



Oral Presentations

COMBINED ULTRASOUND VERY EARLY DIAGNOSTIC SCAN (CUVEDiS): THE ADVANTAGES OF FETAL ANOMALY SCAN AT THE NT EXAMINATION

Prof. R Achiron

Department of Obstetrics and Gynaecology, Sheba Medical Center, Tel-Hashomer, Israel

Objective: To evaluate the efficacy of very early meticulous fetal anomaly scan combined with nuchal translucency examination.

Methods: Patients at 12w0d - 13w6d with confirmed gestational age were prospectively evaluated at the Sheba Medical Center. Nuchal translucency (NT) examination was performed using a trans-abdominal transducer, 4 - 8 MHz, and meticulous anomaly scan was performed using a trans-vaginal transducer, 5 - 9 MHz or 6 - 12 MHz. All fetuses with major fetal anomalies were included in the study.

Results: One thousand and ninety-seven patients enrolled for the routine first-trimester screening study.

A combined ultrasound very early diagnostic scan (CUVEDiS) was performed in all the study population. One thousand and eighty had normal findings and 17 had malformations. All 17 patients with anomalies underwent cytogenetic evaluation: chorionic villus sampling (CVS), amniocentesis and karyotyping of the abortus.

Ten patients had an abnormal karyotype: 8 had trisomy 21, 1 had trisomy 13 and one had 4p deletion. In this group only 3 fetuses had abnormal NT findings, including 2 fetuses with trisomy 21, umbilical cord hernia and abnormal insertion of ductus venosus into the inferior vena cava.

In the normal karyotype group only 1 fetus had abnormal NT findings, with ambiguous genitalia and intra-uterine growth retardation. All the others showed significant malformations such as lumbar neural tube defect, tetralogy of Fallot with pulmonary atresia, posterior urethral valve, Pierre Robin sequence, bladder extrophy and Ivemark syndrome.

Conclusion: These preliminary results show that CUVEDiS is a valuable method for very early anomaly

scan and prenatal diagnosis. CUVEDiS should be considered for very early prenatal diagnosis.

WHAT YOU SEE DEPENDS ON WHAT YOU LOOK AT: GENETIC-FETAL ULTRASOUND PERSPECTIVE

Prof. R Achiron

Department of Obstetrics and Gynaecology, Sheba Medical Center

Fetal medicine is a new and evolving profession that requires a multidisciplinary approach to confront various fetal diseases.

Objective: To review the perspectives of genetic counselling and ultrasonographic evaluation in fetuses with abnormalities detected *in utero*.

Methods: A retrospective survey of stimulating and interesting cases will be presented.

Results: Four fetuses representing the following topics are described:

1. 'New technology and Pandora's box'
2. 'One sees what one knows'
3. 'What you see is the tip of the iceberg'
4. 'Not just images'

Conclusion: In modern obstetrics, a collaboration between genetic and fetal medicine is necessary for enhancing diagnosis and promoting accurate management.

FIRST-TRIMESTER FETAL CARDIOVASCULAR SYSTEM

Prof. R Achiron

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Objective: To demonstrate the feasibility of first trimester fetal cardiovascular system (CVS) examination.

Methods: A transvaginal high-resolution transducer mounted with 3 - 4D ultrasound technology was used at 12 - 14 weeks' gestation.

Results: The fetal CVS can be analysed in almost all cases, and severe and not severe anomalies of the fetal heart can be detected in more than two-thirds of cases.

Conclusion: First trimester fetal CVS evaluation is feasible and should be implanted in screening programmes.

ULTRASOUND IN PLACENTA ACCRETA

Dr J B F Cilliers

Department of Obstetrics and Gynaecology, University of the Free State, and Maternal-Fetal Unit, Universitas Hospital, Bloemfontein

Placenta accreta refers to abnormal placental implantation in which the anchoring placental villi attach to the myometrium, rather than being contained by the decidual cells. The result is a placenta that is abnormally adherent to the uterus. This can result in massive unexpected blood loss at delivery. The most important risk factor is previous uterine surgery, especially if the uterine cavity was opened. The most common setting is anterior placenta previa after a previous pregnancy was delivered by caesarean section. Prenatal diagnosis of placenta accreta is based on the presence of characteristic findings on ultrasound examination. The sensitivity and specificity of ultrasound for detection of placenta accreta are both more than 80%. Reports have been published of the diagnosis being made on ultrasound as early as 6 weeks' gestation. Antenatal diagnosis is important for proper counselling and to prevent maternal morbidity and mortality. When placenta accreta is suspected, a multidisciplinary approach is often needed to prevent unnecessary blood loss and complications.

