the VolusonClub website for further information.

Application News in Video Format:

The Tips & Tricks section on the VolusonClub website is one of our members' favorite places. Here you'll find an Ask the Expert forum where you can post questions

about any topic related to Voluson applications. GE Healthcare application experts will reply with an answer as quickly as possible.

The User Guides section contains a directory of Quick Guides and User Manuals for you to read online or download. Just choose the guide or manual for your particular Voluson unit. Some of these materials are available in your local language.

We are pleased to announce further improvements to the Application News feature. Starting from now, our valuable Tips & Tricks will also appear



Roland MATTERN, Application Specialist, GE Healthcare, Voluson product range

in the form of short video clips which you can either view online or download and save. Each video clip explains how to use an individual Voluson application with Application Specialist Roland MATTERN



walking you through the procedure, step by step. The videos are designed to enhance your system knowledge and to support you in your daily work. The video clips will be released on an ongoing basis, so login to the VolusonClub website frequently for regular updates.

Visit us:
www.volusonclub.net

Contact us:
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TIPS AND TRICKS – APPLICATION NEWS



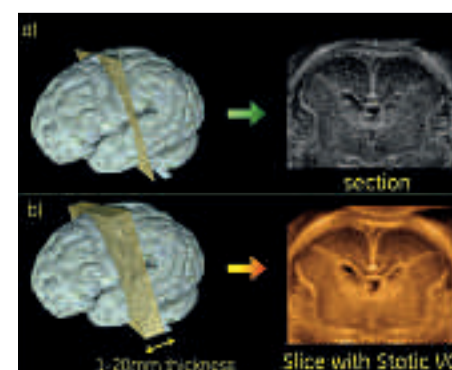
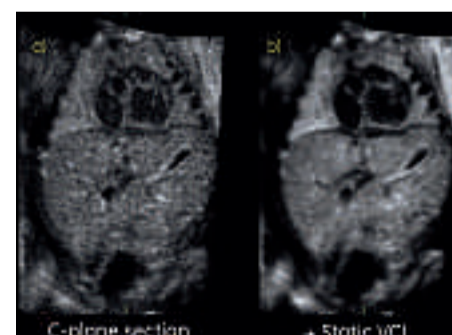
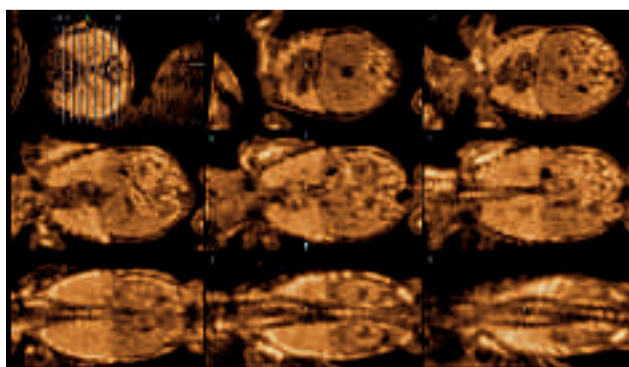
Volume Contrast Imaging - Increasing Axial & Lateral Contrast Resolution

VCI is used for the multiplanar analysis of 3D or 4D volumes. Rather than displaying a 2D plane, the VCI application extracts a thick slice from a volume. The slice can vary in depth from anything between 1 mm to 20 mm. The individual planes within the slice are then compared, allowing artefacts and noise to be isolated and filtered out.

This results in increased axial and lat-

eral contrast resolution, enabling individual structures to be more clearly visualized.

With the new Voluson E series, featuring advanced VCI and Omniview, volumes can also be dissected along curvilinear or even irregular planes.



Dedicated Customer Education An Eastern European Success Story



Modern ultrasound technologies have become extremely sophisticated and the number of applications offered by each Voluson ultrasound system continues to increase. As a result, customer education is an increasingly important aspect of the GE - customer relationship.

Whereas it was once commonplace to install a newly purchased system and only provide initial operator training, today it is clear that the more advanced technologies, especially those on our 3D/4D ultrasound systems, benefit greatly from specialized training.

Our first customer training programs began with single User Days designed to demonstrate how Voluson systems help improve diagnosis, boost patient throughput and reduce exam times, etc. These User Days were followed by longer VISUS courses (Vienna International School of Ultrasound Sonography) which were established in Vienna by Professor Kratochwil. VISUS provides regular training courses for 3D/4D ultrasound, but as

the courses were fully booked and run in English, attendance by customers from Eastern Europe countries was low.

Therefore it was decided to run VISUS on a country-by-country basis, and what first began as a trial in Cluj, Romania in November 2006 has now become a role model and success story for the entire Eastern European region. To date we have established regular courses in Poland, the Czech Republic, Slovakia, Hungary, Croatia, Serbia and Slovenia. We began with courses for 3D/4D ultrasound and have already extended them to cover CEUS (Contrast Enhanced Ultrasound) and Advanced Courses.



Each course is structured into three parts: technical & clinical theory, a practical workshop using laptops with pre-installed 4D View software & real clinical demo cases, and finally live scanning (video-projection) and hands-on sessions on pregnant models using between 5 and 8 Voluson systems.

UPDATE! From October 1, 2010, every new Voluson customer in Poland automatically receives a voucher to attend an ultrasound course free of charge.

Importantly, GE is simply the initiator of these courses. The courses themselves are independently organized by local ultrasound societies and ultrasound schools, local opinion leaders and speakers, but all with the cooperation and involvement of GE and our local distributors.

Course numbers are usually limited to a maximum of 30 and the attendees are Voluson customers and potential customers. 11 courses were run during the first half of 2010, and a further 8 are scheduled for the second half of this year.

Further information on upcoming courses can be found at www.volusonclub.net

NEWS



First VISUS course in Kazakhstan

The first VISUS course in Kazakhstan was held in September in Astana, the capital of this rapidly developing country.

The 2-day course was organized by GE Healthcare and supported by the local distributor Medicus Eurasia.

Lectures given by Professor M. Medvedev explained the benefits of Volume Ultrasound and advanced Voluson technologies. A special session focused on working with 4D View in a computer class. Using this unique program, doctors worked with clinical cases, using 4D View options to make a precise diagnosis of complicated cases.

The course was hugely successful – 170 doctors from all over Kazakhstan attended the lectures.

UPCOMING EVENTS 2010/2011

TOPIC	LOCATION	DATE
SIEOG - National Italian OB/Gyn Congress	Sorrento, Italy	17 - 20 Oct.
34. Dreiländertreffen	Mainz, Germany	20 - 23 Oct.
VISUS Course	Vienna, Austria	25 - 28 Oct.
3D Ultrasound in Gynecology Course	Nottingham, UK	10 - 12 Nov.
MEDICA	Düsseldorf, Germany	17 - 20 Nov.
International Symposium - Intrapartum Sonography: A Revolution in the Delivery Room	Modena, Italy	19 - 20 Nov.
Arab Health	Dubai, UAE	24 - 27 Jan.

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