



Volume 8 Number 3 August 2005
Australasian Society for Ultrasound in Medicine

ULTRASOUND BULLETIN

ASUM Annual Scientific Meeting

Nuchal Translucency Course 29 September
Skills Development Day 29 September
Main Scientific Program 30 September – 2 October

ASUM Annual General Meeting Adelaide

10:00 am Saturday 1 October

Asia Link Meeting Bangkok Thailand

10–11 November

ASUM Multidisciplinary Workshop 2006

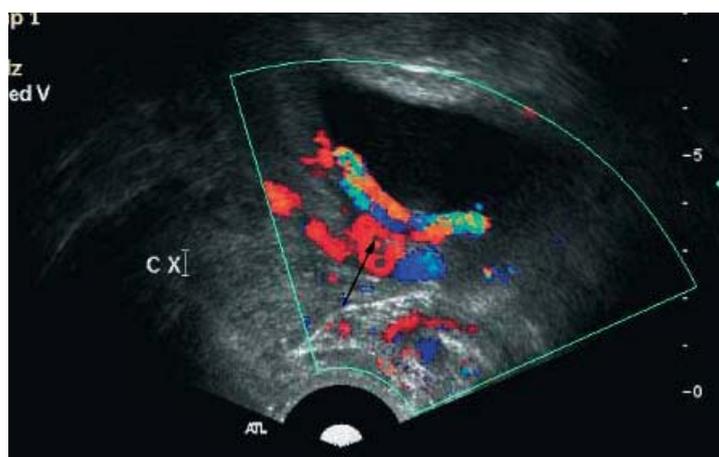
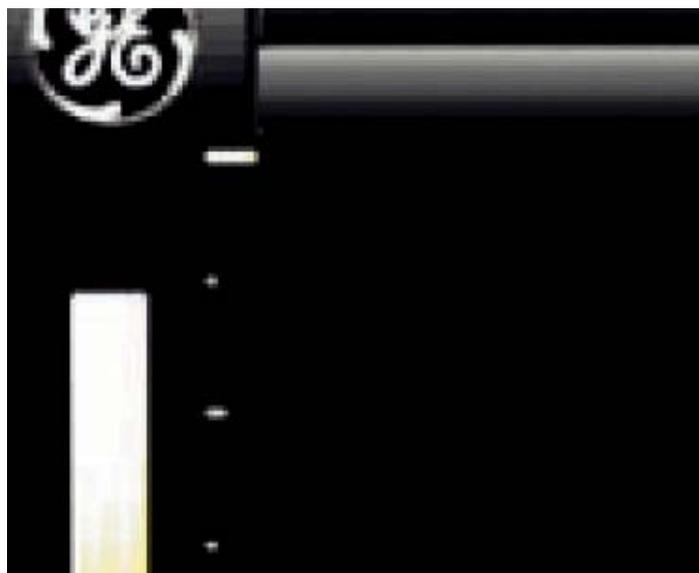
Gold Coast 24–25 March 2006

DMU Preparation Course Gold Coast

22–26 March 2006

ASUM Annual Scientific Meeting 2006 Melbourne

14–17 September 2006



- Abnormal fetal feet
- Upper abdominal masses
- Diagnosis of pleural effusion
- Antenatal diagnosis of vasa previa
- Left ventricular failure
- First trimester guidelines
- Non-medical entertainment ultrasound

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ULTRASOUND BULLETIN

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Notes from the Editor

Safety in ultrasound is always an important issue and the right of the fetus 'not to be exposed to a source of potential harm where no health benefit exists' has been firmly placed on the 'safety in ultrasound' agenda. In July the Council took a stand regarding social scanning and readers are encouraged to read the ASUM Statement and letters on pages 35 to 38 and to contribute to the discussion.

Reader attention is also drawn to the Letters section on page 14 where Schluter *et al.* challenge the current mid trimester growth charts used in Australia and New Zealand.

This issue also contains an eclectic collection of articles of excellent scientific value. In their case report, Fauchon *et al.* examine the grey areas of antenatal ultrasound diagnosis of anomalies specifically in regard to abnormal fetal feet. In their article, Watson and Benzie examine fetal upper abdominal masses and case study how ultrasound can alert referring clinicians to the presence or absence of pathology so as assist effective clinical management decisions. Davies *et al.* discuss the diagnosis of pleural effusion in their article and suggest that the treatment technique described overcomes or avoids many of the limitations of existing options. Wong *et al.*, in their case study, report on antenatal diagnosis of vasa previa and O'Leary provides a pictorial essay of left ventricular failure.

Preparation for the Annual Scientific Meeting in Adelaide is nearly complete and the outstanding scientific program is detailed on pages 2 to 5. Readers are encouraged to register for ASUM 2005 ASM and spend a stimulating few days in Adelaide.

**Roger Davies
Editor**

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Program 35th Annual Sc Thursday 29th September – Sunday 2nd October

Thursday 29th September 2005

Nuchal Translucency Course

Skills Development Day

9.30 am	Rhodri Evans Head and Neck Node Chains with Biopsy Demonstration	Jeff Siegmann Morphology Scans. What Do I Really Need to Know?	Ros Savage & Peter Esselbach Safe Scanning and OH&S	Sue Farnan Ankle Ultrasound	Christopher Sykes Carotids and Discussion on Surgical Followup
10.40 am	Debbie Hardy Overcoming Difficult Morphology Scans	Robert Ziegenbein Exercise Induced Leg Pain/Entrapment	Heather Webber Breast – Combined Mammographic and Ultrasound Assessment	Barry Chatterton & Peter Spyropoulos Eye Ultrasound	Roger Gent Paediatric Hips
11.50 am	Rhodri Evans Salivary Gland Assessment with Biopsy Demonstration	Christopher Sykes Wrist/Hand Ultrasound	Roger Gent & Lino Piotto Interesting Paediatric Case Studies	Martin Necas Lower Extremity Arterial Assessment	Jane Fonda TV Scanning

Lunch

2.00 pm	Martin Necas Venous Reflux	Lino Piotto Paediatric Abdomen – Thinking Outside the Square	Beth Gaskin & Ewa Janicki Dealing with Patient Grief	Nick Gelekis The Fetal Heart	Sean McPeake Sonography of the Buttock and Hamstring
3.10 pm	Sean McPeake Groin Ultrasound	Richard Allen Abdomen Doppler	Martin Necas Doppler Observations of Arterial Abnormalities: Fresh Look at Hemodynamics	Piotr Niznik The Fetal Heart	Jenifer Kidd Endoluminal Graft Assessment

4.15 pm Drinks

Friday 30th September 2005

9:00 am	<p>Opening Address</p> <p>Chris Sheedy An update from the Department of Health and Ageing</p> <p>Peter Burns Understanding New Technology in Ultrasound</p> <p>Anna Parsons Sonographic Evaluation of Abnormal Bleeding: Uterine Physiology and Sonographic Technique, Including Sonohysterography</p> <p>Rhodri Evans Staging Head and Neck Cancer with Ultrasound Using FNA and Core Biopsy Techniques</p>
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Morning Tea

11.30 am	<p>O&G</p> <p>Peter Muller Uterine Artery Doppler and Biochemical Marker Assessment of Placental Function</p> <p>Martin Necas Sonographic Evaluation of Band Like Structures in Obstetrics</p> <p>Chris Wilkinson Fetal Doppler Assessment of IUGR</p>	<p>VASCULAR</p> <p>Joseph Polak Ultrasound and Early Atherosclerosis Prevention</p> <p>Leandro Fernandez Doppler Ultrasound in Renovascular Hypertension</p> <p>Robert Ziegenbein The Dynamics of Veins, Popular Misconceptions</p>	<p>PROFFERED PAPERS</p> <p>See list on page 5</p>
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Lunch

2.00 pm	<p>GENERAL</p> <p>Wes Cormick Benign Breast Disease</p> <p>Leandro Fernandez Advanced Sonography of Near Field Skin and Subcutaneous Structures</p> <p>Rob Gibson Gall Stones and Bile Ducts – Making the Most of Ultrasound</p> <p>Byung Ihn Choi Elastography: Work in Progress</p>	<p>VASCULAR</p> <p>Joseph Polak Carotid Plaque, is Characterisation Useful?</p> <p>Jenifer Kidd The Role of Duplex Ultrasound Following Lower Extremity Endovascular Intervention</p> <p>Anne Padbury Foam Echosclerotherapy of the Small Saphenous Vein</p> <p>Joseph Polak Multimodality Imaging of Cerebrovascular Disease, the Role of Ultrasound</p>	<p>MIXED</p> <p>Sue Westerway Growth Patterns, Macrosomia, Intervention and Birth Weight Differences in Chinese vs Caucasian Populations</p> <p>Rob Cocciolone Serum Screening Markers and Pregnancy Outcome</p> <p>PROFFERED PAPERS</p> <p>See list on page 5</p>
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Scientific Meeting of ASUM Summer 2005 Adelaide Convention Centre, Australia

Friday 30th September 2005

Afternoon Tea

4.00 pm	O&G Martin Necas Fetal Vascular Anomalies Peter Muller The Genetic Sonogram – Can We Adjust Risk? Anna Parsons Sonographic Evaluation of Abnormal Bleeding at Any Age: Clinical Practice and Cases	GENERAL Rob Gibson Chronic Liver Disease and Portal Hypertension Rhodri Evans Potential Pitfalls in Evaluation of Neck Cysts and Abscesses. Wes Cormick US in Breast Cancer – Actually Making a Difference	3D ULTRASOUND Peter Burns Real Time 3D Ultrasound Byung Inh Choi Three Dimensional Ultrasound of Hepatobiliary Diseases Leandro Fernandez Doppler and 3D Ultrasound of Carotid Artery
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6.00 pm Welcome Reception in the Trade Area

Saturday 1st October 2005

7.30 am Breakfast with the Professors

08.30 am MANUFACTURER'S SHOWCASE 1 PROFFERED PAPERS See list on page 5	O&G Pippa Kyle Medical Disorders in Pregnancy – Who May Need Ultrasound Investigations? Gary Pritchard 3D Ultrasound Hype or Hope? Jane Fonda Sonographic Detection and Assessment of Ectopic Pregnancy Vanessa Pincham New Strategies for Trisomy 21 Risk Assessment in the First Trimester	VASCULAR Joseph Polak Epidemiology of Cardiovascular Disease, the Role of Ultrasound Peter Burns Diagnosing Focal Liver Lesions with Contrast US, a New Relationship Between Ultrasound, MRI and CT Jenifer Kidd Optimising the Duplex Evaluation of Aortic Endografts Kathryn Busch Arterial Neovascularisation in Recalculating Venous Thrombosis: a Progress Report	STANDARDS Karen Pollard Everyday Challenges in Being a Safe Practitioner of Obstetric Ultrasound Examinations Tania Griffiths Diagnostic Ultrasound – Biological Effects Jenny Parkes Equity and Reproducibility Issues in Practical Assessment of Student Sonographers Margo Gill University Based Education for Sonographers – Issues and Challenges for the Profession
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10.00–10.30 am ASUM ANNUAL GENERAL MEETING / MORNING TEA

10.30 am MANUFACTURER'S SHOWCASE 2 Byung Inh Choi Malignant Liver Tumours: Ultrasound Juliet Kaye MRI as an Adjunct to Ultrasound in Fetal Abnormalities	O&G Peter Muller The Screening Fetal Echocardiogram, How and for Whom? Pippa Kyle Screening/Diagnosis of Congenital Heart Disease in the Fetus Terry Robertson The Abnormal Fetal Heart – The Cardiologist Perspective	MSK Peter Burns Nonlinear Imaging Methods Rethy Chhem Ultrasound Assessment of the Ankle Anita Lee Relationship of High Resolution of Musculoskeletal Sonography to Clinical Findings in Early Rheumatoid Arthritis Kerry Thoires Ultrasound of the Ulnar Nerve. What are the Normal Values?	GENERAL Barry Chatterton & Grant Raymond Sound and Light, Ophthalmological Views of the Eye PROFFERED PAPERS See list on page 5
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Lunch

1.00 pm MANUFACTURER'S SHOWCASE 3 Byung Inh Choi Benign Liver Mass: Ultrasound Maria Necas Ultrasound Assessment of Ovarian Veins	O&G Anna Parsons Evaluation of Pelvic Pain: The Ultrasound Assisted Pelvic Examination Chris Wilkinson Management of Isoimmunisation with Middle Cerebral Artery Doppler Pippa Kyle Multiple Pregnancy	MSK Wes Cormick Ultrasound in Non-rheumatoid Arthropathy Rethy Chhem US of Musculoskeletal Infection Peter Burns Imaging Angiogenesis with Ultrasound	MIXED Roger Gent The Role of Sonography in Paediatric Abdominal Trauma Lino Piotto Investigation of Abdominal Pain in Children PROFFERED PAPERS See list on page 5
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Saturday 1st October 2005

Afternoon Tea

3.00 pm PROFFERED PAPERS See list on page 5	O&G Charles Lott Male Infertility Evaluation Christine Kirby Ultrasound and Female Infertility Anna Parsons Sonographic Evaluation of the Tubes and Extraovarian Adnexal Phenomena	MSK Steve Zadow Ultrasound of the Painful Adult Hip Emphasising the Lateral Hip Rethy Cchem US of the Knee Sean McPeake Sonographic Assessment of Hamstring Pain in Athletes	GENERAL ENDOCRINE Bill McLeay Surgery and Preoperative Imaging in Primary Hyperparathyroidism Rodhi Evans Thyroid Nodules Leandro Fernandez 3D Ultrasound in Small Parts, Testicle, Thyroid and Parathyroid
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5.00 pm Poster Defence (with South Australian wine and cheese)

7.00 pm Gala Dinner All that Glitters

Sunday 2nd October 2005

7.30 am Recovery Breakfast with the Professors

08.30 am	MIXED SESSION Pippa Kyle Hydrops Fetalis Rob Gibson Pancreatic Ultrasound – Is it Still Useful in 2005? Wes McCormick Fetal Hearts – Sorting Outflows Out and How to See That VSD Joseph Polak Venous Ultrasound, Value in Upper Extremity DVT	MSK Neill Simmons Sonography of the Foot and Ankle Julie Gregg Diagnosis and Treatment of Metatarsophalangeal Joint Instability Rethy Cchem Ultrasound of Arthritis Andrew Garnham Clinical Assessment in MSK Ultrasound. A Sports Physician's Perspective	
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Sunday Brunch

11.15 am	Roger Gent Ultrasound of Appendicitis in Children Denise Roach The Use of Ultrasound Imaging in the Diagnosis of Thoracic Outlet Syndrome Anna Parsons The Secret Life of the Ovaries: the Difference Between Neoplasia, Metaplasia and Physiologic Cysts	Robert Ziegenbein & Andrew Garnham Exercise Induced Leg Pain and Entrapment Wayne Gibbon Ultrasound Guided Intervention in Skeletal Disease Fred Joshua Validity and Reliability of Power Doppler Sonography of the MCP Joints in Rheumatoid Arthritis	
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Tea Break

1.00 pm	Robert Gibson Work-up of the Jaundiced Patient Peter Burns New Developments in Breast Imaging Including Contrast and MRI/US CoRegistration Rodhi Evans Salivary Glands and the Larynx Wes Cormick Breast Prosthesis and Complications	Wes Cormick Gas as a Contrast Agent in MSK Ultrasound Wayne Gibbon Ultrasound Detection of Mechanisms Underlying Overuse Injuries. The 'Cause of the Cause' for Pain Chris Sykes Ultrasound Assessment of the Triangular Fibro Cartilage Rethy Cchem US of Non-Rotator-cuff Lesions of the Shoulder	
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2.45 Closing Address

ARE YOU REGISTERED?

CONTACT ICMS: www.icms.com.au/asum2005

Meeting Secretariat

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tel +61 3 9682 0244 fax +61 2 9682 0288

ASM 2005 PROFFERED PAPERS

Friday 30th September

200 Fetal Tele-Ultrasound Consultations: Clinical Value and Cost-Effectiveness

David L Watson, -Mater Mothers Hospital, Queensland

What is the Best Videocompression Algorithm for Digital Fetal Ultrasound Video clips?

David L Watson, Mater Mothers Hospital, Queensland

Ensure the Essure: Combining New Technology in 3D ultrasound with New Technology in Fertility Control

Gary R Pritchard, Brisbane Ultrasound for Women, Queensland

Spectral Doppler should be performed at a Fixed Angle: The Evidence

Peter R Coombs, Monash Medical Centre, -Victoria-

QRS Duration Alone Misses Cardiac Dyssynchrony in Substantial Proportion of Patients

Rebecca Perry, Flinders Medical Centre, South Australia-

Coronary Artery Wall Thickness of the Left Anterior descending Artery using High Resolution Transthoracic Echocardiography – Intra- and Inter-Operator Variability

Rebecca Perry, Flinders Medical Centre, South Australia

Acute Fetal Cardiac and other Haemodynamic Redistribution after Intrauterine Transfusion for Treatment of Severe Red Blood Cell Alloimmunisation

Nayana A Parange, Women's and Children's Hospital, University of Adelaide, South Australia

Ultrasound Assessment of the Brachial Artery to Determine Endothelial Function in Pregnancy-

Ann E Quinton, University of Sydney at Nepean Hospital, -New South Wales

Development of Australian Customized Fetal Growth Charts

Max Mongelli, Nepean Hospital, New South Wales

Development of Australian Customised Fetal Growth Charts

Max Mongelli, -Nepean Hospital, New South Wales

Saturday 1st October

The Importance of the Mastoid Fontanelle View for Routine Cranial Ultrasounds of Preterm Infants

Sheryle R Rogerson, Royal Women's Hospital, Victoria

Extension of Ultrasound Use to Determine Soft Palate Shapes

Tania L Griffiths, Monash University, Victoria

Duration of Examination for the 18–20 Week Fetal Morphology Ultrasound Examination can be Shortened using Digital Video Clips Capture rather than Conventional Still Image Capture

David L Watson, Mater Mothers Hospital, Queensland--

Can the Use of Ultrasound Improve the Management of Women who Present to an Acute Gynaecology Unit?

George Condous, St Georges Hospital, United Kingdom

What is the Optimal Approach to Classifying Failing Pregnancies of Unknown Location (PULs)?

George Condous, St Georges Hospital, United Kingdom

Can We Improve the Performance of Diagnostic Tests to Predict the Outcome of Pregnancies of Unknown Location (PULs)?

George Condous, St Georges Hospital, United Kingdom

Can we Reduce the Number of Follow up Visits for Pregnancies of Unknown Location (PULs)?

George Condous, -St Georges Hospital, United Kingdom

Fetal Facial Bones in the Mid Trimester Assessment. Can They Help Screen for Trisomy 21?

Gary R Pritchard, Brisbane Ultrasound for Women, Queensland

Learning Curve for Fetoscopic Laser Surgery for Severe Twin-Twin Transfusion Syndrome Can be Shortened

Fung Yee Chan, University of Queensland, -Queensland

Perinatal Outcomes with Laser Therapy for Severe Twin-Twin Transfusion Syndrome

Fung Yee Chan, University of Queensland, Queensland

Having Diagnosed Ectopic Pregnancy using Transvaginal Ultrasound, Can the Trend in hCG Levels Help Decide When to Give Methotrexate?

George Condous, St Georges Hospital, United Kingdom

Changing Pattern of Tertiary Referrals for Prenatal Diagnosis in a Major Centre, Australia 1993–2002

Fung Yee Chan, University of Queensland, Queensland

Is It safe to Perform Dilatation and Curettage in Women with No Signs of an Intra- or Extra-Uterine Pregnancy on Transvaginal Ultrasound?

George Condous, St Georges Hospital, United Kingdom

Changing Pattern of Advanced Maternal Age and Prenatal Diagnostic Procedures in a Tertiary Referral Centre, Australia

Fung Yee Chan, University of Queensland, Queensland

Can we Use the Ultrasonographic Appearance of an Ectopic Pregnancy to Predict the Likelihood of Success for Expectant and Medical Management?

George Condous, St Georges Hospital, United Kingdom

Can we predict the outcome of Medical Management of Ectopic Pregnancies Earlier than One Week?

George Condous, St Georges Hospital, United Kingdom

Adelaide ASM 2005 is a meeting not to miss

Stephen Bird and Roger Davies Co-convenors ASUM 2005 ASM

Readers are urged to register for the Annual Scientific Meeting of the Australasian Society for Ultrasound in Medicine, to be held this year at the Adelaide Convention Centre, Adelaide and preceded by the Skills Day Workshop and Course on 29th September 2005

The strength of the scientific program makes this the 'must attend' ultrasound meeting of 2005. Ten international key note speakers will comprehensively cover all aspects of diagnostic ultrasound and will be supported by a national faculty representing the 2005 'Who's Who of Ultrasound'.

The widely known and respected Peter Burns is presenting a marathon six brand new plenary papers on the very latest developments in ultrasound imaging combined with other imaging modalities, including MRI and CT. These papers are highly relevant and will be of special interest to those performing and reporting breast, hepatobiliary and obstetrics/gynaecology imaging.

Rethy Chemm and our local fac-

ulty – including Neil Simmons, Wes Cormick and Sean McPeake, will offer a superb MSK component to the meeting, culminating in a Super MSK Sunday where one of the plenary rooms will feature MSK exclusively.

Prof Choi and Prof Rob Gibson will provide a very important abdominal imaging component to the program with recent developments in hepatobiliary and other abdominal ultrasound imaging.

Rhodri Evans is a world leader in head and neck imaging, with a special interest in the use of ultrasound for staging head and neck cancer. Papers will be presented on a range of head and neck topics including FNA/core biopsy staging, thyroid, salivary glands and the larynx. As a skilled practical scanner, Rhodri is presenting a live scanning workshop as part of the Skills Development Day.

The vascular program is headlined by the fabulous Joseph Polak and supported by the local faculty including Jeni Kidd, Denise Roach and Robert Ziegenbein. The vascular component

of the meeting is very strong as a result of the excellent speakers included in the program.

The first class obstetrics and gynaecology program is headlined by Anna Parsons who is presenting a fascinating range of plenary session gynaecology papers. Pippa Kyle will provide obstetric presentations, supported by Peter Muller, Gary Pritchard, George Condous, Wes Cormick and others.

The ASUM 2005 Annual Scientific Meeting has been designed to provide maximum value to the registrants with a strong scientific program complemented by fabulous social functions.

On Saturday and Sunday morning, Breakfast with the Professors will allow you to speak with the invited faculty in a relaxed, informal setting.

We look forward to your participation at ASUM 2005 in Adelaide.

For further information, please view the meeting website at www.icms.com.au/asum2005

ASUM Beresford Buttery Overseas Traineeship

ASUM and GE are proud to announce the award of the 2005 ASUM Beresford Buttery Traineeship to Naguesh Naik Gaunekar.

The ASUM Beresford Buttery Traineeship has been awarded annually since its inception in 1996 as a traineeship in the field of obstetric and gynaecological ultrasound, in memory of Beresford Buttery FRANZCOG, DDU, COGUS who made an inestimable contribution to his profession.

The award provides for attendance at an appropriate educational program at the Thomas Jefferson Research and Education Institute in Philadelphia.