INVASIVE TESTING IN HIV-POSITIVE WOMEN

Dr S Constantatos

Department of Obstetrics and Gynaecology, University of Cape Town, and Fetal Medicine Unit, Grootte Schuur Hospital

Invasive testing in HIV-positive women remains a controversial topic. It is important to ensure that the standards of care in the general obstetric population are applied to HIV-infected women, including prenatal diagnosis of congenital abnormalities. There is limited literature on the known risk of HIV transmission during amniocentesis. Before the use of highly active antiretroviral therapy (HAART), invasive procedures were avoided because of the potential risk of mother-to-child transmission (MTCT). These older studies suggested an increased risk of HIV transmission in women who had amniocentesis who were not on antiretroviral treatment or who were on non-HAART regimens. The recent literature suggests that amniocentesis can be safely performed in HIV-positive women, provided that the woman is on HAART and has a suppressed viral load (preferably undetectable), and transplacental passage of the needle is avoided. However, in many of these recent studies, the numbers of cases were small and the differences were not always statistically significant; the latter may be explained by the small numbers of cases.

Third-trimester amniocentesis, CVS, cordocentesis and transplacental passage of the needle are not recommended in HIV-positive women. Management of HIV-infected women should focus not only on the prevention of MTCT, but also on a favourable perinatal outcome. The possible risk of HIV transmission to the fetus during amniocentesis needs to be carefully balanced against the advantage of a prenatal diagnosis. This risk needs to be clearly communicated to the patient.

FETAL EUTHANASIA – WHO BENEFITS?

Dr L de Coning

Obstetrician and gynaecologist, private practice, Bloemfontein

Fetal euthanasia or late fetocide (after viability) is sometimes a necessary procedure, although emotionally taxing for everybody involved. In an ideal world all patients would have access to early screening for chromosomal and structural abnormalities by trained professionals, and pregnant women would be well informed and therefore present early and regularly for antenatal care. This would restrict the necessity for this procedure to abnormalities that present late.

There are three possible causes for severe abnormalities that present late. Firstly there are fetal factors. Certain abnormalities present late, for example severe hydrocephalus due to cytomegalovirus infection. Secondly there are medical factors. Screening and ultrasound services offered by inadequately trained professionals lead to missed opportunities. Lastly are patient factors, i.e. patients who present late, attend irregularly or delay making a decision.

In a private set-up, where patients are charged for services rendered, there should be very few medical reasons for fetal euthanasia, and as these patients are usually better educated, there should also be few patient factors.

I shall present our own data for a private referral centre, and evaluate the distribution of the different factors involved.

CLINICAL ANATOMY OF THE PELVIC FLOOR

Prof. H P Dietz

Department of Obstetrics and Gynaecology, Nepean Clinical School, University of Sydney, Australia

Imaging plays a growing role in the investigation of pelvic floor disorders. While magnetic resonance imaging (MRI) is not a practical option because of cost and access limitations and the fact that it is generally a static, not a dynamic, method, none of those limitations apply to ultrasound. Most structures of interest can be observed in the near field, at high frequencies, in real time, and with good tissue discrimination.

The main component of the female pelvic floor is the levator ani muscle. For practical purposes it is sufficient to distinguish two subdivisions of this muscle: firstly the puborectalis, which forms a v-shaped sling from the os pubis to the anorectal junction and constitutes the levator hiatus. It is commonly damaged in childbirth. Over-distension or tearing of this muscle enlarges the hiatus, the largest potential hernial portal in the human body, causing prolapse. The second major component is the iliococcygeus, which extends the puborectalis cranially and laterally, inserting on the arcus tendineus of the levator ani and forming a much wider, thinner and flatter v-shaped sheet. It seems to have less importance for pelvic organ support.