2005 Teaching Fellowships

In 2005 ASUM is providing three teaching fellowships, sponsored by GE and Toshiba. The goal of the fellowships is to augment the educational activity available to our dispersed membership.

Giulia Franco Teaching Fellowship NSW (sponsored by Toshiba) November

Martin Necas will conduct meetings and teaching clinics in Port Macquarie, Tamworth, Dubbo/Orange, and possibly Newcastle. The local organiser is Peter Murphy, Education Officer of the North Coast Sub-branch.

Chris Kohlenberg Teaching Fellowship #1 Tasmania (sponsored by GE) November

Neil Simmons will conduct a Saturday meeting in Hobart, a teaching clinic at Burnie and an evening meeting in Launceston. The local organiser is Fiona Thompson.

Chris Kohlenberg Teaching Fellowship #2 Northern Territory and Queensland (sponsored by GE)

Peter Coombs will conduct meetings and workshops in Alice Springs, Darwin, Cairns and Townsville. The local organisers are Virginia Loy (Alice Springs), Sharyn Bush (Darwin) and Roslyn Savage (Queensland). For details see the online calendar @www.asum.com.au

President's message

Dr David Rogers



Welcome to this August edition of the *ASUM Ultrasound Bulletin*. It only seems like last week that the New Year was being celebrated and already we are in the second half of the year. 2005 continues to be a very busy year for the Society, with many landmarks being achieved along the way.

Indemnity insurance

The most outstanding progress made in recent times has been in the area of professional indemnity insurance (PI). Previously, ASUM could only offer members a policy that was quite over priced by comparison with other PI policies. After a tremendous amount of work, especially by Stephen Bird, a new policy has been negotiated that provides cover for sonographer members for only \$100.00 per year. This is the cheapest and most effective indemnity policy available in Australasia and I offer my congratulations to the team that negotiated it. This policy should be of benefit to all, reducing overheads for every sonographer member. It has been offered along with the ASUM annual subscriptions but, unfortunately, it was announced after the initial subscription notices went out. However, if you had already paid your subscription before the new PI policy was announced, the ASUM Secretariat will be happy to arrange cover for you.

Social scanning

Recently, ASUM has been involved in

considerable activity regarding 3D and 4D fetal scanning for what can best be described as entertainment purposes. Several new scanning companies have been set up for commercial 3D and 4D fetal scanning, without any medical input. This is completely against the policies of ASUM; the Society recommends that ultrasound be used in a judicious manner and not for mere entertainment. Undoubtedly, there is a consumer demand for pictures such as these and public demand must be accommodated. However, the major concern with this type of scanning is that patients will become confused as to whether they have had a medical ultrasound scan, or a non medical picture taking session. Further concern is raised regarding discovery of fetal abnormalities. It is unlikely that non medical people will have skills in dealing with patients where abnormalities are detected.

Glenn McNally, on behalf of ASUM, has produced a statement about social fetal scanning and is seeking agreement and support from other professional colleges such as RANZCR, RANZCOG and ASA.

In addition, ASUM is discussing the issue with the Medical Councils of Australia and New Zealand and the Ministries of Health on both sides of the Tasman. Hopefully, this type of uncontrolled scanning can be limited at an early stage.

Elections, Annual Report and the AGM

At this time of year, there are many official processes that must be completed. The Annual Report is circulated with this issue and details ASUM events and progress over the last 12 months. This report is published prior to the AGM, which will be held during the Adelaide meeting in September. Also prior to this, elections will be held for sonographer and medical/scientific positions on Council. For many years, there has only been sufficient interest to fill the exact number of places that have become available. However, I am very pleased to see that ASUM is now in the healthy position where there are many nominees for vacant positions. It can only be a good thing for the Society to have such interest and I wish all nominees well



David Rogers, Caroline Hong and Glenn McNally with GE China staff



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UPCOMING EDUCATION EVENT

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Saturday 5 November 2005
University of NSW, Scientia Building

For more information, please contact
Marnie Hamp: marnie.hamp@philips.com
Amy Taylor: amy.taylor@philips.com



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in the upcoming elections.

DMU Asia

The DMU (Asia) began its first teaching course recently, with an intake of 11 students in Kuala Lumpur. This long term project between ASUM and the Vision College has finally come to fruition. The organisation of the two-year course has been very well put together by Wee Loong Lee and Alan Williams, a senior sonographer from Tasmania. We wish them success with their venture. ASUM will be supporting this course with oversight of examination and teaching in some specific modules.

Meetings in Shanghai, Beijing to open China link

In the middle of May, a delegation from ASUM was invited to meet with and speak to the Chinese Ultrasound Society, a branch of the Chinese Medical Association. Glenn McNally, Caroline Hong and myself attended meetings in Shanghai and Beijing, culminating in a dinner presentation to a group of prominent ultrasound specialists. This has been the end product of considerable effort on ASUM's part to establish contact with the Chinese Ultrasound Society. From what I can see, this is likely to be a very fruitful exchange.

Ultrasound in China is a single imaging discipline, not included within radiology or obstetrics. The majority of patients have to pay for their own medical care, hence, ultrasound is used extensively in place of other more expensive forms of imaging. As such, the Chinese can teach us a great deal about: contrast enhanced ultrasound; ultrasound guided therapy, such as radio frequency and microwave ablation of tumours; and high intensity focused ultrasound treatment of tumours and fibroids.

We have been invited back to speak at the Annual Scientific Meeting of the Chinese Ultrasound Society in Chengdu in the middle of September. We look forward to this meeting and have invited Ron Benzie to speak on obstetric scanning.

In the future, I am sure we will invite Chinese speakers to our conferences and we will learn a great deal from them. I must convey my sincere thanks to the members of the Chinese



The ASUM executive meets with the Chinese Ultrasound Society



NZ Ministry of Health Medical Adviser, Dr David Galler met with Dr David Rogers, Dr Caroline Hong and ASUM representatives in Wellington

Ultrasound Society and, in particular Dr Jiang, for their hospitality during this trip and wish to thank General Electric for generously assisting with our travel arrangements.

NZ Joint meeting

The New Zealand Branch Meeting, held in Wellington in conjunction with the Annual Scientific Meeting of the College of Radiologists in July, had a particular focus on abdominal and vascular imaging. The programme also contained some additional variety, with several top level speakers.

The July Council Meeting was held in conjunction with the joint meeting and further progress was made on developing the policies discussed at the strategic planning meeting held during the last Council Meeting.

Adelaide ASM

Looking ahead, the Annual Scientific Meeting will be held in Adelaide at the end of September. The line-up of speakers is outstanding and I am look-

ing forward to attending. I am sure the educational content will be top level. The meeting will be held at the newly revamped Adelaide Convention Centre.

Thailand joint meeting

In November, ASUM is holding a joint meeting with the Medical Ultrasonic Society of Thailand, in Bangkok. This meeting is looking very good, with an excellent line-up of speakers. Holidaying in Thailand is currently very cost effective and, if you are considering going, it may be worthwhile to plan on a few days on the beaches. I understand the effects of the tsunami have been dealt with.

Thank you, everyone

I would like to take this opportunity to thank Caroline Hong, Keith Henderson, James Hamilton and the Secretariat for their continued efforts at this busy time of year, which is dominated by official processes.

David Rogers
President ASUM

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CEO's message

Dr Caroline Hong



This message is written at another busy time at the ASUM secretariat. In June each year, the office prepares for all the necessary paperwork and processes that are required for compliance. It is also a time for accepting nominations for Council and for expressions of interest as volunteers on committees and boards of examiners.

ASUM is a not-for-profit organisation with its financial year ending on 30th June. It is audited annually in accordance with the *Corporations Act*, complying with the requirements as a registered company limited by guarantee. ASUM is also audited annually for ISO 9000:2001 for quality management systems and is accredited for the international standards.

All full members will be issued with a copy of the Annual Report outlining the achievements for the last 12 months together with the audited financial accounts.

ASUM NZ joint meeting with RANZCR NZ

This year the ASUM NZ Branch held its annual scientific meeting jointly with the RANZCR NZ at the Wellington Convention Centre from 28–31st July 2005.

It was well attended by members from both organisations from New Zealand and Australia.

The keynote international speakers from USA, Canada and Australia, supported by the local speakers, presented an interesting program which

was enjoyed by all. Once again, we acknowledge the valuable contribution of all our sponsors and volunteers on the Organising Committee, especially the co-convenors, Craig McQuillan and Paul Kendrick. At the Gala Dinner, awards were presented to the worthy recipients by the presidents of both organisations.

At the ASUM NZ Branch AGM, Yvonne Taylor stepped down from her role as Chair after two years of dedicated service. Rex de Ryke was elected as the new Branch Chair and will continue to serve the Society well.

Meeting with NZ Health Ministry

The President and CEO met formally with the NZ Ministry of Health's Principal Medical Advisor, Dr David Galler, in Wellington and discussed many topical ultrasound issues.

The ASUM Council held a full day business meeting on Saturday 30th July 2005 at the Duxton Hotel in Wellington.

ASUM Online Clinical Handbook

Members are reminded that this valuable educational resource is available online. The ASUM Online Clinical Handbook is presented as an educational aid for experienced practitioners. The information has been contributed by many individual practitioners and we are grateful for this. A lot of work has been done by Dr David Davies-Payne, Chair of the Education and ASM Committee. The Handbook was a major project initiated by Dr David Rogers when he was Chair of the Education Committee.

DDU Examination

The DDU Part I and II examinations are now all over and the results have been notified to the candidates. Once again, we are grateful to the Chair of the DDU Board of Examiners, Dr Chris Wreidt, all members on the DDU Board of Examiners, the individual DDU examiners and all the volunteers of ASUM who were involved in the



The DMU (Asia) will deliver high teaching standards



Promoting the DMU (Asia) at Vision College

examination process.

This qualification is of a very high standard and continues to attract increasing interest from the medical profession. Please contact Marie Cawood at ASUM head office, email registrar@asum.com.au if you have any questions or require information about the DDU. The information and handbooks are also available on the website and updated regularly for future candidates who are planning to sit for these examinations next year.

DMU Examination

The DMU Part I and DMU Part II Written Examinations were held throughout Australia and New Zealand on Saturday 30th July 2005. The DMU Part II OSCE/Oral Examinations will be held on Saturday 8th October for Cardiac and Vascular candidates and on Saturday 15th October for the General and Obstetric candidates. DMU Practical Examinations are conducted at individual practices from April through October.

DMU (Asia) off to a good start

ASUM is pleased to announce that the DMU (Asia) course commenced on 6th June 2005 at Vision College in Kuala Lumpur, Malaysia. The first intake of students is being taught by sonographer lecturer of DMU (Asia) Mr Alan Williams and a team of competent medical and sonographer volunteer lecturers from ASUM and Asia, along with the support from at least five affiliated teaching institutions.

Alan Williams, previously a senior sonographer working in Tasmania and an ASUM member, qualified with

the ASUM DMU, was recruited via ASUM by Vision College as their first sonographer lecturer. He has been working very hard with the local medical specialists on developing the coursework based on the ASUM DMU and in accordance with the agreement between ASUM and Vision College.

The course is designed to ensure that the same high standards of DMU will be offered in the DMU (Asia). This course has gone through the local regulatory assessment and has passed the necessary local authorities' requirement for recognition as a post graduate diploma. The DMU (Asia) course is offered to graduates with the relevant tertiary background. It is also attracting interest from general practitioners who have an interest in ultrasonography. The training of ultrasonography through the DMU (Asia) will, over time, create a high standard of practice in Asia.

ASUM has appointed representatives to the DMU (Asia) advisory panel. Dr Andrew Andrew Ngu, Dr Glenn McNally and two councillor sonographers have been nominated to this panel. There will also be representatives from ASUM on the DMU (Asia) Board of Examiners, whose expertise and services will be required at a later stage. Dr Andrew Ngu and Mrs Roslyn Savage will be traveling to Kuala Lumpur to offer some teaching to the students in August this year. Dr David Rogers and Dr Roger Gent will also deliver some lectures at Vision College in March 2006.

ASUM will be assisting Vision College to recruit the second sonographer lecturer (position advertised in this

issue) and updates will be posted on the website.

ASUM Asia Link Program Scholarship

ISUM (Indonesia) scholar awarded
Dr Daniel Makes, President of the Indonesian Society for Ultrasound in Medicine (ISUM) has been the most active in responding to ASUM's recent announcement of several Asia Link Program scholarships. Through ISUM, a young specialist obstetrician gynaecologist, Dr Taufik Jamaan, who graduated in 2000 from the Department of Ob/Gyn, Faculty of Medicine, University of Indonesia, Jakarta, has been chosen to be the recipient of the scholarship. He has been placed to spend some time in Sydney with Prof Ron Benzie and with Dr Glenn McNally and their respective ultrasound teams.

ASUM Bookshop

This is an online ASUM bookshop where members can easily access the latest titles in their specialty in ultrasound. The bookshop is run by Mi-tec Medical Publishing. Members who are busy, with little time to keep abreast of the latest titles in medical ultrasound, will find this service to be of value. The complete list of the latest ultrasound textbooks and publications can be obtained at www.mitec.com.au and the ASUM Bookshop section. Orders can be placed by email to orders@mitec.com.au

Members are also reminded that books can also be obtained from our corporate member, Elsevier Australia by emailing e.pappas@elsevier.com or calling +61 2 9517 8953.

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Member Services

Sonographer professional indemnity insurance

We are pleased to advise that the ASUM Council has negotiated a great new deal on professional indemnity insurance. This provides cover for sonographers undertaking sonographic and radiographic procedures. Details and application forms have been sent out to all members. This offer is available to both existing and new sonographer and associate members. It is still not too late to take up this fantastic offer; please let your colleagues know about it. Contact the ASUM Secretariat or go to our website at www.asum.com.au for more information.

AMP Affinity Home Loan Package

Members are reminded that the AMP Affinity Home Loan Package is now available to current members of ASUM. This special package was negotiated a few months ago as a service to members. Go to the ASUM website www.asum.com.au for details. It could save you thousands of dollars on your home loan; several members have already responded to this special package.

Hertz preferential car rental rates available to ASUM members

If you have not already applied for the Hertz Gold Card, you are well advised to spend a few minutes to complete the application form and sent it to Hertz.

The application fee has been waived for ASUM members. ASUM has appointed Hertz Australia as the preferred car rental partner for the Society's member benefit program. As ASUM's official car rental partner, Hertz will offer you exclusive special member rates and value-added benefits all year round. All you have to do is quote the Customer Discount Program (CDP) number 1594587 when you make a reservation. See the ASUM website at www.asum.com.au for details.

Register now for these meetings

ASUM 2005 Adelaide, 28th Sept – 2nd Oct

Good food, fine wine and a sense of history are found in Adelaide, which

boasts more restaurants per capita than any other city in Australia.

We look forward to seeing many members and new faces at the ASUM 2005 ASM, to be held in the state-of-the-art Adelaide Convention Centre.

Stephen Bird, Roger Davies and the local Organising Committee have created an excellent program of learning, networking opportunities and social events.

For the first time, a child minding service will also be made available. Tours around the beautiful Adelaide City highlights, Barossa Valley wine region, Cleland Wildlife Reserve, Kangaroo Island, Flinders Ranges and Wilpena Pound are also available.

You can register online and the program is regularly updated on the website at www.asum.com.au or www.icms.com.au/asum2005.

ASUM – MUST Meeting Bangkok 10–11th Nov

Thailand, also known as the Land of Smiles, will be the venue for the next ASUM Asia Link Excellence in Ultrasound Meeting. The joint meeting convenors from both societies have designed an interesting program which will appeal to everyone with an interest in Ob/Gyn and General ultrasound.

All ASUM members are welcome to attend this meeting, which can be combined with your holidays overseas in Asia. November in Thailand coincides with the Loy Krathong Festival and will enchant you with the Thais' rich and colourful culture.

This is the second joint meeting with the Medical Ultrasonic Society of Thailand (MUST). ASUM delegates who attended previous meetings in Asia have reported excellent value for money and enjoyed the exposure to the Asian culture and mingling with local professional colleagues. MUST is one of the many affiliated societies of the Asian Federation Society for Ultrasound in Medicine and Biology (AFSUMB), which in turn is one of the six affiliated societies of the World Federation for Ultrasound in Medicine and Biology (WFUMB).

ASUM members may claim points in MOSIPP for attending this meeting.

ASUM Annual General Meeting Adelaide 1st Oct

The AGM will be held in Adelaide at the Adelaide Convention Centre on

Saturday 1st October 2005 at 10.00 am. At this meeting, the Annual Report and Accounts will be adopted. Honorary Fellow and Life Member awards will also be announced and presented.

China – SUM/CMA

8th National Ultrasound Medical Conference 13–18th Sept

The 8th National Ultrasound Medical Conference organised by the Society for Ultrasound in Medicine of the China Medical Association will be held in Chengdu, Sichuan Province, on 13–18th September 2005.

The ASUM President, the Chair of Asia Link, CEO and Prof Ron Benzie have been invited to speak at this meeting, following a successful visit to China in May this year. Dr David Rogers, Dr Glenn McNally, Chair of Asia Link and I visited the GE Healthcare Technologies Education Centre and we also presented at the SUM/CMA local meeting in Beijing. This meeting was chaired by Dr Jiang Yu Xin, the President of Society of Ultrasound in Medicine, Chinese Medical Association (SUM/CMA). Dr Jiang and Dr David Rogers discussed and exchanged information on society matters, ultrasound education and academic exchange. We are pleased that the relationship between the two societies remain strong.

Dr Caroline Hong
Chief Executive Officer
carolinehong@asum.com.au

Second Overseas Sonographer Lecturer Vision College

A second sonographer lecturer position is now available at the new Vision College in Kuala Lumpur.

The successful applicant will need to be an experienced sonographer, with an ASUM DMU. A negotiable remuneration package is available.

Expressions of interest and a full CV are to be directed to Dr Caroline Hong
email carolinehong@asum.com.au

Mid trimester biometric measurements

To the Editor,

We would like to bring to the attention of you and your readers our article entitled *Ultrasonic fetal size measurements in Brisbane* that was recently published in the peer reviewed sister journal, *Australasian Radiology*¹. This article constructed population specific charts of fetal biometry for 11 to 41 weeks gestation in relation to known gestational age from a large population of normal Australian pregnancies where the examination was performed to an Australian and New Zealand (ANZ) standard protocol by experienced operators. Motivation included the fact that overseas charts, up to 25 years old, are currently employed for many fetal parameters within ANZ^{2,3} and that the development of appropriate localised charts have been criticised by some ultrasonic specialists and practitioners in Australia because of their suboptimal methodological rigour⁴. To remedy this, we presented methodologically rigorous, current and population appropriate biometric equations and tables of ultrasonic fetal measurement and 95% reference ranges for biparietal diameter (BPD), femur length (FL), abdominal circumference (AC) and head circumference (HC).

We believe that this dataset can be used to generate valid reference centiles for fetal size. In most respects, it meets Altman and Chitty's^{5,6} and Nisbet and de Crespigny's^{4,7} criteria for design and is readily exportable for statistical analysis, also consistent with Altman and Chitty's recommendations. It has the advantage of being a very large sample collected from an entirely Australian population using a customized database, PacUser™⁸. All examinations were performed by very experienced operators, yet none of the protocols for measurement are beyond the capacity of any sonographer. An attempt should be made by each sonographer to achieve the same rigor with each examination. It is our belief that neither fetal measurement nor gestational age should be dependent upon operator experience.

In summary, we assert that the presented results are the most rigorously derived and applicable to the Australian population. The resulting tables have been provided to the ASUM Federal Council for their consideration with a view to amending the current recommendations for fetal biometry. We would suggest that your readers investigate the use of these tables in their practice.

We would also welcome readers to submit their identified databases to us to increase the sample size and to check the reliability of these equations.

We would like to thank the sonographers involved in this project for their excellent work: Ms Teresa Clapham, Ms Helen Gofton, Ms Julie Naylor, Mr Neil Pennell and Ms Sue Williams.

For further information about the methodology, the statistical analysis, the results and equations, readers are encouraged to access the journal articles^{1,9} or to contact Dr Gary Pritchard directly.

Table 1 Ultrasonic fetal measurement means and 95% reference intervals (95% RI) by gestational age measured in weeks.

Gestation (weeks)	BPD		FL		AC		HC	
	mean	(95%RI)	mean	(95% RI)	mean	(95% RI)	mean	(95% RI)
11	21	(19, 23)	5	(2, 8)	53	(42, 63)	75	(66, 84)
12	24	(21, 26)	8	(5, 11)	63	(52, 73)	85	(75, 94)
13	26	(23, 29)	11	(8, 15)	73	(61, 84)	95	(84, 105)
14	29	(26, 32)	14	(11, 18)	83	(71, 95)	105	(94, 116)
15	32	(28, 35)	17	(14, 21)	94	(81, 106)	116	(104, 127)
16	35	(31, 38)	20	(17, 24)	105	(92, 118)	126	(114, 139)
17	38	(34, 41)	23	(20, 27)	116	(102, 130)	138	(125, 150)
18	41	(36, 45)	26	(22, 30)	127	(112, 142)	149	(136, 162)
19	44	(39, 48)	29	(25, 32)	138	(123, 154)	161	(147, 175)
20	47	(42, 51)	31	(28, 35)	150	(133, 166)	172	(158, 187)
21	50	(45, 55)	34	(30, 38)	161	(144, 178)	184	(169, 199)
22	53	(48, 58)	37	(33, 41)	172	(154, 191)	195	(180, 211)
23	56	(51, 61)	39	(35, 43)	184	(164, 203)	207	(190, 223)
24	59	(54, 64)	42	(38, 46)	195	(175, 215)	218	(201, 235)
25	62	(56, 68)	44	(40, 49)	206	(185, 228)	229	(212, 247)
26	65	(59, 71)	47	(42, 51)	218	(195, 240)	240	(222, 259)
27	68	(62, 74)	49	(45, 54)	229	(205, 252)	251	(232, 270)
28	71	(65, 77)	51	(47, 56)	240	(215, 265)	261	(241, 281)
29	74	(67, 80)	54	(49, 58)	251	(224, 277)	271	(250, 291)
30	76	(70, 83)	56	(51, 61)	261	(234, 289)	280	(259, 301)
31	79	(72, 85)	58	(53, 63)	272	(243, 301)	288	(267, 310)
32	81	(74, 88)	60	(54, 65)	282	(252, 312)	297	(274, 319)
33	83	(76, 90)	62	(56, 67)	292	(261, 324)	304	(281, 327)
34	85	(78, 93)	63	(58, 69)	302	(269, 335)	311	(287, 334)
35	87	(80, 95)	65	(59, 71)	312	(277, 347)	316	(292, 340)
36	89	(81, 97)	67	(61, 73)	321	(285, 357)	321	(297, 346)
37	90	(83, 98)	68	(62, 74)	330	(292, 368)	326	(300, 351)
38	92	(84, 100)	70	(63, 76)	339	(300, 379)	329	(303, 355)
39	93	(85, 101)	71	(64, 78)	348	(307, 389)	331	(305, 358)
40	94	(85, 102)	72	(65, 79)	356	(313, 399)	332	(305, 359)
41	94	(86, 102)	73	(66, 80)	364	(319, 406)	332	(305, 360)

Prof Philip Schluter

Auckland University of Technology

Dr Gary Pritchard

Brisbane Ultrasound for Women Email bufw@bigpond.com

Ms Margo Gill Brisbane Ultrasound for Women

References

- Schluter P, Pritchard G, Gill M. Ultrasonic fetal size measurements in Brisbane, Australia. *Australas Radiol* 2004; 48: 480-486.
- Westerway S, Davison A, Cowell S. Ultrasonic fetal measurements: new Australian standards for the new millennium. *Aust N Z J Obstet Gynaecol*; 40 (3): 297-302.
- Australasian Society for Ultrasound in Medicine. Statement on normal ultrasonic fetal measurements. *ASUM Ultrasound Bulletin* 2001; 4 (3): 28-31.
- Nisbet D, de Crespigny L. Policy Statement on normal ultrasonic fetal measurements. *ASUM Ultrasound Bulletin* 2002; 5 (4): 32.
- Altman D, Chitty L. Design and analysis of studies to derive charts of fetal size. *Ultrasound Obstet Gynecol* 1993; 3 (6): 378-384.
- Altman D, Chitty L. Charts of fetal size: 1. Methodology. *BJOG* 1994; 101: 29-34.
- Nisbet D, de Crespigny L. How should the ultrasound estimated due date be calculated? *ASUM Ultrasound Bulletin* 2002; 5 (1): 20-21.
- Precise Accurate Convenient Ultrasound Examination Reporting (Pacuser) [computer program]. Version 1. Brisbane: Pacuser, www.pacuser.com.au; 1993.
- Schluter P, Pritchard G, Gill M. Corrigendum: Ultrasonic fetal size measurements in Brisbane, Australia. *Australas Radiol* 2005; 49: 345.

Abnormal fetal feet – the differential diagnoses

D Fauchon^A AMS, S Watson BHA, Grad Dip Ultrasound^A, RJ Benzie MBChB, FRCS(c), FRANZCOG, ARDMS^{AB}

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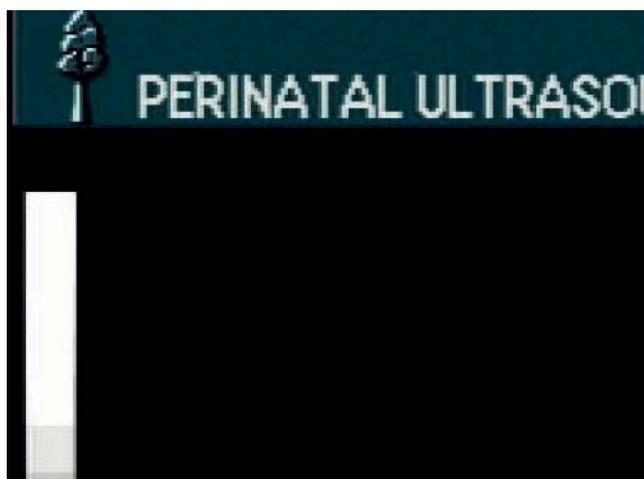


Figure 1 2D Ultrasound at 21 weeks gestation

Introduction

Ultrasound diagnosis of fetal anomalies is not always straightforward. There are situations that are 'black and white', however, some ultrasound findings leave both the clinician and the patient in a 'grey area', the implications of which are uncertain. This case report of abnormal feet is a good example.

Case review

A 29-year-old gravida 2 para 1 in her second pregnancy had her first ultrasound at 19 weeks gestation. This was a fetal anatomy scan, which revealed an isolated finding of lateral ventricles at the upper limits of normal (1.0 cm). The patient was referred to our unit two weeks later where we confirmed that finding, and in addition diagnosed bilateral foot deformities. It was unclear whether they were ectrodactyly in nature or fusion deformities. Two dimensional ultrasound images of both feet are demonstrated in Figures 1 and 5. The fetal anatomy scan appeared otherwise normal. Further investigations revealed a normal karyotype and a negative TORCH screen. Antenatal genetic counselling was inconclusive.

Subsequent ultrasounds were essentially unchanged until 28 weeks gestation, when there was a marked increase in the size of the lateral ventricles to 2.0 cm. The right kidney was noted to have pelvicalyceal dilatation with a dilated right ureter. The left kidney was normal.

Three-dimensional imaging of the fetal feet demonstrated the abnormalities more clearly, particularly of the right foot (Figures 3 and 7). Postnatal photographs and x-rays are



Figure 2 2D Ultrasound at 28 weeks gestation

shown in Figures 4, 8 and 9.

Ultrasounds at 32, 36 and 37 weeks gestation provided no additional information on the feet anomalies, however, they showed a gradual increase in dilatation of the lateral ventricles up to 2.7 cm.

Postnatal examinations

A live female baby was delivered by planned caesarean section at 38 weeks gestation in Nepean Hospital. Postnatal x-rays, MRI and ultrasound demonstrated the following findings:

Head: Circumference above the 90th percentile with enlarged ventricles and agenesis of the corpus callosum.

Heart: Patent foramen ovale.

Limbs: Bilateral polysyndactyly of hands and feet.

Kidneys: Right duplex collecting system with obstructed upper pole moiety and a normal left kidney.

Hips: Bilateral mild-moderate hip dysplasia.

Postnatal genetic review was important in reaching a differential diagnosis.

Discussion

The incidence of major limb anomalies in newborns is 2 in 1000¹. Anomalies of the toes and metatarsals may be classified into five broad categories including:

Absence deformities : Ectrodactyly;

Syndactyly;

Polydactyly;

Brachydactyly; and

Contracture deformities².



Figure 3 3D Ultrasound at 28 weeks gestation



Figure 4 Postnatal photograph of the right foot. Syndactyly between the 2nd and 3rd toes can be clearly seen

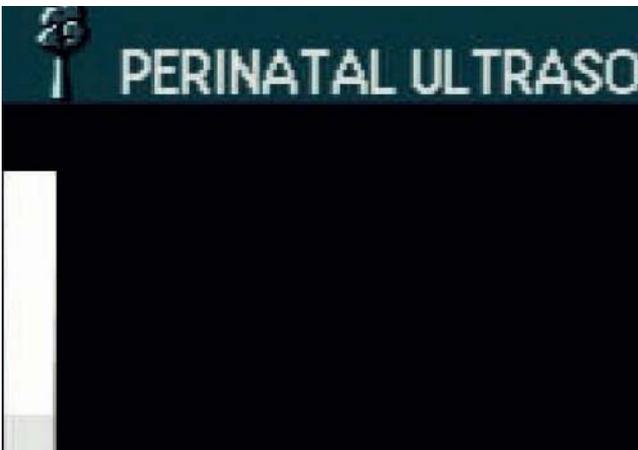


Figure 5 2D Ultrasound at 21 weeks gestation



Figure 6 2D Ultrasound at 28 weeks gestation



Figure 7 3D Ultrasound at 28 weeks gestation



Figure 8 Postnatal photograph of the left foot

Some of these may be present simultaneously.

Absence deformities: Ectrodactyly

Ectrodactyly is a heterogeneous group of hand/foot malformations, which range from partial or total absence of a finger or toe to the cleft hand or foot deformities³.

Syndactyly

Syndactyly refers to the cutaneous and/or osseous fusion of two or more digits. It may also present as a manifestation of a multiple malformation syndrome or chromosomal abnormality³. Simple cutaneous syndactyly involving the toes is

sonographically difficult to detect, particularly at the time of the 18–20 week anatomy scan. Unlike the fingers, the toes cannot generally be seen to separate during an extended real time examination. The syndactyly of the hands and feet were not detected prenatally in this fetus (Figure 10).

Polydactyly

Polydactyly is the partial or complete presence of an extra digit. It may arise from the hand or foot, or another digit. Polydactyly may present as an isolated anomaly with an autosomal dominant mode of inheritance or as a manifestation of a multiple malformation syndrome or chromosomal abnormality³.

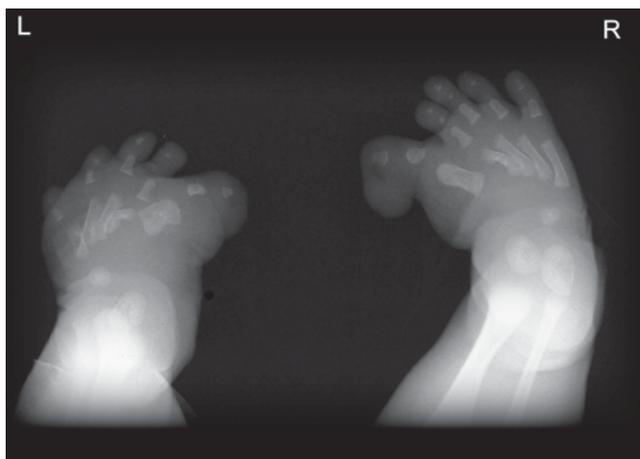


Figure 9 Postnatal x-ray of both feet. Malformation of the metatarsals of the left foot were consistently identified in the prenatal ultrasounds



Figure 10 Postnatal photographs of both hands. Syndactyly can be noticed between the 3rd and 4th fingers on the right hand and the 2nd and 3rd fingers on the left hand

The preaxial polydactyly on the right foot was evident at the time of the 21 week scan (Figure 1) as an extra nubbin of tissue arising at an abnormal angle from the big toe. Follow up scans including 3D imaging at later gestations, clearly demonstrated the initial findings. Postnatal x-rays confirmed the lack of an ossification centre.

Brachydactyly

Brachydactyly is the shortening of the digits resulting from anomalous development of the phalanges or metatarsals/metacarpals. It may occur as a feature of a skeletal dysplasia

or syndrome, or with other limb anomalies including polydactyly and syndactyly. It may also occur as a result of a teratogenic insult⁴.

An in utero diagnosis of brachydactyly was not made in this instance. Short toes on both feet can be seen on the postnatal photographs.

Oral-facial-digital syndrome

Oral-facial-digital syndrome (OFDS) is comprised of a heterogeneous group of disorders characterised by anomalies of the face, oral cavity and digits. Abnormalities of other organ systems including the central nervous system, the urinary tract and tibial and radial defects have also been identified and associated with this syndromic spectrum. To date 11 different types of the OFDS have been identified. Overlapping clinical features between OFDS and a wide variety of other syndromes make precise clinical identification difficult⁵.

CNS anomalies occur in approximately 13% of cases with complete or partial agenesis of the corpus callosum the most frequently detected anomaly⁶. The digital anomalies of the hands and/or feet commonly seen in this syndrome include syndactyly, polydactyly, brachydactyly and clinodactyly. Bilateral bifidity of the great toe is a characteristic finding of OFDS II⁷.

The child in this case was eventually thought to be a mosaic within the broad spectrum of oral-facial-digital syndrome. To date, a definitive classification of the specific type has not been made.

Conclusion

The 18-week scan identified the bilateral hydrocephalus and malformation of the metatarsals of the left foot and preaxial polydactyly of the right foot. The syndactyly and brachydactyly were undetected prenatally as was the absent corpus callosum, in spite of repeated ultrasounds.

Three-dimensional imaging of the feet was helpful for the parents to appreciate the likely anomalies. It also provided more information for the clinician. Serial scanning may reveal more information with increasing gestation. The postnatal findings have narrowed down the likely diagnosis, although, even at this stage a definitive diagnosis has not been reached. This case reminds us of the limitations of antenatal ultrasound diagnosis. It also confirms the adage, "Find one anomaly, look for more!"

Acknowledgement

We would like to acknowledge Dr. Linda Goodwin of the Genetics Department at Nepean Hospital for providing the postnatal photographs for this case presentation.

References

- 1 Moore KL and Persaud TVN (1998) *The Developing Human Clinically Oriented Embryology*, WB Saunders, Philadelphia.
- 2 Cotran RS, Kumar V and Robbins SL (1994) *Pathological Basis for Disease*, 5th Edition, WB Saunders, Philadelphia.
- 3 Fanaroff: (2002) *Neonatal-Perinatal Medicine: Diseases of the Fetus and Infant*, 7th Edition, Mosby, USA.
- 4 Platypus (1999) TKI Medcon, Canada.
- 5 Sakai et al (2002) Oral Facial Digital Syndrome Type II: Clinical and Genetic Manifestations, *Journal of Cranio Facial Surgery* 13 (2): 321–326.
- 6 Patrizi A, Orlandi C, Neri I, Bardazzi F and Cocchi G (1999) What Syndrome is This?, *Pediatric Dermatology* 16 (4): 329–331.
- 7 Buyse ML, *Birth Defects Encyclopaedia*, Blackwell Scientific Publications, USA 1990.

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ASUM extends a warm welcome to you

ASUM 2005 Meetings:

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10 - 11 Nov ASUM Asia Link Program Bangkok Thailand

ASUM 2006 Meetings:

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14 - 17 Sept Annual Scientific Meeting Melbourne Australia

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PROMOTING EXCELLENCE IN ULTRASOUND

Fetal upper abdominal masses: a prenatal diagnostic dilemma

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Figure 1

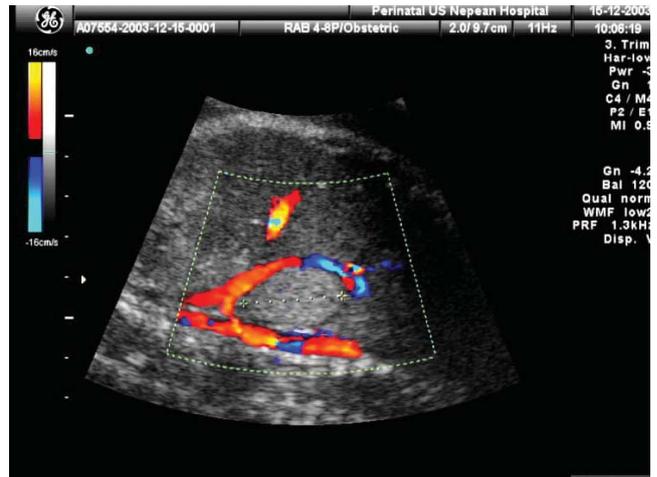


Figure 2

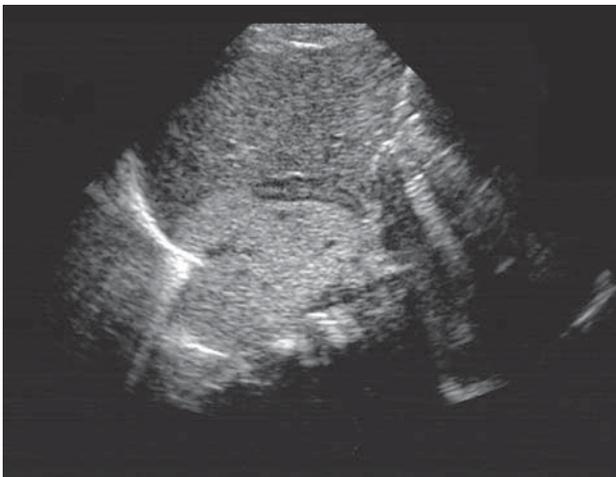


Figure 3

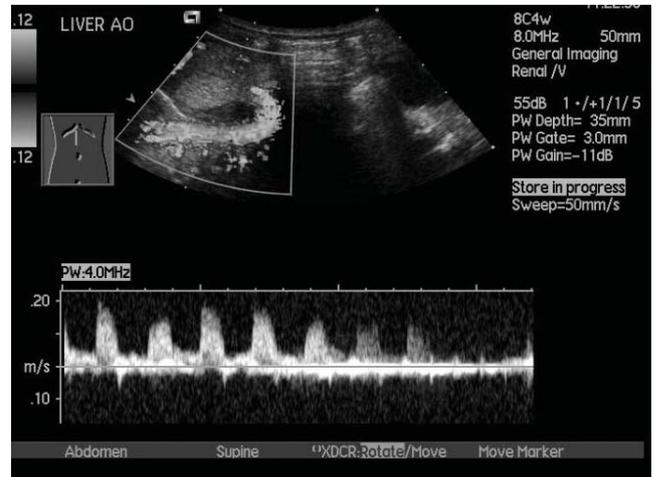


Figure 4

Introduction

A definitive diagnosis may not always be apparent when a fetal upper abdominal mass is present. The sonographic appearances of a range of pathological conditions have similar features and may be difficult to differentiate for even the most experienced personnel.

As illustrated by the following cases, a final diagnosis may only be made after birth, after ongoing serial sonographic review.

Case 1: Right upper quadrant mass

A 36-year-old primigravida, with preeclampsia and gestational diabetes was scanned repeatedly between 29 and 34

weeks gestation. At approximately 32 weeks gestation, the antenatal scan demonstrated a well circumscribed echogenic mass, with apparently cystic components, in the region of the right adrenal gland. Blood flow within the mass could not be demonstrated with colour Doppler ultrasound. No feeder vessel was identified.

Over the five-week period, the mass did not change significantly in size or sonographic appearance (Figures 1 and 2). An adrenal tumour was considered the most likely diagnosis.

The child was delivered by emergency caesarean section for maternal preeclampsia at 35 weeks gestation.

The postnatal ultrasound examination confirmed the



Figure 5



Figure 6

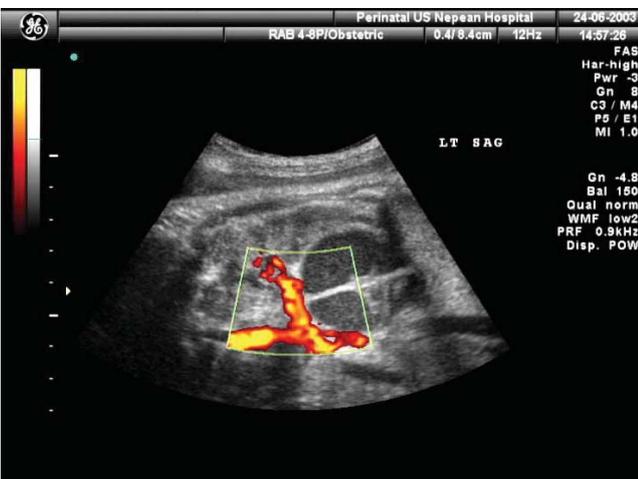


Figure 7



Figure 8

antenatal findings, locating the hyperechoic mass in the right subdiaphragmatic area with possible extension into the pleural space, with associated compression of the IVC and hepatic vasculature. The liver, right kidney and right adrenal gland had a normal sonographic appearance (Figure 3). A possible feeder vessel was identified on a subsequent scan. The lesion was thought to be an extralobar pulmonary sequestration (Figure 4). Given the location of the lesion and the ongoing healthy status of the infant, surgical intervention has not been indicated.

Case 2: Left upper quadrant mass

A 22-year-old woman, gravida 4, para 2 presented for a growth scan at 38 weeks gestation with a clinical history of decreased fundal height. Fetal measurements were consistent with appropriate growth for the stated gestation. However, within the fetal abdomen, a complex, predominantly cystic mass containing mobile septa and solid material was identified in the region of the left adrenal gland (Figure 5). A neuroblastoma or adrenal haemorrhage was considered to be the most likely diagnosis.

The mass was subsequently reviewed using both 2D and 3D ultrasound four days later. The possibility of a renal mass was considered at this time. It appeared to have increased in both size and degree of complexity. Whilst still predominantly cystic in nature, the mass seemed to contain more solid components. The septations also appeared to be thicker and immobile. Colour Doppler evaluation demon-

strated flow peripheral to the mass. There was otherwise no evidence of increased vascularity (Figures 6 and 7).

Following normal vaginal delivery at 41 weeks gestation, the child remained well. There was no clinical evidence of adrenal insufficiency or elevated catecholamines. The abdomen was found to be soft with no palpable mass detected. The infant's blood chemistry was essentially normal.

Neonatal ultrasound examination demonstrated a well defined rounded complex retroperitoneal mass in the left upper quadrant, medial to and contiguous with, the left adrenal gland. The mass dimensions were essentially unchanged from the examination performed four weeks previously. The mass was now predominantly solid.

No definite calcifications or vascularity could be identified. The liver, kidneys, spleen, biliary system and urinary bladder had a normal sonographic appearance (Figure 8).

The differential diagnosis was thought to include adrenal haemorrhage, lymphangioma and a retroperitoneal teratoma. The child has remained clinically well in the 12 months since his birth. The mass has been seen to diminish in size with ongoing serial review by both CT and ultrasound.

Surgical excision was considered unnecessary since all of the features suggest that the mass is an adrenal haemorrhage.

Discussion

Fetal abdominal tumours account for approximately 5% of abnormalities detected by prenatal ultrasound. The differential diagnosis of intraabdominal and/or retroperitoneal

Table 1 Comparison of the sonographic features of upper abdominal masses

	Intraabdominal Extralobar	Adrenal Haemorrhage ²⁻⁴	Neuroblastoma ³⁻⁵	Teratoma ⁶	Lymphangioma ⁷
	Pulmonary Sequestration (IEPS)¹				
Pathology	Non-functioning lung tissue that does not communicate with bronchial tree. Between diaphragm and liver/kidney, separate from adrenal gland.	Pathogenesis in utero is unknown. Total or segmental involvement of the gland.	Most common malignant tumour in the neonate. Originating in neural crest cells. Prenatal diagnosis 32 weeks+.	Tumours composed of tissues derived from the 3 germinal layers of the embryo.	Benign tumours of the lymphatic vessel that are most commonly diagnosed in the neonatal period or early infancy.
Location	8–10% abdomen or retroperitoneum. 90% left sided	Usually intracapsular. Extension into peritoneal cavity or retroperitoneum if ruptures. 3–4 x more common on the right side.	50% associated with Adrenal gland. Retroperitoneal, thoracic or cervical paravertebral regions.	60–65% sacrococcygeal region. 10–20% in the gonads. Mediastinum, nasopharynx head and neck, and the retroperitoneum.	95% head, neck and axilla. 63% of abdominal lymphangiomas. occur on the left side.
Sonographic appearance	Circumscribed, homogenous echogenic mass, ± cystic components.	Changes over time. Initially hyperechoic becoming heterogenous before finally anechoic. Maybe round, triangular or crescent shaped.	Homogenous hyperechoic, 50% cystic, or mixed echo pattern. Occasional calcification Frequently encapsulated displacing kidney.	Variable appearance ranging from completely anechoic to completely hyperechoic. 60% mixed appearance.	Well delineated, hypoechoic cystic masses of variable size. May be uni or multiloculated with fine septations. May contain debris.
Vascularity	± feeder vessel from aorta.	Rim shaped peripheral vascularity.	Low impedance waveform.	Little or no flow on	Little or no flow on colour Doppler.
Associated findings	Diaphragmatic hernia, bronchial agenesis, colonic duplication and vertebral anomalies. Oligo/polyhydramnios. fetal hydrops.	Displacement of the kidney caudally.	Hepatomegaly and/or fetal hydrops associated with metastases.	Polyhydramnios fetal hydronephrosis and fetal hydrops.	Skin oedema, hydrops fetalis and polyhydramnios.

masses relies on the accurate evaluation of the size, position and characteristic sonographic appearances.