Anteriorly, supports of the urethra (usually termed the pubourethral ligaments) seem to vary greatly in quality and structure. They are evident due to differential mobility of the urethra on Valsalva, but difficult to image *in vivo*. The existence and importance of fascial support of the anterior vaginal wall is a hotly disputed topic, but it is clear that clinically apparent 'paravaginal' defects are often the result of levator trauma rather than fascial damage.

Support of the apex is provided by cardinal and uterosacral ligaments, but these structures do not normally come under load, except in women with uterine retroversion, and in those with an abnormally large hiatus.

Fascial supports of the posterior compartment are also disputed, but imaging as well as intra-operative dissection suggests the presence of a 'rectovaginal septum' (RVS), a sheet of connective tissue extending from the perineal body to the apex. RVS defects are typically transverse and located at the anorectal junction. They result in herniation of the anterior wall of the rectal ampulla into the vagina, causing both the 'gynaecological rectocele' of a posterior vaginal bulge and symptoms of prolapse as well as the 'radiological rectocele' of anterior rectal pocketing and symptoms of obstructed defecation.

For all of these principal structures of the pelvic floor, assessment requires dynamic functional imaging. At present, only translabial and transvaginal ultrasound can provide such capabilities.

PELVIC FLOOR TRAUMA

Prof. H P Dietz

Department of Obstetrics and Gynaecology, Nepean Clinical School, University of Sydney

Major delivery-related trauma of the puborectalis muscle ('avulsion') is a major factor causing female pelvic organ prolapse. It occurs in 10 - 30% of first vaginal deliveries, more commonly after the use of forceps and in older primiparas, is strongly associated with cystocele and uterine prolapse, and commonly recurs after prolapse surgery. Avulsion reduces pelvic floor muscle function

by about one third and has a marked effect on hiatal biometry and distensibility. In the past it was generally assumed that abnormal muscle function was due to neuropathy, but damage to the innervation of the levator ani muscle is likely to play a much smaller role compared with direct trauma.

These defects are palpable, but palpation requires significant teaching and is clearly less repeatable than identification by ultrasound. Identification of an avulsion injury is aided by measurement of the 'levator-urethra gap', the distance from the centre of the urethral lumen to the most medial aspect of the puborectalis muscle, and tomographic ultrasound is particularly useful.

Avulsion injury does not seem to be associated with stress urinary incontinence and urodynamic stress incontinence, nor does it seem to matter much for faecal incontinence. Despite this there seems to be a high prevalence of levator defects in women with anal sphincter defects, which is not really surprising given the overlap in risk factors. Bilateral defects are more difficult to detect since there is no normal side to compare with, but they have a particularly severe impact on pelvic floor function and organ support.

We can now treat avulsion surgically, and compensate for avulsion or traumatic overdistension (microtrauma). In future it is hoped that we will be able to prevent such trauma through ante- or intrapartum intervention. Imaging will be essential for all these tasks.

MESH SURGERY FOR INCONTINENCE AND PROLAPSE: AN IMAGING PERSPECTIVE

Prof. H P Dietz

Department of Obstetrics and Gynaecology, Nepean Clinical School, University of Sydney

Since the late 1990s synthetic sub-urethral slings have become very popular. Ultrasound can confirm the presence of such a sling, distinguish between trans-obturator and trans-retzius implants, especially when examining the axial plane, and allow an educated guess regarding the type of implant. As these meshes are highly echogenic, ultrasound is superior to MRI in identifying implants and has helped elucidate their mode of action. It is also very helpful when assessing women with complications of sub-urethral slings such as voiding dysfunction and *de novo* symptoms of urgency, helping the surgeon to decide whether to cut a sling.

There is a worldwide trend towards the use of permanent vaginal wall meshes, especially for recurrent prolapse, and ultrasound can help in selecting patients for mesh use who are most likely to benefit. This is particularly important in the light of the fact that complications such as support failure, mesh erosion and chronic pain are not uncommon. Polypropylene meshes are highly echogenic, and their visibility is limited only by persistent

prolapse and distance from the transducer, which makes ultrasound very useful in the assessment of mesh complications and recurrence.