The most common differential diagnosis of intraabdominal masses includes congenital neuroblastoma or adrenal haemorrhage, renal tumours, teratomas and less commonly intraabdominal extralobar pulmonary sequestration. It is essential that an accurate distinction is made in order that patient care be optimised.

A comparison of the clinical and sonographic features of these conditions can be seen in Table 1.

Conclusion

In both of our cases, the diagnosis was made ultimately following serial sonographic review correlated with the clinical and biochemical findings. The children are well and developing normally.

While ultrasound is the imaging modality of choice when evaluating the fetal and neonatal abdomen, it cannot always provide a definitive diagnosis in the first instance. A number of mostly benign conditions have features which may mimic those of masses of a more sinister nature and vice versa. In such cases, the role of the ultrasound examination is to alert the referring clinician to the presence or absence of pathology in order that effective clinical management decisions can be made.

Acknowledgements

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References

1 Pumberger W, Moroder W, Wiesbauer P. Intraabdominal extralobar pulmonary sequestration exhibiting cystic adenomatoid malforma-

tion: prenatal diagnosis and characterization of a left suprarenal mass in the newborn. *Abdom Imaging* 2001; 26: 28–31.

2 Seigel. Paediatric Sonography 3rd ed. New York: Lippincott Williams and Wilkins; 2002.

3 Schwarzler P, Bernard JP, Senat MV, Ville Y. Prenatal Diagnosis of Fetal Adrenal Masses: Differentiation between Hemorrhage and Solid Tumour by Colour Doppler Sonography. *Ultrasound Obstet Gynaecol* 1999; 13: 351–355.

4 Kesrouani A, Duchatel F, Seilanian M and Muray JM. Prenatal Diagnosis of Adrenal Neuroblastoma by Ultrasound: A Report of Two Cases and Review of the Literature. *Ultrasound Obstet Gynaecol.* 1999; 13: 446–449.

5 Acharya S, Jayabose S, Kogan SJ, Tugal O, Beneck D, Leslie D, Slim M. Prenatally Diagnosed Neuroblastoma. *Cancer* 1997; 80 (2): 304–309.

6 Dahnert W. Dahnert's Electronic Radiology Review [CD-ROM], Williams and Wilkins, 1998.

7 Mentzel HJ, Schramm D, Vogt S, Reuter A, Mentzel T, Kaiser WA, (1998) Intraabdominal Lymphangioma in a Newborn. *J Clin Ultrasound* 1998; 26 (6): 320–322.



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Ultrasound guided chemical pleurodesis with doxycycline

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Abstract

Diagnosis of pleural effusion by radiograph or ultrasound is reliable and accurate. Treatment of malignant pleural effusion remains problematic. Where a symptomatic pleural effusion fails to respond to systemic chemotherapy, options include palliative thoracentesis and pleurodesis. Palliative thoracentesis requires multiple hospital attendances and may produce only short-term relief. Pleurodesis involves the instillation of a sclerosing agent into the pleural space resulting in a diffuse inflammatory reaction with local activation of the coagulation pathway and fibrin deposition. Talc as a sclerosing agent can be administered as either a talc poudrage at the time of thoracoscopy using an atomiser or as talc slurry via a large bore intercostal tube. Common side effects reported are pleuritic chest pain and fever. Chemical pleurodesis using tetracycline had a modest efficacy (reported success rate around 65%), but was relatively inexpensive, well tolerated and the side effects were infrequent, mild and transient. Production of tetracycline ceased in 1998.

A locally developed pleurodesis protocol is described using doxycycline as the sclerosing agent administered via ultrasound-guided small-bore intercostal cannula placement. Long-acting local anaesthetic is instilled into the pleural cavity to minimise post-procedure discomfort. The procedure can be performed as a day case at low added cost compared with palliative ultrasound-guided thoracentesis.

This preliminary report suggests the protocol described could be more widely applied, appears to be well tolerated and has acceptable morbidity. Initial results are encouraging. A prospective trial is required to compare efficacy and morbidity with the currently used alternatives.

Introduction

Recurrent pleural effusion is a recognised complication of breast, lung and other malignancy sometimes resulting from the disruption and obstruction of lymphatic channels by malignant cells¹. The effusion and associated mass effect compressing the ipsilateral lung can result in ongoing respiratory symptoms (dyspnoea and chest pain) and can have a significant impact on a patient's quality of life. Pleural effusions can be identified and quantified using radiography, ultrasonography or other cross-sectional imaging². Once identified, the treatment options available for managing recurring malignant pleural effusions vary according to local preferences and available expertise. Treatment options include chemotherapy, palliative thoracentesis and pleurodesis³, depending on the patient's well being, response to previous treatments and life expectancy. Bonnefoi and Smith⁴ found that chemotherapy could achieve symptomatic relief in 78% of patients with malignant pleural effusion. However, if chemotherapy is contraindicated or the pleural effusion fails to respond to systemic chemotherapy, an alternate treatment approach is often required³.

Repeated therapeutic thoracentesis (pleural aspiration) is used in treating recurrent pleural effusion as this obviates the need for routine hospitalisation and provides transient

relief for frail patients and those with a limited life expectancy³. The main limitation of pleural aspiration without any additional therapy is the likelihood of rapidly recurrent pleural effusion^{5,6}. Pleurodesis following pleural aspiration decreases the chance of pleural effusion recurrence^{6,7}, and has been a widely used long-standing method of controlling recurrent pleural effusions⁸. Pleurodesis involves the instillation of a sclerosing agent into the pleural space resulting in a diffuse inflammatory reaction with the local activation of the coagulation system with fibrin deposition⁹. This inflammatory process aims to obliterate the pleural space⁸ preventing re-accumulation of the pleural effusion. Despite the use of a large number of agents no ideal sclerosing agent has been adopted. Talc was first used as a sclerosing agent in 1935¹⁰ and can be administered as either a talc poudrage at the time of thoracoscopy using an atomiser or as talc slurry via an intercostal tube. Success rates for talc range from 80% to 100%^{11–14}. The most common side effects reported are pleuritic chest pain and fever. Adult respiratory distress syndrome (ARDS) is a rare and potentially fatal complication of intrapleural talc¹⁵. Chemical pleurodesis using tetracycline became less popular¹⁶ but was performed until 1998 when production was discontinued. Tetracycline has a modest efficacy (average success rate of 65%), but

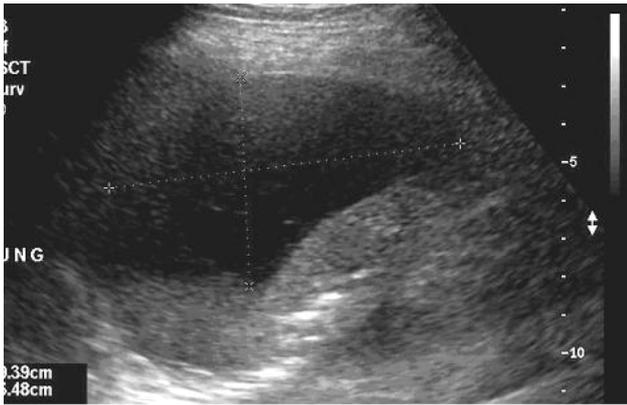


Figure 1 A longitudinal scan shows approximate dimensions of the malignant pleural effusion. There is dependant echogenic material in keeping with altered blood

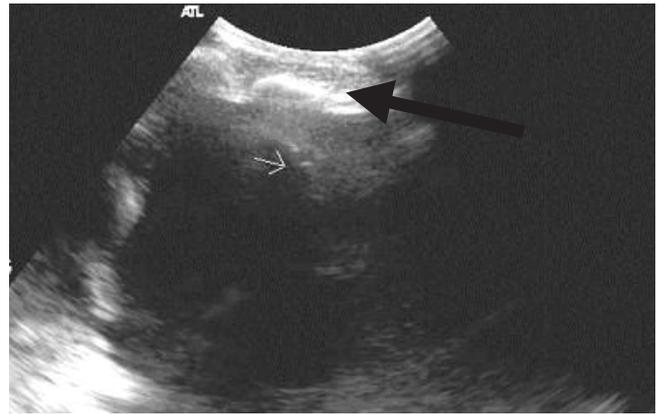


Figure 2 During ultrasound guided subcutaneous local anaesthetic injection the 25 g needle was visualised longitudinally, to ensure delivery of fluid adjacent to the parietal pleural surface to minimise patient discomfort during needle puncture of the pleural surface

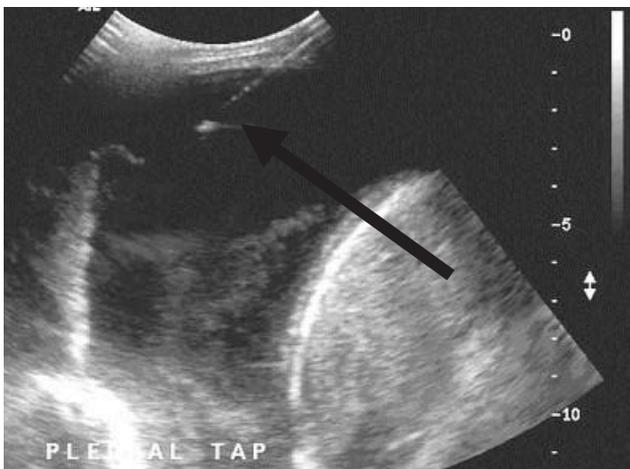


Figure 3 The sheathed cannula is visualised during entry to the pleural fluid. The angle is planned to allow continued drainage as the lung re-expands during fluid drainage

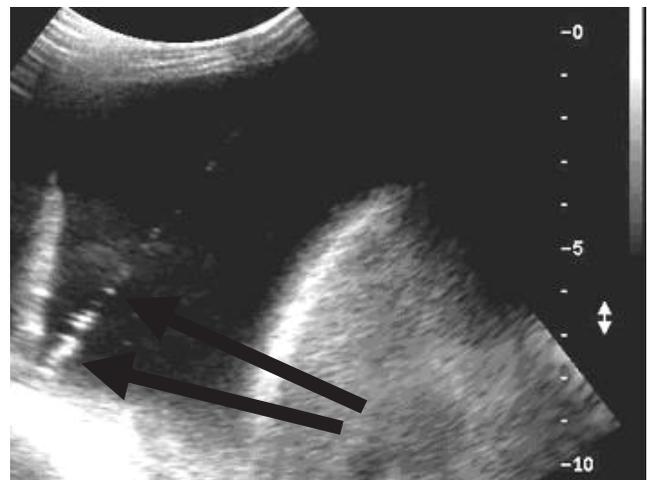


Figure 4 Ultrasound guided insertion of a small bore 5 Fr intercostal cannula was performed on multiple occasions with clear visualisation of the echogenic side holes (arrowed) within the malignant pleural effusion

it was relatively inexpensive, well tolerated and the side effects were infrequent, mild and transient¹⁷. The search for a chemical sclerosant to replace tetracycline, along with an effective protocol for its use, has been the catalyst for this study into the practicality and effectiveness of doxycycline as a sclerosing agent.

Case report

A 52-year-old female presented with dyspnoea on minimal exertion after walking five metres and orthopnea requiring six pillows. There was a four-month history of cough, dyspnoea and right-sided chest pain. A chest x-ray and CT revealed a right-sided pleural effusion, also demonstrated and measured by ultrasound (Figure 1). The diagnosis of non-small cell adenocarcinoma of primary pulmonary origin was made following pleural biopsy. Chemotherapy was commenced, initially with a standard protocol (taxotere weekly changed three months later to gemcitabine fortnightly). The pleural effusion increased and drainage for symptom relief was requested. Ultrasound guided drainage (Figure 2) of 500 ml of pleural fluid was undertaken at presentation and three weeks later ultrasound demonstrated a recurrent volume of approximately 250 cc. Six weeks after the initial tap, a further 250 cc was drained under

ultrasound guidance. Three weeks after that a further 160 ml of pleural fluid was aspirated under ultrasound guidance achieving only one week free from exertional dyspnoea after which recurrent progressive exertional dyspnoea was again reported by the patient.

An ultrasound of the pleural space showed an estimated 500 ml recurrent effusion. Doxycycline pleurodesis (as per the protocol in the Table 1) was undertaken. Minor patient discomfort only was reported during subcutaneous local anaesthetic injection (lignocaine 2% 3–5 ml, Figure 3) and insertion of a small bore 5 Fr intercostal cannula (5Fr. 10 cm Yueh sheathed needle, WA Cook, Eight Mile Plains, Brisbane, Australia, Figure 4). There was no further discomfort while 360 cc of pleural fluid was drained over a four-hour period. The drain was then capped. CT indicated an estimated residual volume of 70 cc remaining in the pleural space. With conscious intravenous sedation using a narcotic/benzodiazepine protocol, intrapleural instillation of Marcaine 0.4% 150 mg in 30 ml (bupivacaine hydrochloride 100 mg/20 ml, Astra Zeneca Pty Ltd, Sydney, NSW, Australia) and doxycycline 500 mg in 25 ml (Vibramycin 100mg/5 ml, Pfizer, Germany) was injected via the intercostal cannula. The patient reported no discomfort during the procedure and four hours of post procedure monitoring

was uneventful. Admission overnight was then scheduled to avoid a four-hour return journey prior to chemotherapy the following day.

The patient was later admitted to hospital for six days with febrile neutropaenia related to her chemotherapy, but did not have any significant effusion. Progress sonographic assessment as an outpatient six weeks after the previous procedure revealed a recurrent effusion with an estimated volume of 500 cc. A further doxycycline pleurodesis was performed after drainage of 290 cc (Figure 4). Progress assessment after a further six weeks revealed a very small effusion of 20 cc, as well as peripheral echogenic material in the pleural space, consistent with the development of pleural adhesions. At this point the pleurodesis was considered to be successful, and the patient was discharged from followup. Intra-pleural instillation of the long acting local anaesthetic Bupivacaine hydrochloride prior to administration of doxycycline appeared to entirely relieve symptoms of pleural discomfort during and after the procedure. The later repeat procedures were conducted with only subcutaneous local anaesthetic and no intravenous sedation. Hospital admissions had been required only due to the long distance from home and pleurodesis was timed to coincide with planned admissions for chemotherapy.

Materials and methods

Table 1 below describes the protocol used in this case.

Discussion

Chemical pleurodesis using doxycycline as the sclerosing agent is one of the less widely used treatment options currently available for managing malignant pleural effusion.

Doxycycline for intravenous injection is inexpensive (~\$A16 for 500 mg) and readily available. The addition of long acting local anaesthetic adds about \$A11 to the cost per procedure. This compares with the cost of the materials used in talc poudrage of over \$A100.

Doxycycline use in this condition in Australia requires submission of an Australian Government Department of Health and Ageing Therapeutic Goods Administration Category A Form Special Access Scheme. The limitation of doxycycline principally involves the requirement to offer up to four treatment cycles to achieve control of recurrent pleural fluid accumulation. Published descriptions involve inpatient based surgical insertion of a large bore catheter with multi-day admission, significantly increasing the overall cost of treatment. The use of ultrasound guidance for puncture of the pleural space with a small bore cannula ensures near 100% success, allows administration of local anaesthetic for immediate and post-procedural pain relief and permits repeated outpatient treatments with minimal patient morbidity and inconvenience. Patients with disseminated malignancy often seek to avoid unnecessary hospital admissions. The technique described avoids or overcomes many of the limitations of existing pleurodesis options.

The alternative of repeated pleural tapping is best performed with direct ultrasound guidance to avoid inadvertent puncture of the lung and to locate the largest locules of fluid. The addition of bupivacaine hydrochloride/doxycycline instillation at the conclusion of palliative thoracentesis adds minimal additional morbidity and cost to a drainage procedure. The protocol can therefore be readily added to the existing practice of palliative thoracentesis.

Table 1

Doxycycline Pleurodesis Protocol

Procedure	Notes/ Medication/ Cannula Equipment
1 Insert a small bore 5 Fr intercostal cannula under ultrasound guidance. with	5 F Yueh (Cook Inc) or another sheathed cannula of similar size with multiple side holes to ensure complete evacuation of pleural fluid out the need for re-positioning. A small bore (6 Fr) pigtail catheter could be used, particularly for patients with a thicker layer of extra-thoracic adipose tissue.
2 Evacuate the pleural fluid (at a rate of up to 500 cc/hour) until pleural space is dry.	Note symptoms of cough or dyspnoea require drainage to be suspended or terminated. Limit the total drainage volume according to local experience or ~ 1500 cc.
3 Confirm adequate fluid evacuation and re-expansion of the lung using ultrasound or CT.	Computed tomography may be used where ultrasound visualisation is limited by lung, bone, acoustic access.
4 Optional administration of conscious sedation prior to pleurodesis for anxious/paediatric patients. up	Typical conscious sedation protocol fentanyl in increments of 20–50 mcg to a maximum of 100 mcg and midazolam in 1 mg increments to 3 mg with O ₂ and monitoring.
5 Instil long-acting local anaesthetic into pleural space followed by a normal saline flush then Doxycycline sclerosant IV solution into the pleural cavity.	Bupivacaine hydrochloride (Marcaine 0.5%, 2 mg/kg up to 150 mg) doxycycline IV solution (Vibramycin 500mg in 25 cc) drawn up slowly to avoid excess aeration. Check product information leaflet for suitability and compatibility.
6 Remove cannula/pigtail catheter.	Imaging control not required.
7 Monitor the patients pulse rate, temperature, blood pressure and respiratory rate for four hours then discharge if stable and pain free.	Admission to hospital is organised if the patient becomes unstable or analgesic requirements remain significant. Chest radiograph for increasing dyspnoea.
8 Follow-up ultrasonography to identify and quantify any recurrence of pleural fluid at 2–6 weekly intervals.	Combine with chemotherapy cycle if applicable, to perform repeat aspiration/doxycycline installation immediately prior to next cycle.
9 Repeat the procedure at 2–3 weekly intervals for up to six cycles OR until the effusion ceases to re-accumulate.	Efficacy demonstrated to improve for at least four cycles Failure rate after four cycles ~ 20%.

Selection and placement of the intercostal catheter

In previous studies involving chemical pleurodesis, large bore intercostal catheters (24–32F) have been used⁸. The large bore catheters are prone to causing significant discomfort and as a result smaller bore catheters (10F) have been used with success¹⁸. For this study a 5 F sheathed cannula with multiple side holes was used to minimise patient discomfort and facilitate easy placement of the cannula within the largest accessible locules of pleural fluid.

Placement of the catheter was guided by ultrasound. Ultrasound is well recognised as an effective means of rapidly localising pleural fluid collections and monitoring cannula position to ensure effective and complete drainage⁵.

Evacuation of the pleural fluid

Drainage of the pleural fluid was limited to around 1500 ml and drainage was discontinued sooner if the patient developed a cough, chest pain or shortness of breath.

Published guidelines on the management of pleural effusions state that the most important requirement for successful pleurodesis is complete lung re-expansion to ensure adequate apposition of the parietal and visceral pleura³. However, even if complete lung expansion was not achieved, Robinson *et al.* demonstrated a successful outcome in nine out of 10 patients when using doxycycline for chemical pleurodesis.

Confirmation of successful drainage of the pleural fluid and lung re-expansion was achieved using ultrasound. The use of ultrasound also facilitated the measurement of any residual pleural fluid volume estimate as a baseline for later comparison².

Sedation

To control patient discomfort, or in some cases anxiety associated with chemical pleurodesis, conscious sedation may be added. A protocol including a narcotic (such as fentanyl 50–100 mcg) with a benzodiazepine (such as midazolam 1–3 mg) can be administered using a conscious sedation protocol (including the use of pulse oximetry and O₂) during installation of pleurodesis medications.

Analgesia

The intrapleural administration of doxycycline is associated with chest pain²⁰. Published results describing the use of intrapleural lignocaine¹⁹ reported that 19% of patients experienced moderate pain requiring additional analgesia. The safety of lignocaine has been examined in two studies. Wooten *et al.*² showed that following the intrapleural administration of 150 mg of lignocaine the serum concentration of lignocaine (1.3 µg/ml) was significantly below the level associated with central nervous system side effects (> 3 µg/ml). In another study patients received up to 250 mg of lignocaine, while maintaining serum levels within the therapeutic range²². Side effects were reported by only one patient who experienced transient paraesthesia.

In order to increase the duration of pain relief provided by the intrapleural local anaesthetic agent, this study utilised bupivacaine hydrochloride instead of lignocaine. The dose of 2 mg/kg up to 150 mg in 30 ml is in accordance with the drug product information provided on the MICROMEDEX web site²³. Use of the MICROMEDEX drug interaction tool

revealed no reports of interactions between Bupivacaine hydrochloride and Doxycycline.

Doxycycline

Doxycycline has been used and evaluated in numerous clinical trials, achieving a mean success rate of 76% from the 85 pleural effusions evaluated³ (although the 29 patients lost to follow up are not included in this analysis). The success rate of those patients evaluated at one month was 79%. In all cases except one, a dose of 500 mg mixed with saline was used. Prevost *et al.* used a dose of 2000 mg²⁴ in 16 malignant pleural effusions with a reported success rate of 82%. The side effects reported were fever and mild to moderate pleuritic chest pain (40 to 60% depending on the analgesia used). Heffner *et al.* used narcotic therapy for the control of pain²⁵.

The method used in this study involved the injection of doxycycline as supplied for intravenous injection (500 mg in a solute volume totalling 25 ml), while other authors describe the use of an infusion of doxycycline diluted in 30 ml of saline²⁶. No advantage conferred by dilution is identified from other reports.

The major disadvantages of using doxycycline in the past have been the prolonged intercostal catheter dwelling times and the need for repeated doses to prevent the effusion from recurring. All the past studies have left the intercostal catheter *in situ* until the effusion resolved. Indwelling pleural catheterisation may increase the risk of infection, patient discomfort and certainly increases the length of hospital admission. The added facility of using ultrasound guidance to assist in cannula placement negates the requirement to leave a catheter *in situ*. The patient is then able to go home after the procedure and return for outpatient assessment by ultrasound of the quantity of residual pleural fluid. The need to repeat the pleurodesis is determined by recurrence of symptomatic dyspnoea at clinical follow-up.