3D translabial ultrasound has demonstrated that the implanted mesh is often nowhere near as wide as it is supposed to be. Surgical technique seems to play a role, as fixation of mesh to underlying tissues results in a flatter, more even appearance. The position, extent and mobility of vaginal wall mesh can be determined, helping with the assessment of individual technique, and ultrasound may uncover complications such as dislodgment of anchoring arms. There are substantial differences in the effectiveness of different anchoring techniques, and those differences are readily apparent on imaging. Clearly, translabial 4D ultrasound will be useful in determining functional outcome and location of implants, and will help in optimising both implant design and surgical technique.

ADNEXAL MASSES IN PREGNANCY – HOW TO WORK THEM OUT

Dr D Dumbrill

Department of Ultrasound/Fetal Medicine Unit, Grootte Schuur Hospital, and private practice, Vincent Pallotti Hospital

Adnexal cysts are common in pregnancy, with a reported prevalence of 25%. They are a concern because of a risk of malignancy and possible complications in the pregnancy. The talk will discuss the differential diagnosis of adnexal masses, IOTA classification, ovarian malignancy in pregnancy, possible complications and a management plan for these patients.

NASAL BONE: FACT OR MYTH?

Prof. L Geerts

Fetal Medicine, Tygerberg Hospital, and Stellenbosch University

For more than a century underdevelopment of the nose has been known from anthropometric and radiological studies to be a feature of trisomy 21, but assessing the nasal bones as a screening tool for trisomy 21 has only been studied for a decade. Both the visibility (or not) on ultrasound and the measurable length of the nasal bone have been assessed for their effectiveness in screening (both in the first and in the second trimester), albeit not as an isolated marker.

In the first trimester absence of the nasal bones on ultrasound is a strong marker for trisomy 21, and this finding is a useful adjunct in combined as well as contingency screening, with improvement in detection and the false-positive rate. However, limitations are the technical rigour required to assess the mid-sagittal plane of the fetus, ethnic differences in the significance of this marker, and its dependence on the gestational age at assessment. While it is possible to correct for these

differences by using algorithms, we must acknowledge that reliable information about our indigenous population is lacking.

In the second trimester, nasal bones in trisomy 21 are more often short than absent and both features are often grouped together as 'nasal bone hypoplasia'. Various definitions of 'short nasal bone' are used in the literature, and meticulous technique is again required. The substantial differences between published normal reference ranges for nasal bone length may partly be due to variations in technique but can also be related to ethnic differences, on which the literature is inconclusive. Population group-specific reference ranges with standardised technique are urgently required, since the choice of parameter and the definition of abnormality will strongly influence the prevalence of a short nasal bone in euploid fetuses, and hence the clinical utility of nasal bone length for population screening for trisomy 21. Such reference ranges are not available locally, and hence caution is required with the use of nasal bone assessment for aneuploidy screening.

EARLY (14 - 16-WEEK) SCAN VERSUS LATE (18 - 22-WEEK) SCAN

Dr L Govender

Maternal and Fetal Medicine, Department of Obstetrics and Gynaecology, Lower Umfolozi District War Memorial Hospital, Empangeni, and Nelson R Mandela School of Medicine, University of KwaZulu-Natal, Durban

The first-trimester scan is the most effective method of early screening for major chromosomal abnormalities. Other benefits of the first-trimester scan include accurate dating of the pregnancy, early diagnosis of many major structural fetal defects, diagnosis of multiple pregnancies and early screening for severe pre-eclampsia. Combining data from maternal characteristics and history with scan markers and biochemical tests can identify women at risk of a wide range of pregnancy complications, thereby suggesting the prognosis of such pregnancies at an early stage. This practice has the potential to reduce health care costs and to enable early counselling, karyotyping and termination of pregnancy to be offered, if needed. Nevertheless, the 11 - 13-week scan cannot rule out certain significant structural anomalies that appear later in pregnancy. The place of the mid-trimester fetal anatomy scan in our practice therefore remains crucial to complement the late first-trimester scan.

The early (14 - 16-week) second-trimester scan has very little or no added advantage over the first-trimester scan. Although dating is less accurate and it is too late for nuchal translucency risk assessment, there may be a place for the 14 - 16-week scan for those women who did not have the benefit of the 11 - 13-week scan. Invasive diagnostic testing is controversial in the very early second trimester. Early amniocentesis is known to be riskier to the pregnancy and is less reliable in terms of obtaining a

fetal chromosome result when compared with CVS at 11 - 13 weeks or amniocentesis performed after 15 weeks. Some may regard the 14 - 16-week scan as an optional trans-abdominal scan for the anxious pregnant woman.

The late 18 - 22-week scan is ideal for a detailed search for anomalies, which includes examination of the fetal heart. In our setting, most sonographers find this scan easier to perform and more accurate than the early anomaly scan. During the 18 - 22-week anomaly scan, a head-to-toe surface and internal anatomy assessment of the fetus is performed. Structural anomalies that appear later in pregnancy or those less obvious in the first-trimester scan may be detected at this scan, including conditions such as agenesis of the corpus callosum, semilobar holoprosencephaly, hypoplasia of the cerebellum or vermis, cystic adenomatoid malformation or pulmonary sequestration, renal abnormalities and skeletal dysplasias. Karyotyping and termination of pregnancy if indicated may be safely performed at this gestation. Certain abnormalities such as microcephaly, duodenal atresia and bowel obstruction may present for the first time after 24 weeks and therefore may be missed at the 22-week scan. Pregnancies at risk of maternal or fetal disease may be identified during the 18 - 22-week anomaly scan, thus providing a more individualised patient- and disease-specific approach to the further management of the pregnancy.

FETAL ANAEMIA – WHY IS IT STILL A HEADACHE?

Dr H Lombaard

Maternal and Fetal Medicine Unit, Department of Obstetrics and Gynaecology and Steve Biko Academic Hospital, University of Pretoria

Fetal anaemia as a result of allo-immunisation and viral infection continues to cause perinatal morbidity and mortality. The most common antibodies that cause fetal anaemia are anti-Rhesus (Rh) D (85%), anti-Kell (K1) (10%) and anti-Rhc (3.5%). Rarely anti-E and anti-Fa (Duffy) cause a problem. Parvo B19 infection is a viral cause of fetal anaemia. The pathogenesis of anti-Kell anaemia seems to be bone marrow suppression. The prevalence of Rh-negative patients differs between the different ethnic groups, with Caucasians 15% (of which 56% are heterozygous), Africans 5% and Japanese and Asians less than 1%. Trans-placental bleeding is the major cause of allo-immunisation in anti-D, which can happen in any trimester. In the first pregnancy the Rh status and zygosity of the father should be established. If the father is heterozygous, tests can be performed to establish the Rh status of the fetus. The least invasive method of determining fetal Rh is by obtaining free fetal DNA from the maternal circulation. If the fetus is Rh negative there is no need for intensive follow-up. If the fetus is antigen positive, follow-up is indicated. The antibody titre should be repeated every 2 - 4 weeks after 29 weeks. Once the critical antibody titre is reached, the fetus should be evaluated for possible fetal anaemia. The

least invasive method is by measuring the middle cerebral artery velocity with Doppler, and once this is above 1.5, MoM intra-uterine transfusion should be considered if the fetus is still less than 34 weeks' gestation. The same assessment can be used in cases of Parvo B19 infection. The expected complications of intravenous fetal transfusion include perinatal death (1.6%), emergency caesarean section (2.0%), infection (0.3%), premature rupture of membranes (0.1%), inadvertent arterial puncture (3%) and bradycardia or tachycardia (5%). The overall complication rate is 3.1%. Prevention strategies include anti-D immunoglobulin administration after cases of miscarriage, ectopic pregnancies, invasive procedures and when there is suspected trans-placental bleeding, and routinely at 28 and 32 weeks, normal delivery and caesarean section.

SKELETAL DYSPLASIAS, THE GENETIC LINK

Dr W Manten

Department of Woman and Baby, University Medical Center Utrecht, The Netherlands

Skeletal dysplasias are a genetically heterogeneous group of over 350 different disorders, and many of them can present in the prenatal period as demonstrated by ultrasound. Specific antenatal diagnosis of skeletal dysplasias can be challenging because they are rare and many of the ultrasound findings are part of different disorders. It is, however, very important to differentiate between a lethal and a non-lethal disorder, provide a differential diagnosis before delivery, and plan postnatal care.