References

- 1 Antunes G, Neville E. Management of malignant pleural effusions. *Thorax* 2000; 55: 981–983.
- 2 Eibenberger KL, Dock WI, Ammann ME, et al. Quantification of pleural effusions: sonography versus radiography. *Radiology* 1994; 191: 681–684.
- 3 Antunes G, Neville E, Duffy J, N Ali N. BTS [British Thoracic Society] guidelines for the management of malignant pleural effusions. *Thorax* 2003; 58 at http://thorax.bmjournals.com/cgi/content/extract/58/suppl_2/ii29 accessed 12/04/05.
- 4 Bonnefoi H, Smith IE. How should cancer presenting as a malignant pleural effusion be managed? *Br J Cancer* 1996 Sep; 74 (5): 832–835.
- 5 O'Moore PV, Mueller PR, Simeone JF, et al. Sonographic guidance in diagnostic and therapeutic interventions in the pleural space. *AJR* 1987; 149: 1–5.
- 6 Sorensen PG, Svendsen TL, Enk B. Treatment of malignant pleural effusion with drainage, with and without instillation of talc. *Eur J Respir Dis* 1984; 65: 131–135.
- 7 Zaloznik AJ, Oswald SG, Langin M. Intrapleural tetracycline in malignant pleural effusions. *Cancer* 1983; 51: 752–755.
- 8 Hausheer FH, Yarbro JW. Diagnosis and treatment of malignant pleural effusion. *Semin Oncol* 1985; 12: 54–75.
- 9 Antony VB. Pathogenesis of malignant pleural effusions and talc pleurodesis. *Pneumologie* 1999; 10: 493–498.
- 10 Bethune N. Pleural poufrage: new technique for deliberate production of pleural adhesions as a preliminary to lobectomy. *J Thorac*

- Surg* 1935; 4: 251–261.
- 11 Kennedy L, Rusch VW, Strange C, *et al.*. Pleurodesis using talc slurry. *Chest* 1994; 106: 342–346.
 - 12 Webb WR, Ozmen V, Moulder PV, *et al.*. Iodized talc pleurodesis for the treatment of pleural effusions. *J Thorac Cardiovasc Surg* 1992; 103: 881–885.
 - 13 Yim AP, Chung SS, Lee TW, *et al.*. Thoracoscopic management of malignant pleural effusions. *Chest* 1996; 109:1234–1238.
 - 14 Viallat J-R, Rey F, Astoul P, *et al.*. Thoracoscopic talc poudrage pleurodesis for malignant effusions. A review of 360 cases. *Chest* 1996; 110: 1387–1393.
 - 15 York A, Bondoc P, Bach P, *et al.*. Talc pneumonitis: incidence, clinical features and outcome. *Chest* 1999; 116 (Suppl): 358–39S. 32.
 - 16 Heffner JE, Unruh LC. Tetracycline pleurodesis: adios, farewell, adieu. *Chest* 1992; 101: 64–66.
 - 17 Walker-Renard PB, Vaughan LM, Sahn SA. Chemical pleurodesis for malignant pleural effusions. *Ann Intern Med* 1994; 120: 56–64.
 - 18 Patz EF Jr, McAdams HP, Goodman PC, *et al.*. Ambulatory sclerotherapy for malignant pleural effusions. *Radiology* 1996; 199: 133–135.
 - 19 Robinson L A, Fleming WH, Galbraith TA. Intrapleural doxycycline control of malignant pleural effusions. *Ann Thorac Surg* 1993; 55: 1115–1121.
 - 20 Pulsiripunya C, Youngchaiud P, Pushpakom R, *et al.*. The efficacy of doxycycline as a pleural sclerosing agent in malignant pleural effusion: a prospective study. *Respirology* 1996; 1: 69–72.
 - 21 Wooten SA, Barbarash RA, Strange C, *et al.*. Systemic absorption of tetracycline and lidocaine following intrapleural instillation. *Chest* 1988; 94: 960–963.
 - 22 Sherman S, Grady KJ, Seidman JC. Clinical experience with tetracycline pleurodesis of malignant pleural effusions. *South Med J* 1987; 80: 716–719.
 - 23 <http://micromedex.hcn.net.au> accessed 12/04/2005.
 - 24 Prevost A, Nazeyrollas P, Milosevic D, *et al.*. Malignant pleural effusions treated with high dose intrapleural doxycycline: clinical efficacy and tolerance. *Oncol Reports* 1998; 5:363–366.
 - 25 Heffner JE, Standerfer RJ, Torstveit J, *et al.*. Clinical efficacy of doxycycline for pleurodesis. *Chest* 1994; 105: 1743–1747.
 - 26 Mansson T. Treatment of malignant pleural effusion with doxycycline. *Scand J Infect Dis* 1988; 53 (Suppl): 29–34.
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A 3D approach to antenatal diagnosis of vasa previa with 2D ultrasound imaging

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Abstract

Antenatal diagnosis of vasa previa has been reported with the use of 2D and colour Doppler imaging, and more recently with 3D and colour Doppler imaging. A case of vasa previa diagnosed with 2D gray-scale and colour Doppler ultrasound imaging on combined transabdominal and transvaginal scans is described. The findings are compared with that in a case of placenta previa where blood vessels are also found overlying the internal cervical os. The utilisation of three perpendicular planes on 2D ultrasound imaging for a 3D impression of the area around the internal cervical os for differentiation of the two conditions is presented.

Introduction

Vasa previa is known to be associated with a poor perinatal outcome and a high fetal mortality of 50–60% where there are intact membranes and 70–100% with ruptured membranes^{1,2}.

Antenatal diagnosis allows the planning of elective delivery before onset of labour or rupture of membranes that may lead to tearing of fetal vessels and fetal exsanguination³. The use of 2D and colour Doppler ultrasound for prenatal diagnosis and, more recently, 3D ultrasound has been reported. However, in many ultrasound units, 2D ultrasound imaging is still the backbone for obstetric imaging because of its wide availability and simplicity of image acquisition. A case of vasa previa is presented and the diagnostic approach utilising 2D gray-scale and colour Doppler imaging in three different perpendicular planes is described. The sonographic findings are compared to a case of placenta previa where a vessel could be identified overlying the internal cervical os in association with placental tissue.

Case report

The patient, 42 years old, gravida 7 para 3, Samoan with a history of two previous caesarean deliveries, presented for an ultrasound scan at 17 weeks which showed that the placenta was posterior, low-lying and covering the internal cervical os. Ultrasound examination was repeated at 36 weeks gestation. The patient was scanned transabdominally in sweeping sagittal and transverse sections targeting at the internal cervical os. The main bulk of the placenta was noted to lie posteriorly, reaching the internal cervical os. However, there was a succenturiate lobe in the anterior wall of the uterus away from the internal os and vessels could be seen overlying the internal cervical os connecting the two lobes of placenta in both sagittal (Figure 1a) and transverse sections (Figure 1b). These vessels were also demonstrated on transvaginal scan (Figure 1c). Placenta previa, succenturiate lobe and vasa previa were diagnosed. The patient

was scheduled for elective caesarean section. The baby was delivered in good condition. The placenta was examined and the presence of succenturiate lobe and vasa previa was confirmed.

Discussion

Antenatal diagnosis for vasa previa has been reported with the use of 2D gray-scale imaging on transabdominal scan⁴ and colour Doppler imaging on transvaginal scan⁵. More recently, the use of 3D and colour Doppler ultrasound imaging in diagnosis of vasa previa has also been described⁶.

We applied 2D gray-scale and colour Doppler ultrasound scanning, sweeping in sagittal and transverse planes transabdominally and in sagittal and coronal sections transvaginally to inspect the area around the internal cervical os in three perpendicular planes (Figure 1d) and obtained sections similar to what could be obtained with 3D ultrasound equipment⁶.

We find that this approach can also depict those cases in which there are vessels running in the placental substance overlying the internal cervical os (as in placenta previa) rather than naked fetal vessels running in membranes only (as in vasa previa). In the former, the placental substance can be seen as a layer between the vessel and the internal cervical os on sagittal section (Figure 2a) and along the side of the vessel on transverse section (Figure 2b and 2c). Particularly noteworthy is the sonolucent area around the fetal vessels at the internal os level on transverse section with true vasa previa indicating the absence of any supporting placental substance (Figure 1b), whereas in placenta previa there is no sonolucent area around the vessels at this level (Figure 2c).

Conclusion

2D images are easy to acquire and study and, up to the present moment, 2D imaging is still more widely available and commonly utilised than 3D. We find that sweeping in



Figure 1a

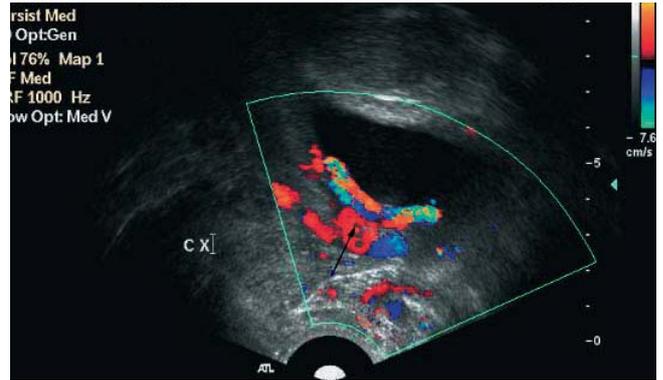


Figure 1c

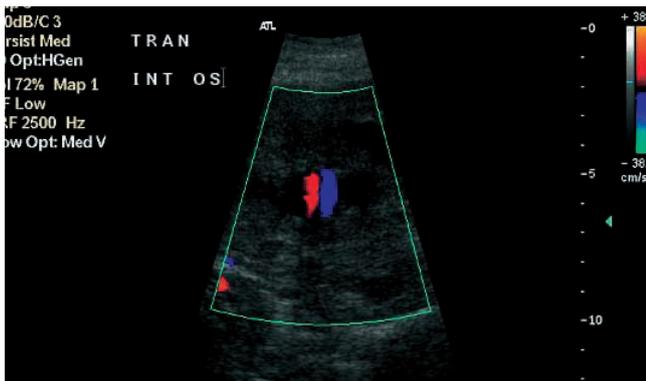


Figure 1b

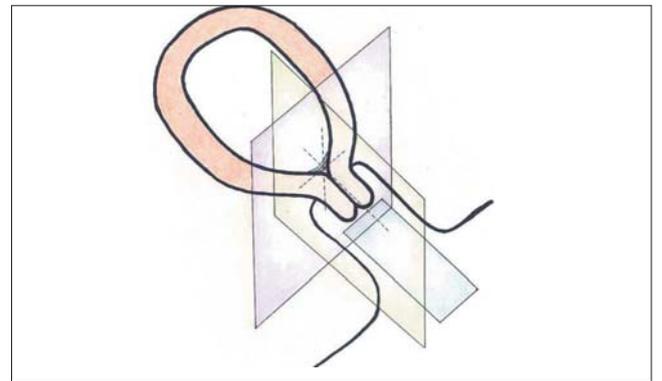


Figure 1d

Figure 1 On colour Doppler imaging in the sagittal plane on transabdominal scanning, two blood vessels are shown running over the internal cervical os in opposite directions side by side (Figure 1a). The long black arrow points to the internal cervical os in all the figures. In the transverse plane (Figure 1b), two blood vessels running over the internal cervical os in opposite directions are evident. There is a sonolucent area around the fetal vessels in this plane at this level indicating that the vessels are not surrounded by placental substance. The same findings are confirmed on transvaginal scanning with the two vessels shown at the same time in an oblique sagittal section (Figure 1c). Placental substance can be seen just short of the internal os posteriorly and the anterior lobe is clear of the internal os. The three perpendicular planes used on 2D gray-scale and colour Doppler imaging in combined transabdominal and transvaginal scans are shown in Figure 1d.

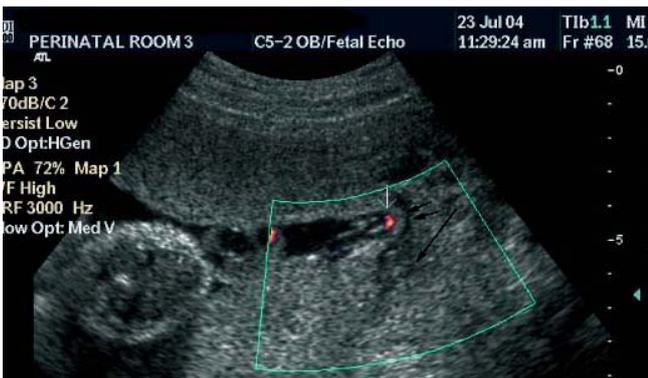


Figure 2a

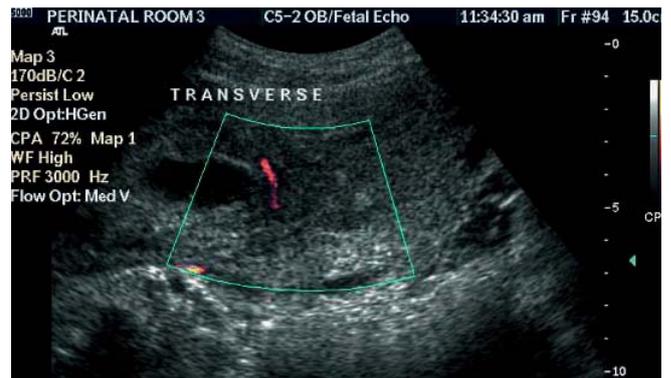


Figure 2c



Figure 2b

Figure 2 In a case of placenta previa (Figure 2a, 2b & 2c), a layer of placental tissue (double arrow) could be clearly seen between the vessel and the internal cervical os (single long black arrow) in the sagittal plane (Figure 2a). Placental tissue could be observed running along the sides of the vessel in a serial transverse sweep (Figure 2b & 2c). This is still observed at the internal os level as indicated by double arrow in Figure 2c.

three perpendicular planes targeting the internal cervical os with 2D imaging (including the use of colour Doppler) gives a reliable equivalent 3D imaging of the area and can be very useful in the diagnosis and differential diagnosis of vasa previa.

References

- 1 Naftolin F and Mishell DR Jr. Vasa previa. Report of 3 cases. *Obstet Gynecol* 1965; 26 (4): 561–565.
 - 2 Pent D. Vasa previa. *Am J Obstet Gynecol* 1979; 134 (2): 151–155.
 - 3 Fung TY and Lau TK. Poor perinatal outcome associated with vasa previa: is it preventable? A report of three cases and review of the literature. *Ultrasound Obstet Gynecol* 1998; 12 (6): 430–433.
 - 4 Gianopoulos J, Carver T, Tomich PG, Karlman R, Gadwood K. Diagnosis of vasa previa with ultrasonography. *Obstet Gynecol* 1987; 69 (3 Pt 2): 488–491.
 - 5 Nelson LH, Melone PJ, King M. Diagnosis of vasa previa with transvaginal and color flow Doppler ultrasound. *Obstet Gynecol* 1990; 76 (3 Pt 2): 506–509.
 - 6 Lee W, Kirk JS, Comstock CH, Romero R. Vasa previa: prenatal detection by three-dimensional ultrasonography. *Ultrasound Obstet Gynecol* 2000; 16 (4): 384–387.
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A pictorial essay of left ventricular failure

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Figure 1

Clinical history

A 74-year-old male presented for an outpatient cardiac assessment prior to surgical treatment of a left renal tumour. Reported symptoms included occasional episodes of central chest tightness during rest as well as on exertion. There was no past history of other cardiac disease. On examination, the pulse was 100 and regular with occasional extrasystoles, the systolic blood pressure was 120/95, the JVP was raised at 8 cm with the cardiac impulse laterally displaced. On auscultation there was an apical pan-systolic murmur and a third heart sound. The ECG showed sinus rhythm with left axis deviation and diffuse T-wave abnormalities. The chest x-ray showed cardiomegaly. An echocardiogram was requested to assess left ventricular systolic function.

Materials and methods

The echocardiogram was performed on a GE medical system Vivid 7. A multi-frequency (1.5 – 4.0 MHz) phased array transducer was used in real time for 2D (harmonic and non-harmonic), M-mode, colour flow, continuous and pulsed wave Doppler examination. A frequency of 1.7 MHz frequency with harmonic imaging was selected for adequate penetration and resolution. Depth settings, overall gain, TGC, colour and spectral Doppler settings and focal zones were set to allow optimal imaging of structures of interest. The mechanical index (MI) was 1.0 and the thermal index (TI) was 0.7–1.5. The total imaging time was 30 minutes.

Technique

Parasternal long axis views of the left ventricle showed mild to moderately impaired systolic contraction with mild antero-septal wall hypokinesia and severe posterior hypokinesia. The mitral valve appeared mildly echodense with normal leaflet excursion. The aortic valve appeared mildly

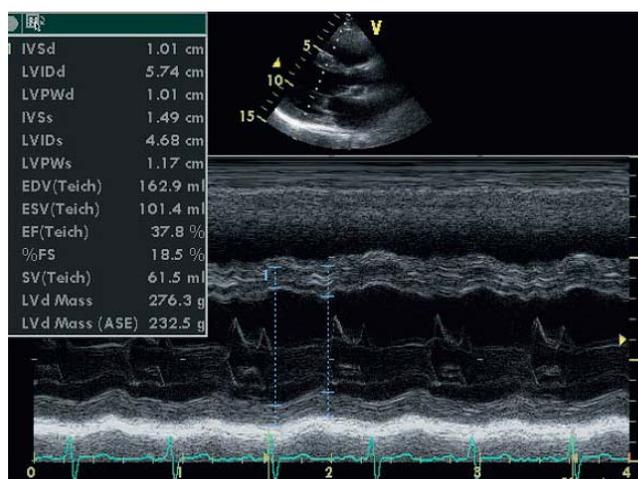


Figure 2

echodense with normal excursion and cusp separation.

M-mode through the aortic valve demonstrated a normal sized aortic root and, superiorly, a normal ascending aorta with mild dilatation of the left atrium. M-mode across the mitral valve showed an increase in the mitral valve E point to septal separation (EPSS) indicating left ventricular dilatation.

M-mode through the left ventricle showed a mildly increased left ventricular end-diastolic dimension and reduced systolic thickening of both the antero-septal and posterior walls. The calculated ejection fraction (after Teicholtz and Simpson) was 37%. There was mild concentric left ventricular hypertrophy.

Colour Doppler revealed a very mild central jet of aortic regurgitation and mild mitral regurgitation.

The right ventricular inflow view showed a normal tricuspid valve with normal valve excursion. The right atrium appeared mildly dilated. Colour Doppler revealed a mild degree of tricuspid regurgitation. The continuous wave Doppler across the jet shows a pressure difference between the right ventricle and right atrium of 39 mmHg with spectral broadening indicating mild severity.

The right ventricular outflow tract view with colour Doppler and continuous wave Doppler across the pulmonary valve showed normal outflow velocities.

The parasternal short axis view showed the commissure of the non-coronary aortic cusp was mildly thickened. The left ventricle visualised at the level of the papillary muscles showed a mild to moderate global impairment in systolic function.

Apical views of the mitral valve and tricuspid valves showed normal excursion. The left ventricular lateral and septal walls showed reduced contraction with impaired contraction of the lateral wall of the right ventricle, mild bi-atrial

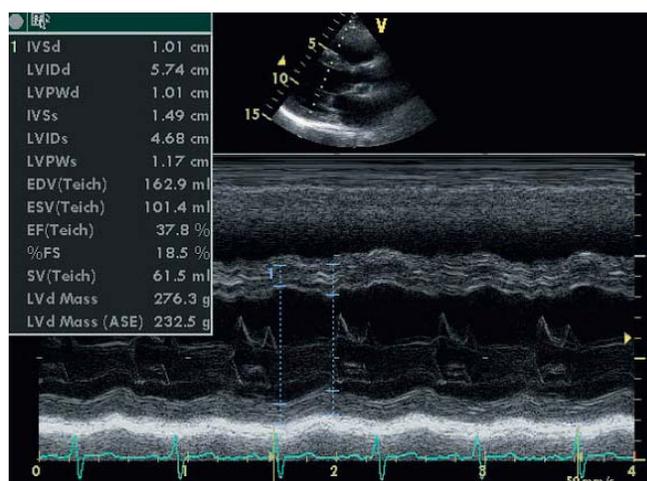


Figure 3

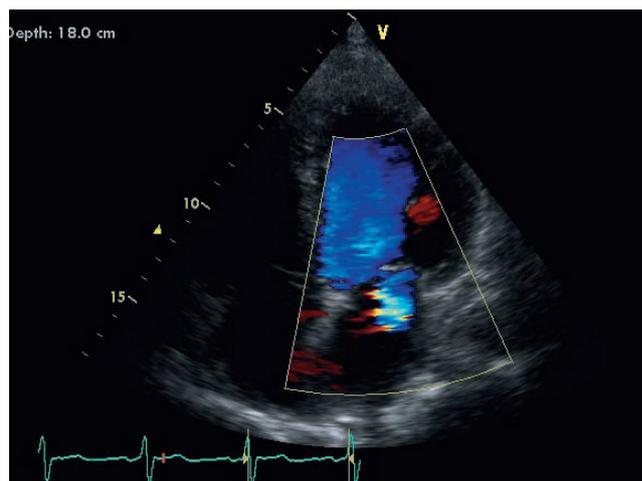


Figure 4

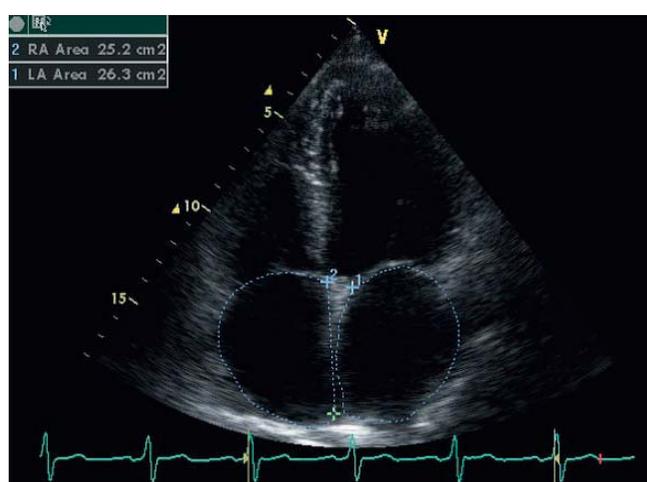


Figure 4

dilatation, and mitral regurgitation confirmed by continuous wave Doppler as mild to moderate.

Pulsed wave Doppler in the right upper pulmonary vein demonstrated a normal pulmonary vein signal with no evidence of systolic blunting or flow reversal.

Colour Doppler of the tricuspid valve showed trivial tricuspid regurgitation with a pressure gradient of 40mmHg, indicating mildly increased pulmonary pressures.

Rotating the transducer to a two-chamber view again

confirmed moderate left ventricular impairment and mild to moderate mitral regurgitation.

The subcostal four-chamber view showed no evidence of pericardial effusion or an interatrial septal defect, a normal sized IVC with normal respiratory collapse (RAP = 5–10 mmHg).

Discussion

The echocardiogram revealed a mildly dilated left ventricle with moderately impaired contraction in keeping with global dysfunction. The ejection fraction obtained from the Simpsons method was approximately 37%. As the impairment was diffuse the ejection fraction measured from M-mode (Teicholtz method) correlated closely with the Simpson method value. The right ventricle appeared normal in size with normal systolic function. The atria were mildly dilated. The cardiac valves showed mild to moderate mitral regurgitation, mild aortic regurgitation and mild tricuspid regurgitation. The estimated pulmonary pressure was approximately 50 mmHg (calculated from a resting atrial pressure of 10 mmHg plus the valve gradient of 40 mmHg). These findings are typical of a cardiomyopathy most probably not caused by ischemic heart disease. The patient was commenced on Digoxin, Aldactone, a beta blocker and Lasix. Major surgery for the renal tumour was postponed pending an adequate response to medical management.