In this lecture we will discuss how to evaluate the fetal skeleton by ultrasound if there is suspicion of a skeletal abnormality. Furthermore we will discuss the most common skeletal dysplasias, their features on ultrasound, and the possibilities of prenatal diagnosis

THE FETAL HEART – WHAT REALLY MATTERS

Dr L Muller

Fetal Medicine Unit, Panorama Medic-Clinic, Cape Town, and Fetal Medicine Unit, Department of Obstetrics and Gynaecology, University of Cape Town and Groote Schuur Hospital

Congenital heart defects (CHD) are amongst the most common birth defects, occurring in 4 - 8 per 1 000 births. CHDs have multifactorial causation, and their prenatal detection cannot be achieved solely by concentrating on the high-risk population defined by parental medical history. Screening ultrasound, usually performed in the second trimester but gradually becoming more important in the first-trimester scan, is still the best means of detecting cardiac defects. Recent studies have also demonstrated that prenatal diagnosis of fetuses with heart defects improves the immediate outcome following delivery at a tertiary hospital. There are three types of

cardiac malformations in which prenatal diagnosis has been shown to be beneficial: coarctation of the aorta, hypoplastic left ventricle and transposition of the great arteries.

This lecture will discuss what really matters in the following categories:

- Risk factors for CHD
- Fetal risk factors – extracardiac anomalies, increased nuchal translucency and monochorionic placentation
- Maternal factors – metabolic disease, teratogen exposure, assisted reproduction technology
- Family history of CHD
- Genetic aspects of CHD
- Chromosomal syndromes
- Genetic syndromes: DiGeorge syndrome, Noonan syndrome, Williams Beuren syndrome, Holt Oram syndrome and Alagille syndrome
- General anatomical landmarks of the fetal heart: the fetal visceral situs, fetal thoracic anatomy, fetal cardiac axis, fetal cardiac position and fetal cardiac dimensions must all be checked before examination of the heart
- 2D examination of the cardiac chambers and the great vessels: 2D scan of the cardiac chambers must include: (i) structure: 2 atria, 2 ventricles, off-setting of 2 AV valves, 'crux', IVS, foramen ovale, PV drain into LA; (ii) function: opening AV valves, contracting ventricles. 2D scan of the great vessels must include: (i) five-chamber view of the left outflow tract; (ii) three-vessel view of the right outflow tract; and (iii) three-vessel trachea view of the ductal arch and the aortic arch
- Colour and pulsed Doppler in fetal echocardiography: colour Doppler examination needs proper settings – steps to optimise these are briefly discussed
- Volume ultrasound and STIC in echocardiography: STIC acquisition is an indirect, motion-grated, offline mode based on the concept of using tissue excursion concurrent with cardiac motion to extract the temporal information regarding the cardiac cycle. Advantages of STIC – assess arterial and ventricular wall motion and valve excursion. Disadvantages – delayed acquisition time hampered by fetal movements and maternal breathing movements.

The importance of all the aspects of 2D, colour Doppler and STIC will be shown in a few common CHDs.

ULTRASOUND SAFETY AND THE ALARA PRINCIPLE

Mrs S Olsson

University of Johannesburg

It is generally accepted that diagnostic ultrasound is safe. Indeed, this is the basis upon which ultrasound has become one of the fastest-growing imaging modalities of the past few decades, particularly in the field of fetal medicine. If this premise is correct, why is there still so much concern about, and research into, ultrasound safety?

The technological advances of the last few years have exposed the patient to increased levels of ultrasound intensity with its attendant risks, which have been well documented. Doppler examinations, and the advent of 4D in particular, have added to these intensity levels. Concerns expressed by eminent members of the ultrasound community are that subtle adverse effects from this increased exposure may not manifest for another 2 - 3 decades.

This presentation reviews some of the literature regarding these concerns and the recommendations that, in the absence of definitive regulations, more and more responsibility is placed on the operator to become conversant with the safety aspects of ultrasound use through comprehensive training. The fully trained operator will be able to apply the ALARA principle to adequately protect the patient and allay these concerns.

FETAL NEUROSONOGRAPHY

Dr L Pistorius

University Medical Centre Utrecht, The Netherlands

This talk on fetal neurosonography will touch on the highlights of the embryology of the central nervous system, the most common abnormalities resulting from disruptions in normal development, and the imaging by ultrasound (and, sometimes, MRI) of these conditions.

All this will of necessity remain only an appetiser for the post-congress neurosonography course!

ROUTINE SCAN POLICY – FROM THE DARK AGES TO THE BRIGHT FUTURE

Dr L Pistorius

University Medical Centre Utrecht

The (globally speaking) relatively recent introduction of a routine second-trimester ultrasound examination in the Netherlands has brought an enormous change into the practice of prenatal diagnosis. Although the highly industrialised and densely populated Netherlands is obviously a world apart from South Africa, there are aspects of the introduction that could be of interest.

The effect of the introduction of the 20w scan on aspects such as the number and accuracy of ultrasound examinations and its effect on invasive diagnostic procedures and pregnancy terminations will be evaluated, specifically in relation to spina bifida, severe cardiac malformations and facial clefts. The organisation of accreditation and quality control will also be highlighted.

COUNSELLING FOR DOWN SYNDROME SCREENING IN PRIVATE PRACTICE

Dr Desmond Sankar

Obstetrician and gynaecologist in private practice, Durban

The majority of patients referred for further assessment after a positive Down syndrome screen have minimal

understanding of the screening programme that they have undertaken. This suggests that the pre-test counselling was inadequate. In a busy private practice, this can be avoided. I will share with you the technique I use. It is by no means comprehensive and complete. However, it works for me and does not significantly prolong the consultation.

POSTMORTEM – HOW IT ASSISTS IN DIAGNOSIS

Dr H C Wainwright

Division of Anatomical Pathology, University of Cape Town and Groote Schuur Hospital

Postmortem examination is used to determine the macroscopic and microscopic abnormalities present in a fetus and placenta, and the causation of the pathology. Photographic records of the external and internal findings are kept. The babygram enables the pathologist to target abnormal bones in the dissection. Samples from various organs may be taken for biochemical, molecular or genetic testing as an aid to diagnosis. The availability of an ultrasound report before commencing the postmortem provides additional information that may direct the dissection.

The postmortem is frequently used as an audit of the accuracy of prenatal ultrasound diagnosis. Numerous studies have looked at the correlation between ultrasound and postmortem findings. Overall there is full agreement in 60% of cases. One study of prenataally diagnosed trisomy 18 analysed major structural abnormalities according to organ systems and showed correlation to be best with the CNS (80%), abdominal abnormalities (87.5%) and cystic hygroma (100%). Abnormalities of the heart, face, urinary system and extremities had a significantly lower sensitivity.

A large study (385 cases) looked at the indications for termination of pregnancy: chromosome abnormalities were present in 39%, CNS abnormalities in 20% and monogenic disorders in 11%, with sequences, multiple malformations and isolated congenital heart disease making up the rest. Total agreement was present in 21% with further abnormalities identified in 79%. The aetiological diagnosis changed in 21%, but the prognosis was only changed in 1 case. Non-immune fetal hydrops remains a problem with regard to aetiological diagnosis. In this series 5 cases remained undiagnosed despite a full autopsy, chromosomal, haemoglobinopathies, infectious studies and tests for metabolic disease.

Postmortem examination of the brain in the macerated fetus is suboptimal. However, if a postnatal MRI scan is performed, the abnormal structures can still be recognised and assist in diagnosis.

Finally, discussion of the completed postmortem findings at a multidisciplinary meeting is vital and

frequently contributes to the final diagnosis. It provides feedback to all medical personnel involved in the case. Information relayed to the parents at the postnatal visit can be compared with that given to the couple before the termination of pregnancy.

Examples of interesting cases will be shown.