DMU and DDU Examinations

2005 DDU Part 1 pass candidates

Philip Aplin SA
Kristine Barnden NSW
Jacqueline Chua Vic
Phillipa Cuttance NZ
Cyrus Edibam WA
Martha Finn NT
Brendan Flaim Vic
Alexandra Ivancevic NZ
Subodh Joshi Vic
Vasundhara Kaushik NSW
Patricia Lai NSW
Christopher Lewis Vic

Justin Mariani Vic
Kristy Milward NSW
Karen Mizia NSW
Carl Muthu NZ
Wendell Neilson NSW
Mark Page Vic
Emma Parry NZ
Deirdre Percy NSW
Christine Russell SA
Nasser Shehata NZ
Medha Sule UK
Greg Sweetman WA
Joseph Thomas SA
Ka-Kit Wong NSW

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Thushari Alahakoon NSW
Nagesh Anavekar Vic
Natalia Andreianova NZ
Neil Athayde NSW
Terry Chang NSW
Marilyn Fooks Vic
Adrian Goudie WA
Lisa Hui NSW
Allan Kruger Qld
Francis Ponnuthurai Vic
Jillian Spilsbury NSW

Amarendra Trivedi Vic
David Walters SA

April 30 2005 DMU Diploma

General

Mr Christopher Powers
Mr Vishwant Sandeep

Obstetric

Miss Wendy Gellel

Vascular

Ms Carol Duncan

Guidelines for the Performance of First Trimester Ultrasound

May 1995, Revised October 1999, Revised October 2002, Revised July 2005

Introduction and equipment

Studies should be performed using an abdominal and/or vaginal approach. A high frequency transducer should be used and the equipment should be operated with the lowest ultrasonic exposure settings capable of providing the necessary diagnostic information. A vaginal transducer should always be available and a transvaginal scan should be offered to the patient when it is anticipated that this would result in a more diagnostic study. The patient may choose to accept or refuse this offer and undue persuasion is inappropriate.

Reference should be made to the *Guidelines for the Performance of a Gynaecological Scan* regarding the facilities and preparation for such an examination.

ASUM policy on disinfection of vaginal transducers should be followed.

History

Estimate gestation based on last menstrual period or time of conception. Document symptoms and, if possible, the result and date of any pregnancy test – Human Chorionic Gonadotrophin (HCG).

Gestation sac

The gestation sac should usually be visible from four and one half (4.5) to five (5) weeks using high frequency transvaginal ultrasound.

When a gestation sac-like structure is seen but no live fetus demonstrated, it is important to attempt to ensure that it is not a 'pseudo gestational sac'. Look for the echogenic trophoblast rim and the yolk sac, and ensure that the fluid in the gestation sac is echo free.

If a gestation sac is not visible in the uterus of a patient believed to be pregnant, the adnexa should be carefully examined looking for evidence suggesting the presence of an ectopic pregnancy – most ectopics

can be suspected with high frequency transvaginal ultrasound.

In a patient with a positive pregnant test but either:

- no gestational sac is seen within the uterus or elsewhere in the pelvis
- an apparent sac is seen but no fetal structures (including yolk sac) or heart movements are visible

consider the following:

- pregnancy not as advanced as thought (e.g. delayed ovulation and conception in that cycle)
- ectopic pregnancy
- failed pregnancy including complete miscarriage

Interpretation of the scan may be more accurate if the result of the quantitative HCG levels is known.

There is more than one accepted laboratory standard for reporting HCG levels. The units for the local service should be taken into account when correlating sac development and HCG level. In general when the level is > 2000 IU/l a gestation sac should be seen in the uterus on transvaginal scanning. If no sac is visible an ectopic must be considered.

If the level is < 1000 IU/l then further follow up by serial HCG is appropriate and/or a repeat scan if the diagnosis is uncertain.

Gestational age

This is most accurately assessed in the first trimester. The earlier the crown rump length (CRL) is measured, the more accurate is the assessment of gestational age. The CRL can be measured from six weeks gestation. The composite CRL chart in the *ASUM Policies and Statements Folder* is recommended. From eleven (11) weeks multiparameter assessment can be used. Biparietal diameter (BPD) is the most often used second measurement.

Fetal heart movements

With a high resolution vaginal transducer, fetal heart movements are often

visible from five (5) to six (6) weeks (i.e. CRL = 2 mm), but may not be seen until CRL = 3–4 mm (See paragraph on pregnancy failure).

Fetal number

The diagnosis of a multiple pregnancy requires the visualisation of multiple sacs prior to six (6) weeks and subsequently visualisation of multiple embryos.

The first trimester is the optimum time to determine chorionicity of the fetuses. The chorionicity of the fetuses should be stated in the report. The presence of separate sacs and the thickness of the intervening membrane and the shape of its junction with the placenta should be assessed. Be aware that early in the first trimester an intervening amnion may not be visible in diamniotic, monochorionic twins. Later in the first trimester the number of placentas can be evaluated.

Pregnancy failure

An experienced operator using high quality transvaginal equipment may diagnose pregnancy failure under either or both of the following circumstances:

- 1 When no live fetus is visible in a gestation sac and the mean sac diameter is 2.0 cm or greater.
- 2 When there is a visible fetus with a CRL of 6 mm or more but no fetal heart movements can be demonstrated. The area of the fetal heart should be observed for a prolonged period of at least thirty (30) seconds to ensure that there is no cardiac activity.

In situations where pregnancy failure is suspected by an operator who either does not have extensive experience in making the diagnosis or does not have access to high quality equipment or if there is any doubt about the viability of the fetus, a second opinion or a review scan in one week should be recommended in the report¹.

Fetal structure

The following list of gestational ages at which various fetal structures may be visualised is not intended to provide a complete list of what should be examined. However, using high resolution equipment (often only with a vaginal transducer) the following structures can commonly be seen:

- 9 weeks** Head, trunk and limbs
- 10 weeks** Some ossification of long bones, jaw and skull
- 11 weeks Stomach, spine, ossified cranium, four chamber heart
- 12 weeks** Mid gut herniation no longer present, kidneys, bladder.

Nuchal translucency

The nuchal translucency measurement is a test to assess the risk of chromosomal abnormality, in particular of trisomy 21. The measurement may also be abnormal in other fetal anomalies (e.g. some congenital heart disease). It has been estimated that first trimester screening by a combination of sonography and material serum testing of PAPP-A and free β hCG can potentially identify 94% of trisomy 21 fetuses with a false positive rate of 5%².

This study should be performed by adequately trained staff according to strict protocol. The outcomes of the test should be audited regularly. The recommendations of the Fetal Medicine Foundation/ Royal Australian and New Zealand College of Obstetricians and Gynaecologists should be noted.

It may be performed between the gestational ages of eleven (11) weeks and thirteen (13) weeks plus six (6) days (CRL 45–84 mm). A measurement greater than 2.5–3 mm is usually considered to be abnormal but must be correlated with gestational age. Reference values have been provided by Nicolaides³.

The nuchal translucency measurement may be performed at the request of the referring Medical Practitioner. Due consideration should be given as to how and who is going to counsel the patient prior to the performance of a nuchal translucency scan.

Each practice should develop a written protocol on the procedure to be followed when the measurement is abnormal. This protocol should include guidelines for the immediate care of the patient and how the referring doctor will be informed. Usually the referring doctor should be notified so that appropriate counseling may be given and the patient can be referred to a specialised unit where formal risk assessment and counseling process can be undertaken.

Method of measurement

- 1 The nuchal translucency should be measured on a sagittal midline scan through the fetus.
- 2 The fetus should be in neutral position and occupy at least 75% of the image.
- 3 The amnion should be seen separate to the fetal skin line.

- 4 Calipers should be positioned to measure the maximum diameter of the fluid at the back of the neck.

Ovaries, uterus and adnexa

Each ovary should be examined. The corpus luteum can vary greatly in appearance during the first (and early second) trimesters of pregnancy. Sonographic appearances include a solid, rounded target like lesion or a predominately cystic structure. Peripheral vascularity is usually detectable.

The size of a corpus luteum is also variable, commonly measuring up to 3 cm.

Larger or unusual masses should be assessed as in the non pregnant woman.

The uterus should be examined for evidence of a fibroids or uterine developmental defects. The uterine position should also be noted (anteverted, axial, retroverted).

The adnexa should be examined for coexistent ectopics and free fluid.

References

- 1 Hatley, Case and Campbell. Establishing the death of an embryo by ultrasound. *Ultrasound Obstet. Gynecol* 1995; 5: 353–357.
- 2 Nicolaides KH *Am J Obstet Gynecol* 2004; 191: 45–47.
- 3 From Nicolaides group: Snijders et al.. Assessment of risk of Trisomy 21 by maternal age and fetal nuchal-translucency thickness.

Interim Statement on the Appropriate Use of Diagnostic Ultrasound Equipment for Non-Medical Entertainment Ultrasound

Issued July 2005

Background/Preamble

Since its introduction to medical practice and the biological sciences in the 1950s, ultrasound has grown from being a subject of minor curiosity to probably the most widely used imaging modality throughout the world across dozens of clinical disciplines.

A major initial clinical application was in the discipline of obstetrics and this has continued through to the current day where modern diagnostic ultrasound plays a major role in the clinical management of pregnancy. The use of diagnostic ultrasound in pregnancy has been underpinned by a large volume of research into issues concerning bioeffects and safety in human tissue. For many years, most of the learned bodies, worldwide, concerned with imaging and obstetrics, have encouraged the appropriate and safe use of diagnostic medical ultrasound equipment.

The recent widespread availability of good quality real time three-dimensional diagnostic ultrasound equipment has seen the proliferation of businesses offering ultrasound examinations during pregnancy for the purpose of producing 'keep sake' images of fetuses. This has been most prevalent in the United States where much effort is currently being directed toward regulating this phenomenon and restoring the use of diagnostic medical ultrasound equipment to the area of medical diagnosis as opposed to entertainment (see websites of United States Food and Drug Administration, American Medical Association).

Confining the use of diagnostic medical ultrasound equipment in pregnancy to examinations for the purpose of providing medical information useful to the management of pregnancy is based on the following principles:

1 Bioeffects and safety

It is widely accepted that diagnostic ultrasound, when used as per guidelines promoted by bodies such as the World Federation for Ultrasound in Medical and Biology, the American Institute of Ultrasound in Medicine and the Australasian Society for Ultrasound in Medicine has not been demonstrated to be associated with deleterious effects in human tissue. Such statements do not guarantee the absolute safety of diagnostic ultrasound but rather

emphasise that the long-term effects and the possibility of subtle effects are not completely known. Prudent use is therefore recommended in order to minimise the chance of significant bioeffects. It should be noted that recommended power output levels have been significantly increased in recent years and much of the safety data relating to the use of diagnostic ultrasound precedes the increased permitted power outputs for different ultrasound imaging modalities. In terms of exposure to diagnostic ultrasound, all learned bodies emphasise the ALARA (as low as reasonably achievable) principle. This principle emphasises that diagnostic medical ultrasound equipment be used by trained individuals to seek relevant diagnostic information with the minimum of exposure, thereby minimising the potential for bioeffects and tissue damage.

2 The trivialisation of diagnostic medical technology

Trivialising diagnostic medical technology and the role of trained technical and medical professional will inevitably erode the significant relationship between health care providers and patients that currently exists. This will ultimately be to the significant detriment of the maintenance of the high standard of practice upon which optimum medical outcomes are based.

3 Potential for misdiagnosis

The potential clearly exists for not detecting significant diagnoses. Pregnant women may believe that this form of examination is an adequate substitute for a properly conducted examination involving appropriately trained sonographers and medical practitioners. A potential problem is also created where the abnormalities are incorrectly diagnosed or doubt regarding normality is created, thereby producing significant patient anxiety.

4 General note

There needs to be community discussion regarding the entitlement of a fetus to particular rights, including the right not to be exposed to a source of potential harm where no health benefit exists.

Draft of a letter sent from the President of ASUM to health departments, learned colleges and other medical and health organisations

I am writing to you on behalf of the Australasian Society of Ultrasound in Medicine regarding non medical 4D scanning of babies. ASUM is a peak body in ultrasound whose purpose is to promote excellence and safe practise in ultrasound. Our membership is comprised of Medical Imaging Specialists (mainly Obstetricians and Radiologists), Scientists involved in the field, and technical personnel.

Following similar trends in the United States, recently several entrepreneurial groups have begun setting up businesses whose sole purpose is the non medical scanning of babies in utero to obtain 3D photographs and 4D video. There is no involvement of qualified medical or technical personnel to our knowledge. We understand clinics have been established in Adelaide and Melbourne, and undoubtedly more will follow in other cities.

The establishment of these clinics causes considerable concern to ASUM. It has been an established policy of ours since ultrasound scanning began, to keep fetal exposure to ultrasound as low as possible. Although no significant ill affects of ultrasound have yet been demonstrated, we feel we would not be discharging our ethical responsibilities by not limiting exposure. Clearly these clinics who are scanning for what could only be described as social reasons, contravene this policy.

Of greater concern however, is the very real probability that patients will become confused as to what constitutes a medical scan and a non medical scan. The general population may in some circumstances believe they have had an ultrasound scan of their baby and that all is satisfactory, confusing this with a medical scan which actually looks at the development of the fetus. In addition, should abnormalities be found, the circumstances for the delivery of this news would be sub-optimal, potentially disturbing, and probably quite unsafe.

It is likely the Department of Health will see they have little role in this area as they will not be claimed upon for funding in any way. They have indicated that they are not particularly interested by these developments.

We are writing to request your consideration of this matter. We believe that if your members become involved in this style of practise then they would be acting unethically by blurring the boundaries between medical imaging and non medical photography. We suggest it would be appropriate for your board to censure any of your members who may become involved in this practise.

We would appreciate you discussing this and formulating an opinion. We believe we should renounce the development of these clinics, and should proceed with lobbying the Department of Health to legislate against the existence of such clinics. Attached is a draft statement outlining our concerns.

We look forward to hearing from you in the near future. If there are any aspects to this matter or the statement you would like to discuss, please do not hesitate to contact me.

Dr David Rogers
President ASUM

To the Editor

Non-medical applications of ultrasound

The prudent use of medical ultrasound as advocated by ASUM and other ultrasound societies usually refers to 'medically indicated' procedures, i.e., those where an improved diagnostic outcome is expected from the procedure. The use of diagnostic imaging technology simply to view the fetus for demonstration purposes or to obtain a personal photograph or video does not constitute a medical use, in its strictest sense. In response to increasing commercial interest in marketing non-diagnostic 'keepsake' videos and photos, the American Institute of Ultrasound in Medicine (AIUM) issued cautionary statements against what it describes as the non-medical use of diagnostic ultrasound (AIUM website).

The FDA Centre for Devices and Radiological Health has also been quite outspoken, threatening regulatory action against the practice of commercial imaging of fetuses for 'keepsake' videos (FDA 2000). The FDA notified the medical community in the USA in 1994 regarding its concerns about the misuse of diagnostic ultrasound equipment and sought to discourage their patients from having sonograms for so-called 'non-medical' reasons. The published FDA rationale states: 'Although there is no evidence that these physical effects can harm the fetus, public health experts, clinicians and industry agree that casual exposure to ultrasound, especially during pregnancy, should be avoided. Viewed in this light, exposing the fetus to ultrasound with no anticipation of medical benefit is not justified.' (FDA 2000).

The British Medical Ultrasound Society has published guidelines that permit the use of non-medical ultrasound, but only under conditions that significantly limit the ultrasound output (BMUS 2000) and, hence reduce the risk to the patient in the absence of known benefit. The BMUS defines non-diagnostic use of ultrasound equipment as that including repeated scans for operator training, equipment demonstration using normal subjects, and the production of souvenir pictures or videos of a fetus. The BMUS guidelines for non-diagnostic uses of diagnostic ultrasound provide upper limits to the thermal index ($TI < 0.5$) and mechanical index ($MI < 0.3$). These are somewhat restrictive but were chosen to provide a lower degree of risk for procedures where there is no obvious clinical benefit. Note that the FDA limits output on equipment (for use in the USA) with an output display to $MI < 1.9$ for all examinations except ophthalmic where $MI < 0.23$ applies. There is no limit on TI, but intensity (spatial peak temporal average) is limited to a maximum of 720 mW/cm².

It is a matter of debate whether, or not, live scanning may be construed simply as an exercise in marketing the diagnostic ability of a particular piece of ultrasound equipment.

Stan Barnett
Chairman ASUM Safety Committee

References

- AIUM website. www.aium.org/stmts.htm#Prudent Use
- BMUS. British Medical Ultrasound Society, Guidelines for the safe use of diagnostic ultrasound equipment. *BMUS Bulletin* 2000; 8: 30-33.
- FDA CDRH. Centre for Devices and Radiological Health Consumer update on fetal keepsake videos. June 2000. www.fda.gov/cdrh/consumer/fetalvideos.htm

Editor's note

The introduction by ultrasound operators in the USA and Australia of a purely commercial 'non-medical 3D ultrasound imaging service to provide keepsake images of the unborn child has provoked a storm of controversy. The American Medical Association has weighed into the debate with the following comments extracted from the article that follows.

American Medical Association says ultrasound in-utero 'portraits' are bad idea

6/22/2005

By: Reuters Health

'Recent advances in ultrasound technology, including 3D image capacity, have made the 'pre-birth' portraits popular, which prompted the Missouri delegation to the House of Delegates to ask the AMA to go public about the risks of the practice . . .

The Missouri doctors said the ultrasound portraits are often done by unqualified technicians in whose hands ultrasound, which is generally a safe procedure, may have unanticipated risks. During a reference committee hearing "testimony was overwhelmingly in support of this resolution calling for the responsible use of diagnostic ultrasound during pregnancy," said Dr Daniel van Heeckeren, a thoracic surgeon at University Hospitals, Cleveland, Ohio who chaired the Reference Committee . . .

Dr Van Heeckeren noted that use of diagnostic ultrasound for 'keepsake' purposes puts the clinician at risk of potential legal liability since this imaging is often performed without parents receiving the standard counseling that normally precedes ultrasound examinations.

Editor's note

ASUM members also had plenty to say, including the following edited comments extracted from various emails to the Editor. Space precludes full publication of each communication. Readers are invited to submit any further views on this subject. ASUM does not endorse any of these statements. They are simply the opinions of individual correspondents.

- "How do bodies such as ASUM justify other non-medical uses of ultrasound equipment, such as in live company-sponsored demonstrations and other 'non-medical' activities? There is a far wider impact overall from other non-medical uses compared to the 3D foetal photo scanner in [location omitted].

If a 3D photo of the unborn child's facial features during pregnancy improves bonding (which it probably does on the face of it – no pun intended) and reduces the incidence of postnatal family disruption by making the family-to-be appreciate the actuality of a child in the making, or improves paternal postnatal care-giving (which it might), then a 3D photo has done more for the pregnancy than 99% of morphology scans, which seek to identify any abnormality which might prompt a late mid-trimester termination – an abhorrent 'treatment' in my view. The reporting of an isolated so called 'soft marker' morphology scan finding which alone has no statistical significance (such as an echogenic focus in the heart, a choroid plexus cyst or a 5 mm renal pelvis) creates significant anxiety for many pregnant ladies and

their partners and is arguably far more damaging than a few 3D images of an unborn baby's face."

- "Advocates perhaps might produce some evidence for the statements made about the benefits of 3D ultrasound for families. One of our research Psych students has just concluded a randomised study which surprised us all by showing that compared with 2D scanning there is no difference in bonding as judged by the psychologic testing methods she employed. And not all foetal anatomy scans are part of a search and destroy campaign. But we could debate the value of foetal abnormality scans (FAS) ad nauseam. We certainly do create angst but the soft marker chaos was initiated by well meaning groups mainly in the USA extrapolating from high risk to low risk groups. What I think worries most people about entertainment scanning is [that] it is demeaning of the profession and the inference that what is good for the greedy entrepreneurs [offering these 3D services] is necessarily good for their customers and their babies in utero."
- "The BMUS guidelines for non-diagnostic uses of diagnostic ultrasound provide upper limits to the thermal index (TI < 0.5) and mechanical index (MI < 0.3). These are somewhat restrictive but were chosen to provide a lower degree of risk for procedures where there is no obvious clinical benefit."
- "Medicare is solely a payment system. It has nothing to do with setting standards of practice. There is no Medicare payment involved [in 3D 'entertainment' ultrasound] so there is little interest [from legislators] in curbing the practice."
- "ASUM must take the lead here as the peak ultrasound body in advising legislators and the public that this practice [of 3D 'entertainment' ultrasound] is inappropriate. The ALARA [as low as reasonably achievable] rule applies to ultrasound as it does to other imaging modalities. It should only be performed where there is an appropriate medical indication and exposure should be minimised. Just because there is no demonstrated effect to date, it does not mean ultrasound exposure is safe."
- "3D scanning is a commercial contract creating a duty of care. If the mother is warned of material bio-dangers (of which none are established) and understands that the scan is not for medical purposes, the duty of care is discharged. Where the operator does not hold themselves out to be providing a medical service, the provisions of the various State based legislative instruments controlling doctors and others who deliver medical care do not apply."
- "[In relation to the concern of abnormalities either being found or missed on these social scans] the operators had better be careful with the way they structure their business, get good legal advice and have good insurance!"
- "What about the right of the foetus to determine its exposure to unnecessary risk [such as 3D 'entertainment' ultrasound] for the enjoyment of others [its parents and grandparents]?"

Sonographer Melbourne

Monash Ultrasound for Women provides services to Monash IVF (gynaecological and infertility ultrasound) as well as routine and tertiary obstetric ultrasound and prenatal diagnosis.

A full or part-time position is available for an ASAR accredited Sonographer at our specialist Obstetric and Gynaecological ultrasound practice. The successful applicant will have extensive experience in ultrasound with a special interest in O&G.

This position will involve the provision of a high standard of ultrasound service, the supervision and training of Sonographer staff and students as well as contributing to our in house education program.

Alternatively: Experience in O&G preferred but training can be given to the right applicant with an interest in this area of ultrasound.

**Enquiries to: Operations Manager
Jo-Anne O'Connor
tel (03) 9420 8250 or
email joconnor@monashivf.edu.au
www.monashultrasound.com.au**



Monash Ultrasound for Women

OBSTETRICAL & GYNAECOLOGICAL ULTRASOUND SONOLOGIST REQUIRED MELBOURNE

A unique opportunity exists for a Sonologist with experience in this field to join the team working at the clinics of Monash Ultrasound for Women, located across three Melbourne sites, at Richmond, Clayton and Box Hill in Victoria.

**For confidential enquiries please call:
Ms Jo-Anne O'Connor
Operations Manager
Monash Ultrasound for Women
Email: joconnor@monashivf.edu.au
Mobile: 0407 522 347
Telephone: 03 9420 8250
www.monashultrasound.com.au**



Monash Ultrasound for Women

**To Dr Caroline Hong
Chief Executive Officer
Australasian Society for Ultrasound Medicine**

Dear Caroline,

Further to our conversation this morning I thought it appropriate to confirm the basis of our discussions regarding the Marketing of 4D (or equivalent) ultrasound systems for anything other than clinical diagnostic purposes.

GE Healthcare is tightly bound by the GE Integrity Policy on a Global Basis, which outlines, amongst other things, a very strong Code of Conduct and Ethics to be applied when doing business in all countries. As a result of this policy, Omar Ishrak, whom you have met, has made it very clear that the Voluson Ultrasound System (or equivalent) is not to be knowingly supplied in situations where the only intention is to provide an entertainment experience associated with pregnancy. These situations include, but are not limited to private individuals who are not clinically qualified offering a scan to expectant parents without the benefit of any clinical interactions.

Within the Australian market we are beginning to see non-clinical entrepreneurs considering such services and subsequently approach GE for the purchase of Voluson systems. Given the above considerations and the fact that GE views 4D technology as a significant clinical tool, which, when utilised correctly can offer amongst other things, increased diagnostic capabilities in fetal heart assessment ventricular development in the brain; argon dimensions and volume calculation – GE Healthcare is taking the position that it will not be selling these systems to any physician not qualified to interpret and utilise such technology i.e. we will not be selling systems to anyone that is not either DMU or sonographer qualified (with suitable medical support).

If there is anything that I can do to work with ASUM to ensure that this becomes a 'self Policing' policy, please let me know.

**David Radford
General Manager
Ultrasound, Australia and New Zealand
GE Healthcare Technologies**

Expression of Interest DMU Practical Examiners

Experienced and qualified sonographers are required for selection and training as DMU Practical Examiners. Interested applicants will need to:

- Be ASAR accredited
- Attend ASUM DMU Practical Examiner Training/ Accreditation days
- Be Financial ASUM members
- Be prepared to travel throughout Australia and New Zealand
- Commit to examine at least five candidates annually for three years
- Provide a full Curriculum Vitae
- Provide professional references

**Please apply in writing with attachments (noted above) to:
Chairperson ASUM DMU Board of Examiners
2/181 High St Willoughby Sydney NSW 2068 Australia**

Book and CD reviews

Abdominal Ultrasound – How, Why and When (2nd Edition)

Author Jane A Bates
 Publisher Elsevier Churchill
 Livingston 2004
 Cost A\$116.60 (incl gst)

The second edition of *Abdominal Ultrasound – How, Why and When* is a 284 page text written by the very experienced sonographer, Jane Bates, from the Ultrasound Department at St James University Hospital, Leeds, UK.

I reviewed the first edition of this text in 1999 and subsequently included it in recommended reading lists for student sonographers and referred to it often, particularly when teaching. It is a pleasure to review the updated second edition.

The general layout of the text and writing style reflect the fact that the author is an experienced teacher of ultrasound to sonographers. The text aims to be a 'practical and easily accessible guide to sonographers' and in this it succeeds very well.

This is an excellent text: well written, very well illustrated and easy and interesting to read. The writing style is almost conversational at times and one can easily imagine the author talking to students in a lecture or tutorial. The author's experience and interest in the topic is demonstrated in the numerous tips and pitfalls mentioned throughout.

The content, while not a comprehensive account of all pathologies that may be encountered in an ultrasound examination of the abdomen, is quite extensive and is more than detailed enough for most general departments and for student sonographers.

There are 11 chapters with an introductory chapter on 'General scanning and equipment issues' which, while not comprehensive, makes some valid and useful points and strongly emphasises the operator-dependent nature of ultrasound and the need for care and diligence on the part of the sonographer.

Seven separate chapters deal with each of the major areas of the abdomen in a logical, easy to follow format. As would be expected, the major emphasis is on the liver, biliary tree and the renal

tract, with smaller overview chapters on the spleen and retroperitoneum and gastrointestinal tract.

The text finishes with three good summary chapters dealing with paediatric abdominal pathology, the acute abdomen, and interventional and other techniques. The paediatric chapter is aimed at a general department and concisely covers the major abdominal conditions that may be encountered in a general department. Further reading is suggested for those wanting more detailed information relating to paediatric applications.

The 'Interventional and other techniques' chapter includes good and up-to-date sections on needle guidance techniques, applications of intraoperative and laparoscopic techniques and ultrasound contrast agents. Throughout the relevant chapters, there are well written sections relating to shunts and transplant techniques and their relevant ultrasound assessments. I found these sections very informative and of good general interest.

In summary, I found this to be a very attractive book, with very good quality images and an easy to read and engaging writing style. The information is aimed at student sonographers and it should meet the needs of the target audience well. I would highly recommend the text for students, anyone involved in training sonographers, and teaching departments.

Margo Gill

MAppSci GDipBusAdmin DMU AMS

The practice of ultrasound. A step-by-step guide to abdominal scanning

Author Berthold Block
 Publisher Thieme 2004
 ISBN 3-13-1383615
 Cost \$A121 (incl GST)

This 253-page soft cover book is described by the author as a self-study guide for those beginning ultrasound. Its creation was brought about by the continuing problem of sonographers finding time to train new students and also by the lack of any existing texts solely aimed at beginners. The author intends the trainee sonographer to have the text in the ultrasound room

while performing examinations, as a constant reference.

The text is divided into 13 chapters. The first is a very basic description of the ultrasound machine, its probes and key functions. There is also a comprehensive description of the orientation of the ultrasound image.

The second chapter, which is devoted to the physics of ultrasound, is again basic, but describes all the main artefacts encountered when scanning.

Each continuing chapter is then devoted to a region of the abdomen and is divided into organ boundaries, organ details and relationships to other organs. The learning goal of each chapter is stated at the beginning and key points are listed to summarise major points learned.

Handy tips are noted along the passages for scanning different regions. Each organ described and their scanning techniques are complimented by ultrasound images. They appear step-by-step as they would if scanning. Chapter four on the liver is particularly well written with excellent images describing the liver segments and their boundaries. Chapter eight is also interesting as it describes the scanning of the stomach, duodenum and diaphragm, which are often not well covered in other texts. However, the chapter on the bladder, prostate and uterus is brief and disappointing. Also, the diagrams in each chapter can be difficult to follow, as the labelling is confusing and not standard. Reference is made to the main pathologies affecting each organ, in each chapter, with a basic description of the pathology and an ultrasound image to demonstrate its appearance.

The final chapter is a summary, with a description of all the points to cover when scanning each region, a list of suggested terminology to use when describing an organ or pathological finding and a suggested report sheet and image documentation.

In summary, when purchasing this text, it must be remembered it is for beginners and is aimed at a basic level. With this in mind, it is an excellent teaching tool to start a new sonographer scanning and has the most comprehensive series of images to date, to demonstrate normal anatomy and scanning techniques.

Deborah Moir
 DipRad DMU AMS

ADJUDICATION GUIDELINES FOR ORAL PRESENTATIONS

Presenter: _____ Title of Presentation: _____

Category of presentation:

- Descriptive clinical Literature review Original research

		POOR	CREDITABLE		OUTSTANDING	
ABSTRACT:	Correctly portrays the presentation, demonstrates the relevance of the topic and creates interest	1	2	3	4	5
INTRODUCTION:	Acknowledges Chair and audience. Describes the contextual relevance of the topic Aims/hypothesis/purpose clearly stated	1	2	3	4	5
CONTENT:	Well developed description of topic/case	1	2	3	4	5
	Relates topic/issues to local context and conditions	1	2	3	4	5
	Integrates own thought and refers to other work on the topic	2	4	6	8	10
	Describes the problem/issue/technique in detail	2	4	6	8	10
	Discussion relates to, and is supported by relevant literature	2	4	6	8	10
	Literature is appropriate and current	1	2	3	4	5
	Comprehensive coverage	1	2	3	4	5
CONCLUSION:	Summarises major points/findings. Outlines recommendations for future work	1	2	3	4	5
PRESENTATION:	Audiovisual well sequenced and relevant to the presentation with appropriate image quality	1	2	3	4	5
	Presentation well sequenced. Clear and audible presentation. Holds audience interest	1	2	3	4	5
ORIGINALITY:	Original thought is evident in the selection of the topic	1	2	3	4	5
	The methodology is appropriate and shows evidence of originality in its design	1	2	3	4	10
VALUE:	The topic is relevant and beneficial to the profession	1	2	3	4	10

IF MORE THAN 2 MINUTES OVERTIME DEDUCT 50 POINTS

SCORE: _____ /100

ADJUDICATION GUIDELINES FOR POSTER PRESENTATIONS

enter: _____ Title of Presentation: _____

Category of presentation:

- Descriptive clinical
 Literature review
 Original research

		POOR		CREDITABLE		OUTSTANDING	
ABSTRACT:	Correctly portrays the presentation, demonstrates the relevance of the topic and creates interest	1	2	3	4	5	
INTRODUCTION:	Describes the contextual relevance of the topic Aims/hypothesis/purpose clearly stated	1	2	3	4	5	
BACKGROUND:	Well developed description of topic/case	1	2	3	4	5	
	Relates topic/issues to local context and conditions	1	2	3	4	5	
	Integrates own thought and refers to other work on the topic	2	4	6	8	10	
	Describes the problem/issue/technique in detail	2	4	6	8	10	
	Discussion relates to, and is supported by relevant literature	2	4	6	8	10	
	Literature is appropriate and current	1	2	3	4	5	
	Comprehensive coverage	1	2	3	4	5	
CONCLUSION:	Summarises major points/findings. Outlines recommendations for future work	1	2	3	4	5	
PRESENTATION:	Logical and easy to follow Information presented concisely	1	2	3	4	5	
	Text is eye catching and easily viewed Important points are well illustrated	1	2	3	4	5	
ORIGINALITY:	Original thought is evident in the selection of the topic	1	2	3	4	5	
	The methodology is appropriate and shows evidence of originality in its design	1	2	3	4	10	
RELEVANCE:	The topic is relevant and beneficial to the profession	1	2	3	4	10	

SCORE: /100

Diploma of Medical Ultrasonography Report

2005 DMU Part I and Part II Examination Applications

While the 2005 enrolments for the DMU are similar to those in recent years, the numbers are slightly down and the mix of specialties and localities is changing. Eighty-nine (89) Part I Candidates and ninety-nine (99) Part II Candidates applied to sit the 2005 DMU Examinations.

Table 1 shows the breakdowns:

Tables 2 and 3 show a comparison of the 2004/2005 candidate numbers by location and speciality:

With the introduction of many university courses, while the number of General candidates in Australia is relatively stable, the number of General candidates from New Zealand is decreasing due to the fact that 2005 is the first year in which a new university course has been offered in Auckland where most of the New Zealand candidates are located.

Detailed 2005 numbers by location, speciality and examination type are detailed on tables 4 and 5.

It is expected that the New Zealand Unitec/Auckland University course may have a further impact on New Zealand General numbers. The number of Cardiac candidates is stable despite more universities offering cardiac courses. I feel that many candidates underestimate the amount of work involved in undertaking a course of independent study towards a professional qualification with the high standards that the ASUM DMU maintains.

2005 DMU Examination innovations

From 2005, Part I Candidates may now sit the Written Examination in July and/or November. This innovation

gives candidates and practices an increased flexibility to plan their sonographer training, as well as offering failed candidates an early opportunity to re-sit their Part I examination without having to wait a further 12 months.

As in previous years, the 2005 Part II Examination is offered annually and consists of three components: a Written Paper on Ultrasound Techniques, a Practical Examination in Scanning Techniques and the Objective and Standardised Clinical Examination (OSCE) and Oral Examination (Oral). The OSCE is in two sections comprising Clinical and Applied Physics answers stations; the Oral Examination consists of Applied Physics and Clinical related situations. Candidates must achieve satisfactory standards in ALL sections of the examination to satisfactorily complete their DMU. The emphasis of the DMU Part II Examination is on the technical and practical considerations of the profession of ultrasonography.

The 2005 Written Examinations were conducted on Saturday 30th July in 26 centres throughout Australia and New Zealand. Notwithstanding the practical examinations that have already been concluded, over the next three months all practical examinations will be conducted. The OSCE/Oral Examinations will be held in early October, with the Cardiac and Vascular being held on Saturday 8th October and the General and Obstetric being held on Saturday 15th October. It is intended to have all 2005 Part II examinations completed by the end of October. This year, the November sitting of the Part I Written Examination will be Saturday 5th November. Applications are now open and will close on Friday 30th September 2005.

Practical examiners for the DMU are currently undergoing accreditation training to help standardise the Practical Examinations throughout Australia and New Zealand. This accreditation process was introduced in 2004 and, by 2006, it is intended that all existing DMU practical examiners and additional, suitable, interested sonographers are fully accredited by ASUM to conduct practical examinations. The ASUM DMU Board of Examiners continues to exchange New Zealand and Australian practical examiners on selected rotation by speciality so that both groups have a chance to assess overall standards in each other's countries. In addition, practical examinations, at the ASUM DMU

Table 1 Breakdown comparisons 2004/2005 DMU applications

	2004		2005	
	Part I	Part II	Part I	Part II
Cardiac	35	52	32	47
General	59	41	44	38
Obstetric	1	6	5	4
Vascular	10	12	8	10
TOTAL	105	111	89	99

Table 2 Part I Candidate numbers – comparison 2004:2005

Location	Cardiac		General		Obstetric		Vascular	
	2004	2005	2004	2005	2004	2005	2004	2005
NZ	6	4	25	9	0	0	2	1
Qld	10	7	0	1	1	2	3	0
NSW	5	4	15	23	0	1	1	3
Vic	11	8	6	4	0	2	3	2
Tas	0	0	0	0	0	0	1	0
SA	0	2	0	0	0	0	0	0
WA	3	7	12	4	0	0	0	2
NT	0	0	0	0	0	0	0	0
ACT	0	0	1	3	0	0	0	0
TOTAL	35	32	59	44	1	5	10	8

Table 3 Part II Candidates numbers – comparison 2004:2005

Location	Cardiac		General		Obstetric		Vascular	
	2004	2005	2004	2005	2004	2005	2004	2005
NZ	8	4	22	16	1	1	3	3
QLD	10	14	3	1	0	0	1	3
NSW	9	6	8	10	4	3	3	2
Vic	13	9	2	4	1	0	3	1
Tas	0	0	0	0	0	0	1	0
SA	5	6	0	0	0	0	0	0
WA	5	5	6	7	0	1	0	0
NT	2	2	0	0	0	0	0	0
ACT	0	0	0	0	0	0	1	1
TOTAL	52	47	41	38	6	4	12	10

Table 4 2005 – Part I Examination numbers

	Speciality	APP	Common Physics	Total Candidates
NZ	Cardiac	4		
	General	7		
	Obstetric			
	Vascular	1	14	15
ACT	General	3	3	3
NSW	Cardiac	4		
	General	19		
	Obstetric	1		
	Vascular	3	29	32
NT	General	1	1	1
Qld	Cardiac	7		
	General	1		
	Obstetric	2		
SA	Cardiac	2	2	2
Vic	Cardiac	7		
	General	3		
	Vascular	1		
WA	Cardiac	6		
	General	3		
	Vascular	2	10	11
TOTAL		77	85	89

Table 5 2005 – Part II Examination numbers

Location	Speciality	Written	Practical	OSCE / Oral	Total Candidates
NZ	Cardiac	3	3	4	
	General	13	12	13	
	Obstetric	2	3	2	24
	Vascular				
ACT	Vascular	–	–	1	1
NSW	Cardiac	5	5	6	
	General	9	7	8	
	Obstetric	2	1	1	
	Vascular	2	1	2	21
NT	Cardiac	2	–	2	2
QLD	Cardiac	14	10	10	
	General	–	–	1	
	Vascular	2	2	3	18
SA	Cardiac	6	4	5	6
VIC	Cardiac	7	5	8	
	General	4	3	4	
	Vascular	1	–	–	15
WA	Cardiac				
	General	4			
TOTAL		81	67	81	99

Board of Examiners' discretion, can now be held early for candidates who are re-sitting their practical examinations. Four candidates were afforded this opportunity in 2005. The results of those practical examinations have been forwarded to the ASUM Council for its recommendation and approval.

In 2005, an enhanced oral examination will continue to be phased in as a part of the OSCE/Oral Examinations. From 2006, the OSCE, in its present format, will no longer be offered; it will be incorporated into a revised, high quality, colour, written format and incorporated into an expanded written examination. Physics and Clinical Oral examinations will replace the OSCE/Oral Examination format. The ASUM DMU Board of Examiners feels that an oral examination affords the examiners a better opportunity to assess whether the candidate has the knowledge required or is simply too nervous to perform well in an examination situation. Using a combination of the Oral Examination and modern printing techniques to add colour images to the written questions, we feel that we can better assess a candidate's knowledge.

In 2005, three members of the ASUM DMU Board

of Examiners resigned. Louise Morris, Lucia Pemble and Cathy West have been tireless workers for ASUM and valuable contributors to the high quality of the DMU Examination. Their professionalism and dedication will be missed. I thank them, personally, and on behalf of the ASUM DMU Board of Examiners for all they have done and wish them well in their future ventures. I am pleased to welcome Margaret Condon (General), Robert Phillips (Cardiac), Alison White (Cardiac) and Robert Ziegenbein (Vascular) who were appointed to the ASUM DMU Board of Examiners by the ASUM Council at its July 2005 meeting.

The running of the DMU examinations could not be achieved without the voluntary professional assistance offered so generously by ASUM sonographer, medical and scientific members. Our gratitude is extended to all who assisted in the recent written examinations.

Ros Savage
Chairperson
ASUM DMU Board of Examiners

Research and Grants Application Notice to Members

Financial assistance is available to ASUM members from the Research and Grants Committee to support medical research into diagnostic ultrasound.

For further information see www.asum.com.au

Applications close 1st November 2005 and 1st May 2006. All applications will be acknowledged.

Contact ASUM
tel +61 2 9958 7655
email asum@asum.com.au

Examination dates for 2005

DMU examination dates and venues

DMU Examinations

Oral Examination & OSCE*

Cardiac

- Date – Saturday 8th October 2005
- Time – 08.00 to 16.00
- Venue – Brisbane
(Qld, NT, New Zealand and selected NSW candidates)
- Venue – Melbourne
(SA, VIC, WA and selected NSW candidates)

General

- Date – Saturday 15th October 2005
- Time – 08.00 to 16.00
- Venue – Auckland
(All New Zealand candidates)
- Venue – Sydney
(All Australian candidates)

Obstetric

- Date – Saturday 15th October 2005
- Time – 08.00 to 16.00
- Venue – Auckland
(All New Zealand candidates)
- Venue – Sydney
(All Australian candidates)

Vascular

- Date – Saturday 8th October 2005
- Time – 08.00 to 16.00
- Venue – Brisbane
(All candidates)

*The DMU Board of Examiners determined the final locations for the OSCEs after final candidate numbers, venue availability and Examiner requirements were known. Candidates are again reminded that while the dates for OSCEs are fixed, all modalities are not necessarily examined at every centre. All candidates will be advised in writing of the specific location and time of their OSCE/Oral Examination session approximately six (6) weeks prior to the scheduled date.

Practical Examinations

- Practical Examination are conducted at the candidate's clinical practice, where possible, by arrangement between the ASUM DMU Board of Examiners, the candidate and the Practice Managers between April and October.

DMU Practical Examiner Accreditation and Training Days

- Adelaide – Thursday 29th September 2005
(Annual Scientific Meeting)
- Gold Coast – Thursday 23rd March 2006
(Multidisciplinary Workshop)

DMU Prep Course

- Gold Coast – Wednesday 22nd March to Sunday 26th March 2006

DMU Part I Written Examination (Supplementary and November Applicants):

- Date – Saturday 5th November 2005
- Venues – Yet to be decided
- Time – 08.00 to 16.00

The DMU Board of Examiners determined the final locations for the OSCEs after final candidate numbers, venue availability and Examiner requirements were known. Candidates are again reminded that while the dates for OSCEs are fixed, all modalities are not necessarily examined at every centre. All candidates will be advised in writing of the specific location and time of their OSCE/Oral Examination session approximately six (6) weeks prior to the scheduled date.

DDU dates 2006

DDU 2006 Part I

- Part I Applications close on Monday 20th March 2006
- Part I Examination will be held on Monday 15th May 2006

DDU 2006 Part II

- Part II Casebook submissions close on Monday 16th January 2006
- Part II Applications close on Monday 20 March 2006
- Part II Written Examination will be held on Monday 15th May 2006
- Part II Oral Examination for Cardiology candidates only on Thursday 15th June 2006
- Part II Oral Examination (excluding Cardiology candidates) on Saturday 17th June 2006
- The Annual DDU Board of Examiners meeting will be held on Saturday 17th June 2006

Your ASUM Examinations questions answered

DMU Matt Byron

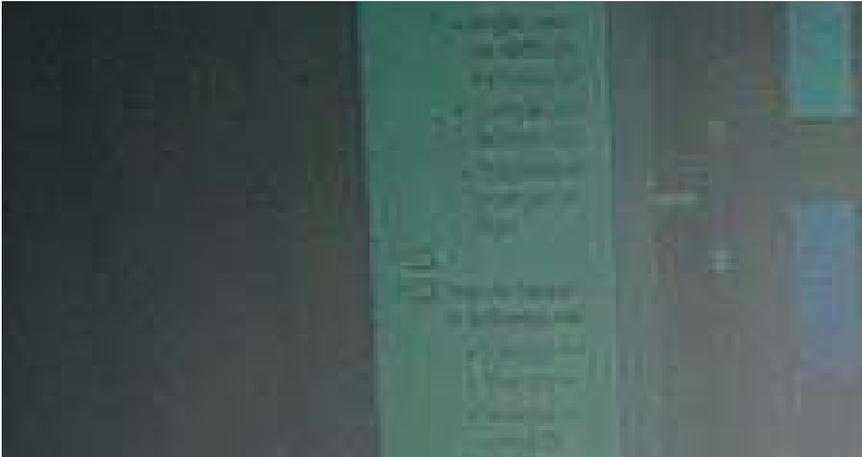
tel +61 2 9958 0317

email dmu@asum.com.au

DDU Marie Cawood tel +61 2 9958 7655

email ddu@asum.com.au

ASUM – MUSS Meeting well attended



ASUM delegates and MUSS members at the meeting in Singapore

The ASUM Asia Link – MUSS (Medical Ultrasound Society of Singapore) Meeting was held on 21–23rd May 2005 in Singapore. ASUM was invited to nominate a speaker on the topic of Ultrasound in Emergency Medicine.

The meeting was attended by about 60 local radiologists and radiographers and was well supported by the local

ultrasound industry.

The guest speakers were: Myron Pozniak MD, Professor of Radiology, University of Wisconsin, Medical School, Madison, Wisconsin, USA, Dr Paul Sidhu, Consultant Radiologist, Kings College Hospital, London, UK and Dr Tony Joseph, Emergency Physician, Royal North Shore Hospital, Sydney, who also represented ASUM as

the Society's nominated speaker.

Topics

The topics covered included:

- Ultrasound imaging using contrast agents in the diagnosis of liver metastases and solid organ injury,
- The use of ultrasound in the assessment of portal hypertension and TIPS,
- Ultrasound in the real-time localisation of cerebral arterio-venous malformations during surgery.
- The application of ultrasound in trauma and other emergency uses.

The Medical Ultrasound Society (Singapore) were most generous hosts and Singapore is an excellent venue for a meeting.

I would like to thank the MUSS and the Conference Organiser, Chintana Wilde, for their kind invitation and generous hospitality.

Tony Joseph
Emergency Physician
Royal North Shore Hospital

Overseas sonographer lecturer Vision College

Second sonographer lecturer position available for DMU (Asia) located in Kuala Lumpur, Malaysia

A second sonographer lecturer position is now available to an ASUM member at the new Vision College in Kuala Lumpur, to work with the chief sonographer lecturer, Alan Williams.