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Poster Presentations

OBSTETRICS AND GYNAECOLOGY ULTRASOUND SERVICES CAN ASSIST MEDICAL OFFICERS AT PRIMARY HEALTH CARE LEVEL: KHAYELITSHA CHC

Mr R Nell

Cape Peninsula University of Technology

Introduction: Obstetrics and gynaecology ultrasound services can improve service delivery. Ultrasound services at primary health care (PHC) level can be beneficial to medical officers as well as patients. Khayelitsha Community Health Centre (CHC) is a PHC hospital where ultrasound services are rendered. Owing to the setup of health services in the Western Cape, South Africa, a patient normally attends a PHC hospital first and if necessary is referred to secondary or tertiary level. If patients present with obstetric and gynaecological conditions at PHC, ultrasound services can provide clinicians with diagnostic information for further management in referring the patient to secondary or tertiary level. The ultrasound services also assist in patient management at PHC level and ensure that information is given to the patient regarding their condition.

Aim: The aim is to describe how obstetrics and gynaecology ultrasound services can assist medical officers at PHC level in the Khayelitsha CHC, and what obstetric ultrasound services are needed in the different departments.

Method: The medical officers at the Khayelitsha CHC completed a questionnaire on how ultrasound services are beneficial to the patient. Also investigated was how the ultrasound services form part of the Comprehensive Service Plan (CSP) and how it fits into the delivery of health care at PHC level. The importance of the ultrasound information in assisting and referring the patient will be discussed.

Results: The response rate was 75%, and all medical officers indicated that the ultrasound service is beneficial

to patients and assists them in further management. The ultrasound services are rendered for the different departments at the Khayelitsha CHC. These services form part of the CSP and provide diagnostic information to medical officers to ensure that patients are referred to the appropriate level for further management.

Conclusion: Ultrasound services can assist in improving quality health care to patients at PHC level. Ultrasonographers dually qualified in diagnostic radiography and ultrasound render both diagnostic and ultrasound services at the Khayelitsha CHC. Improved communication between the medical officers and ultrasonographer will ensure efficient running of ultrasound services at this PHC centre.

TWIN PREGNANCY WITH A COMPLETE HYDATIFORM MOLE AND SURVIVING COEXISTENT FETUS: CASE REPORT AND REVIEW OF THE LITERATURE

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Introduction: Twin pregnancy with a complete mole and coexistent fetus (CMCF) resulting in a live birth is rare, with an estimated incidence of 1/22 000 - 1/100 000.

Methods: A 33-year-old gravida 2, para 1 HIV-positive woman presented to a tertiary South African hospital at 13 weeks' gestation. Ultrasound revealed a dichorionic twin pregnancy, one sac containing a fetus that had a low-risk nuchal translucency scan and the other sac containing placental tissue that resembled a complete

mole. The patient was counselled regarding the high risk of pregnancy complications, such as miscarriage, pre-eclampsia, haemorrhage, hyperthyroidism and persistent trophoblastic disease. She was offered a termination of pregnancy, which she declined. The initial beta-HCG level was 259 012 IU/l. Thyroid function and blood pressure remained normal throughout the pregnancy, and serial ultrasound showed good growth of the live twin.

Results: A healthy male infant with good Apgar scores weighing 3 020 g was delivered vaginally after induction of labour at 38 weeks. After delivery, evacuation of the uterus was performed and histological examination confirmed the diagnosis of a complete hydatidiform mole. The patient was discharged on day 6 after delivery, and follow-up at the molar clinic was arranged. Three weeks after delivery beta-HCG levels were already <3 IU/l, and they were negative at 5 and 9 weeks. Initial and follow-up chest X-rays were normal.

The literature suggests that the live birth rate of twin pregnancy with a co-existing hydatiform mole is in the region of 30 - 50%. The risk of persistent trophoblastic disease as reported in the literature varies greatly, with some authors suggesting a similar risk to that of singleton pregnancies and others suggesting a much higher risk. However, there seems to be consensus that the risk is highest if the pregnancy required early termination and lowest in pregnancies that result in the delivery of a surviving infant.

Conclusion: This case demonstrates that continuation of a twin pregnancy with a complete mole and coexistent fetus in the absence of early complications is an acceptable option, provided close surveillance to detect potential maternal or fetal complications can be guaranteed.