The successful applicant will need to be an experienced sonographer, with an ASUM DMU, who is culturally sensitive and interested in living and working in Asia.

A negotiable remuneration and conditions package is available.

**Initial expressions of interest, together with a full CV, to be directed to
Dr Caroline Hong ASUM CEO
email carolinehong@asum.com.au**

The 2004 Beresford Buttery Overseas Traineeship experience



Nerida Russell in Philadelphia

As a long-term rural radiographer/sonographer, choosing to work and live in Central Queensland, with only teleradiology and telephone support, but personally armed with a passion for obstetrics and an ever increasing demand for gynaecological ultrasound, I was thrilled to learn that the story of my personal journey to achieving ultrasound qualification and accreditation had provided me with the opportunity of a lifetime . . . the opportunity to study overseas, in Philadelphia to be precise.

Philadelphia, famous for its old world charm, the Declaration of Independence and the American Constitution is the home of the Liberty Bell and also the Jefferson University Hospital. This was my recent destination as the winner of the 2004 Beresford Buttery Overseas Traineeship. Sponsored by GE and proudly supported by ASUM, I undertook the 4.5 day Core Obstetrics and Gynaecology Ultrasound Course at Jefferson Ultrasound Research and Education Institute (JUREI).

The course commenced with the obligatory 'get them while they're fresh' physics and instrumentation and bioeffects for obstetrics and gynaecology presented by Nathan Pinkey – the USA's equivalent to our own Mr Roger Gent.

We were engaged for several hours by Dr Oksana Baltarowich with an excellent presentation on transvaginal scanning. Dr Baltarowich also chaired a challenging problem solving/case



analysis session later in the week. As a sonographer working in an isolated region, this was a particularly useful session and helped me to draw practical conclusions from the measurements and observations obtained from a particular scan, impacting on the patient's immediate care plan.

Dr Jason Baxter's presentation of obstetrical Doppler applications was particularly useful for someone in my situation. Now I can confidently and capably explain the implication of abnormal Dopplers when the local resident asks, "but what does that mean?"

Other presenters included Dr Alfred Kurtz, a name familiar to us all, who spoke on fetal anomalies, with excellent images and Dr George Bega on placenta and cervix – two areas that sometimes are not given the attention they deserve when there is a cute or troublesome fetus taking centre stage. Dr Bega also introduced us to 3D and 4D ultrasound at all stages of pregnancy and its use in gynaecology, especially for congenital uterine anomalies. Again, some terrific images and video clips were provided.

Other participants in the course hailed mainly from the USA but Nigeria, Barbados and Singapore were also represented. Most were obstetricians, residents or radiologists. There was only one other sonographer and a sole midwife.

Philadelphia is conveniently located between New York and Washington. My husband and I were able to spend

a few days wandering around a sunny but chilly New York.

Central Park was a sight to behold with snow on the ground and saffron wrapped by artist Christo.

During my course, I befriended a wonderful obstetrician from the potato state of Idaho. She organised a personal tour of the Capital Building in Washington through her local representative, Budd Otto – what a great name!

Philadelphia is the USA's best kept secret. Beautiful buildings, amazing museums and art galleries (remember the steps in Rocky I?) and the shopping . . .

Philadelphia also turned on the winter weather with a couple of days of snowfalls and minus 12 degrees C. A pleasant change from the 38 degrees C we had left behind us.

Receiving this award and the opportunity it provided, has been overwhelming. One of my main reasons for applying for this traineeship was because I believe that rural people deserve as high a standard of care as our city cousins. I wanted to improve my skills so I could be confident I was achieving this goal. The support and words of congratulations from my local community was heart warming.

Of course, I couldn't have done all this without the assistance of some very important others:

My husband Tom, a true rock always there and always encouraging; my mentor and friend, Dr John Williams, thank you for trusting in me all those years ago and thank you for guiding and nurturing my enthusiasm; ASUM's own Judy Vickress, behind the scenes tireless coordinator, thank you. Katie, James and Madelyn Kennedy from JUREI, thank you for your hospitality and assistance during my stay in your wonderful city; and last, but not least, to GE, thank you for your generous support of this award.

To anyone sitting out there wondering, should I apply? Just do it.

**Nerrida Russell
Sonographer/Radiographer
CQMI, Emerald, Queensland**

ASUM NZ Branch Annual Conference

The 2005 ASUM NZ Branch Annual Conference was the second held as a combined conference with the NZ Branch of the RANZCR. This seems to be a successful combination. The next combined meeting is planned for 2007.

The Conference was held at the Michael Fowler Centre, in the heart of Wellington. Dr David Gallaugh, who specialises in intensive care, opened the Conference, which, with close to 300 registrants, was a well-attended event.

The Organising Committee – Stephen Busby, Luke Newnham, Craig McQuillan and Paul Kendrick, all from the Nelson region, put together an exciting scientific program that catered for RANZCR, ASUM and RANZCR Radiation Oncology.

The Saturday night conference dinner, held at the Te Papa Museum, was a very successful social occasion. The night passed far too quickly, with most getting up, at some point, to enjoy the dancing.

The theme for Conference was Abdominal Imaging and the invited speakers were chosen to reflect this.

The Conference was well supported by ultrasound equipment and services suppliers, it seems that the combined meetings are a great way for suppliers to showcase their products. Our special thanks go to Philips and GE, both Platinum sponsors. The Silver sponsors were Bard, Siemens and the NZ RANZCR Education Trust. The Bronze sponsors were Fujifilm and Obex, with the Medical Assurance Society, Toshiba, Novartis Oncology, Fisher and Paykel Healthcare and AstraZeneca Oncology also providing support sponsorship.

GE supported Prof Stephen Baker from New Jersey, USA. His talks were directed at the RANZCR.

Philips supported Prof Stephanie Wilson from Toronto, Canada, who talked enthusiastically on her specialties: microbubbles, chronic liver disease, assessment of RIF pain, the GI tract and staging of rectal cancer.

Dr David Hough, supported by Siemens, was originally from New Zealand and is presently based at the Mayo Clinic in Minnesota, USA.

Other invited international speakers were Prof Howard Galloway, Prof Richard Mendelson, both from Australia, and Prof Sanjay Saini from Georgia, USA.

The 2005 ASUM NZ Branch prizes were awarded to:

Best Proffered Paper – Rathan Subramaniam.

Best Sonographer Paper – Anita Humphries

Best Student Paper – Susie Hamilton

Best Poster – Cheryl Hirshberg

We now look forward to next year's conference in Napier from July 14–16th 2006 and hope to see you there.

**Yvonne Taylor
Chairman
ASUM NZ Branch**



David Rogers and Yvonne Taylor



Dr Stephen Busby



The ASUM New Zealand Branch Annual Committee (L–R) Cushla King, Dianne Kiss, Anita Humphries, Jo McCann, Yvonne Taylor and Martin Necas

James Robert Syme MD, FRACP, DDR, FRCR, FRANZCR, DDU, HonMIR



Jim Syme, a much respected member of ASUM for some 30 years and a former Chairman of the Board of Examiners of the Diploma of Diagnostic Ultrasound, died in Melbourne on November 30, 2004, at the age of 76 years. Throughout his membership, he was a strong supporter of and a tireless worker for the Society. He was elected to Life Membership at the Society's Annual General Meeting in 2001, to widespread acclaim.

A Queenslander by birth, Jim's parents were first generation Australians. His father was of Scottish extraction and his mother's parents were Prussian.

His intellectual prowess was revealed early on. He was dux of Sandgate State School, Brisbane, in 1941 and in 1945 was dux of Brisbane State High School. Jim graduated MBBS from the University of Queensland in 1951 having gained five distinctions and six credits during the medical course.

Postgraduate qualifications fol-

lowed with an MD (University of Melbourne) in 1959; Membership of the Royal Australasian College of Physicians in 1959 (Fellowship, 1971); Diploma of Diagnostic Radiology (University of Melbourne) in 1961; Fellowship of the now Royal College of Radiologists, London, in 1964; Membership of the now Royal Australian and New Zealand College of Radiologists in 1962 (Fellowship, 1969); Diploma of Diagnostic Ultrasound (ASUM) in 1982.

Radiology became Jim's chosen specialty and a distinguished career followed during which time he held many offices within The Royal Australian and New Zealand College of Radiologists. He was the recipient of several notable honours from the College. He was the Thomas Baker Memorial Fellow in 1964, Rohan Williams Travelling Professor in 1979, received the Gold Medal of the College in 1984 and was elected to Life Membership in 1993.

Jim was a member of the RANZCR Council from 1968 to 1991 and was President of the College from 1989 to 1990. He was Warden of the membership of the RANZCR from 1970 to 1988.

His interest in ultrasound was kindled during a sabbatical tour of North America in 1972 when he met and observed the work of two notable pioneers in ultrasound – George Leopold in general ultrasound and Raymond Gramiak in echocardiography. He became involved personally in the practice of ultrasound in the late 1970s.

Jim was a member of the ASUM Council from 1984 to 1987 and represented ASUM on the Ultrasound Liaison Committee from 1984 to 1987. He was a member of the Board of Examiners of the DDU from 1987 to 2000. He succeeded the late Dr Peter Verco as Chairman of that Board in 1989 and held the position until 2000 when he handed over to Dr Chris Wriedt.

The appointment of a person of Jim Syme's make-up and considerable administrative and clinical experience to the chairmanship of the DDU Board was a fortunate one for ASUM.

During his time as Chairman, Jim consolidated the widespread respect for the DDU both as a diploma worth having and for the rigour of its administrative processes and conduct of the actual examination. During his time as Chairman the DDU was awarded to 136 medical practitioners.

In 1957, Jim married Helen Fitzgerald, a radiographer, and they had two sons, David and Cameron. He was a devoted family man who doted on his two grandchildren. He was also a religious man to whom church life meant a lot. From Lutheran origins, he joined the Anglican Church after he married and for many years was the 'welcoming committee' at the 8 am Sunday service at his church.

Jim collected stamps from childhood and was very interested in coinage and history (especially Australian and European). But his real passion in life was medical imaging in all areas and ASUM was very much a beneficiary of this passion.

His work for the DDU Board was carried out in his own time with the willing support and help of Helen to whom the Society is also greatly in debt. In both his private and professional life he was a perfectionist, intensely loyal, had a healthy reserve and could be counted on never to betray a confidence.

Jim was a shy person but was happy to go to meetings where he knew people – he never missed a College or ASUM Annual Scientific Meeting. Despite his incapacitating terminal illness he registered for both the ASUM and RANZCR ASMs in late 2004 but in the end was too ill to attend.

An icon of probity, Jim Syme was a giant in medical imaging in Australia and New Zealand. The international reputation of the DDU was underpinned during his stewardship and successive presidents of the Society felt privileged to have had ready access to his advices and experience as ASUM's affairs became more sophisticated and international.

To Helen and her family, the membership of ASUM extends its sincere sympathy.

DMU EXAMINATIONS

Matt Byron tel +61 2 9958 7655

email dmu@asum.com.au

**will answer your questions about
the DMU**

DDU EXAMINATIONS

Marie Cawood

tel +61 2 9958 7655 email ddu@asum.com.au

**will answer your questions about
the DDU**



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pvdvic@austarmetro.com.au

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General Manager Wayne Spittle

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nick.kapsimallis@siemens.com
General Manager Kevin Fish

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greg.brand@sonosite.com

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Distribution of ultrasound scanners
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contact@soundmedical.com.au

Toshiba (Aust) P/L Medical Division

Toshiba
David Rigby 02 9887 8063
drigby@toshiba-tap.com
General Manager Rosina Davies

New members April – June 2005

April 2005

Full members

Alison Courtney NSW
Katherine Karakalpakis Vic
Vivian Morrow NSW
Peter Nowill Qld
Jack Spencer Vic

Associate members

Colin Burke NZ
Russell Coutts NSW
Ming Gin NSW
Julie Hong Vic
Belinda Lee Qld
Cassandra Lee NSW
Freya Lees Qld
Ferrie Li NSW
Christopher Maughan NSW

Shareni Moodley NZ
Chau Nguyen Vic
Kathy Robertson Qld
Lisa Wolfenbuttel Qld

May 2005

Full members

Olwen Clarke NZ
Joseph Graiche NSW
David Harberts Vic
Basil Sher Vic
Fika Vucago NZ

Associate members

Stuart McGregor NZ
Carrie Morgan Qld

Trainee members

Natalya Gontsova NSW

June 2005

Full members

Adriana Arron NZ
Dorothy Blumhardt NZ
Shauna Fraser NZ
James Gotting SA
Elaine Hampton NZ
Cushla King NZ
Margaret McSweeney NZ
Sarah Seager NZ
Bridget Sparks NZ
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2005

**April Onwards DMU Part II
Supplementary Practical Examinations**

Contact James Hamilton
DMU Coordinator
Tel +61 2 9958 0317
Fax +61 2 9958 8002
Email dmu@asum.com.au

**Aug – Oct DMU Part II Practical
Examinations**

Contact James Hamilton
DMU Coordinator
Tel +61 2 9958 0317
Fax +61 2 9958 8002
Email dmu@asum.com.au

**Thu 1 Sep 2005 ASUM Victorian
Branch Meeting – Ultrasound Lecture
Series – Michael Bethune, "Soft
Markers"**

Venue Latrobe Lecture Theatre, 2nd Floor
The Royal Melbourne Hospital
Time 6.30 pm Refreshments – 7.00 pm
Presentation
Contact Monica Pahuja
Email mpahuja@mercy.com.au

**Fri 9 Sep 2005 – 6 Days The Vascular
2005 Conference**

Venue Sydney Hilton
Contact Vanessa Russell
Conference Manager
Tel +61 3 9645 6311
Fax +61 3 9645 6322
Email vanessa@wsm.com.au. Website:
www.vascular2005.com

**Sun 25 Sep 2005 – 5 Days 15th World
Congress on Ultrasound in Obstetrics
and Gynecology**

Venue Vancouver Canada
Contact Congress Secretariat – Concorde
Services Ltd
42 Canham Road London W3 7SR
United Kingdom
Tel +44 20 8743 3106
Fax +44 20 8743 1010
Email isuog@concorde-uk.com
Website www.isuog2005.com

**Thu 29 Sep 2005 ASUM DMU Practical
Examiner Accreditation Training Day**

Venue Adelaide Convention Centre,
Adelaide
Contact James Hamilton
DMU Coordinator
Tel +61 2 9958 0317
Fax +61 2 9958 8002,
Email dmu@asum.com.au

**Thu 29 Sep 2005 – 4 Days ASUM 2005
35th Annual Scientific Meeting of the
Australasian Society for Ultrasound in
Medicine**

Venue Adelaide Convention Centre
Adelaide.

Contact ASUM, 2/181 High Street,
Willoughby NSW 2068 Australia
Tel +61 2 9958 7655;
Fax +61 2 9958 8002
Website www.asum.com.au/asum2005

**Sat 1 Oct 2005 ASUM Annual General
Meeting**

Time 10.30 am to 11.0 0am
Venue Adelaide Convention Centre
Adelaide
Contact ASUM 2/181 High Street
Willoughby NSW 2068 Australia
Tel +61 2 9958 7655;
Fax +61 2 9958 8002
Website www.asum.com.au/asum2005

**Sat 8 Oct 2005 DMU OSCE Cardiac +
Vascular Examinations**

Venue TBA
Contact James Hamilton
DMU Coordinator
Tel +61 2 9958 0317
Fax +61 2 9958 8002,
Email dmu@asum.com.au

**Sat 15 Oct 2005 DMU OSCE General +
Obstetrics Examinations**

Venue TBA
Contact James Hamilton
DMU Coordinator
Tel +61 2 9958 0317
Fax +61 2 9958 8002,
Email dmu@asum.com.au

**Thu 20 Oct 2005 ASUM Victorian
Branch Meeting – Ultrasound Lecture
Series – Speaker and Topic – TBA**

This is another combined meeting that
will be Broadcast via Video Conference
Venue Latrobe Lecture Theatre 2nd Floor,
The Royal Melbourne Hospital
Time 6.30 pm Refreshments 7.00 pm
Presentation
Contact Monica Pahuja
Email mpahuja@mercy.com.au

**Thu 20 Oct 2005 – 3 Days ECHO
Australia 2005 – Cardiac Conference**

Venue Four Seasons Hotel 199 George
Street, Sydney
Contact Linda Rattray
Tel +61 2 9846 4735
Fax +61 2 9846 4002
Email Echo.Australia2005@ge.com

**Wed 5 Nov 2005 DMU Supplementary
Part 1 Written Examination**

Venue TBA
Contact James Hamilton
DMU Coordinator
Tel +61 2 9958 0317
Fax +61 2 9958 8002
Email dmu@asum.com.au

**Thu 10 Nov 2005 – 2 Days ASUM
MUST Asia Link 2005 – Excellence in
Ultrasound Meeting**

Venue Bangkok, Thailand

Contact ASUM, 2/181 High Street,
Willoughby NSW 2068 Australia
Tel +61 2 9958 7655;
Fax +61 2 9958 8002
Email asum@asum.com.au

**Thu 22 Nov 2005 ASUM Victorian
Branch Meeting – Ultrasound Lecture
Series**

**Interesting Cases (Combined meeting
with ASA)**

Venue Latrobe Lecture Theatre 2nd Floor
The Royal Melbourne Hospital
Time 6.30 pm Refreshments 7.00 pm
Presentation
Contact Monica Pahuja
Email mpahuja@mercy.com.au

2006

**Fri 3 Mar 2006 – 5 Days ECR 2006
(European Congress of Radiology)**

Venue Vienna, Austria
Website www.ecr.org Email info@ecr.org

**Wed 22 Mar 2006 – 5 Days ASUM
Multidisciplinary Workshop**

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– DMU Preparation Course – 5 Days
– DDU Technical Seminars – 2 Days
– O&G Meeting – 2 Days
– Vascular Workshop – 2 Days
– Musculoskeletal Workshop – 1–2 Days
– Point of Care Courses – 1 Day
Venue Conrad Jupiters Gold Coast
Queensland
Contact ASUM 2/181 High Street
Willoughby NSW 2068 Australia
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Fax +61 2 9958 8002
Website www.asum.com.au

**Thu 23 Mar 2006 ASUM DMU Practical
Examiner Accreditation & Training Day**

Venue Conrad Jupiters, Gold Coast
Queensland
Contact James Hamilton DMU
Coordinator
Tel +61 2 9958 0317
Fax +61 2 9958 8002
Email dmu@asum.com.au

**Thu 18 May 2006 – 3 Days World
Congress of Echocardiography and
Vascular Ultrasound.**

Venue Marrakesh Morocco
Contact Navin C Nanda, MD President
ISCU PO Box 323 Gardendale
AL 35071 USA
Tel +1 205 934 8256
Fax +1 205 934 674
Email isuc@iscu.org

**Sun 28 May 2006 – 5 Days 11th
Triennial Congress World Federation
for Ultrasound in Medicine and
Biology(WFUMB)**

Venue Seoul Korea

Contact Byung Ihn Choi MD
Congress Secretariat
Tel +82 2 760 2515
Fax + 82 2 743 6385
Emailchoibi@radcom.snu.ac.kr
Website www.wfumb2006.com

Mon 12 Jun 2006 – 3 Days Danish Society: 9th International Congress on Interventional Ultrasound
Venue Copenhagen Denmark
Information Website: www.interventional-ultrasound.org
Email secretary@interventional-ultrasound.org

Thu 14 Jul 2006 – 3 Days ASUM (NZ Branch) 2006 Annual Meeting
Venue Hawkes Bay New Zealand
Contact TBA

Sat 29 Jul 2006 DMU Part I and Part II Written Examinations – Provisional
Venue TBA
Contact James Hamilton
DMU Coordinator
Tel +61 2 9958 0317
Fax +61 2 9958 8002
Email dmu@asum.com.au

Thu 14 Sep 2006 ASUM 2006 Skills Day Venue Melbourne Convention Centre, Melbourne
Contact ASUM 2/181 High Street
Willoughby NSW Australia 2068
Tel +61 2 9958 7655
Fax +61 2 9958 8002
Email asum@asum.com.au

Fri 15 Sep 2006 – 3 Days ASUM 2006 36th Annual Scientific Meeting of the Australasian Society for Ultrasound in Medicine
Venue Melbourne Convention Centre Melbourne
Contact ASUM 2/181 High Street Willoughby NSW 2068.
Tel +61 2 9958 7655
Fax +61 2 9958 8002
Email asum@asum.com.au

Sun 5 Nov 2006 – 5 Days XVIII FIGO World Congress of Gynaecology and Obstetrics
Venue Kuala Lumpur, Malaysia
Website www.figo2006kl.com

2007

March 2007 – 5 Days ASUM Multidisciplinary Workshop
Venue Sydney
Contact ASUM 2/181 High Street Willoughby NSW 2068 Australia
Tel +61 2 9958 7655
Fax +61 2 9958 8002
Website www.asum.com.au

Sat 28 Jul 2007 DMU Part I and Part II Written Examinations – Provisional
Venue TBA
Contact James Hamilton
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Tel +61 2 9958 0317
Fax +61 2 9958 8002,
Email dmu@asum.com.au

2008

Sat 26 Jul 2008 DMU Part I and Part II Written Examinations – Provisional
Venue TBA
Contact James Hamilton
DMU Coordinator
Tel +61 2 9958 0317
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Email dmu@asum.com.au

2009

Thu 5th Sep 2009 – 4 Days ASUM hosts: WFUMB 2009 World Congress in Sydney, Australia
Venue Sydney Convention and Exhibition Centre
Contact Dr Caroline Hong ASUM CEO
Email carolinehong@asum.com.au or asum@asum.com.au
ASUM Head Office: 2/181 High Street, Willoughby NSW 2068 Sydney Australia

If you would like further information on any of the events listed, contact ASUM by email to asum@asumcom.au

As ASUM relies upon information supplied by meeting organisers to compile this calendar, no responsibility is taken for the accuracy of information published and members are advised to check times, dates and venues directly with meeting organisers.

‘MUST ATTEND’ ASUM MEETINGS

2005

29 September – 2 October ASUM 35th Annual Scientific Meeting Adelaide Australia

10–11 November ASUM Asia Link Program Bangkok Thailand
Joint meeting with Medical Ultrasonic Society of Thailand

2006

22–26 March Multidisciplinary Workshop Gold Coast Australia
14–17 September 36th Annual Scientific Meeting Melbourne Australia

2009

5–8 September WFUMB 2009 World Congress Sydney Australia

Congress to be hosted by ASUM

Contact ASUM tel +61 2 9958 7655 Fax +61 2 9958 8002 Email asum@asum.com.au Website www.asum.com.au

DMU Practical Examiner Training and Accreditation Days

ASUM Council has appointed the Australian Institute of Ultrasound to provide two courses per year for three years to train and accredit DMU Practical Examiners. These courses will be held in conjunction with the Multidisciplinary Workshops and the ASUM Scientific Meetings.

Numbers are strictly limited for each DMU Practical Examiner Training and Accreditation Day. Initially, the DMU Board of Examiners will offer places for the training program on the basis of immediate DMU Practical Examination requirements.

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