

THE SOCIETY FOR
VASCULAR TECHNOLOGY OF
GREAT BRITAIN AND IRELAND

NEWSLETTER

Issue 95 Winter 2017

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Welcome to the Winter 2017 edition of the SVT Newsletter

New Year message from the New President.

Welcome to the winter edition of the newsletter. As is tradition, I write to introduce myself as the incoming President and update you on some of what will be happening in the coming year.

The collaboration with Inteleos (the umbrella organisation to the American Registry for Diagnostic Medical Sonography and the Alliance for Physician Certification & Advancement) continues and the first electronic AVS examinations will

be taken in June this year at Pearson Vue testing centres. The exam will be available for a one month window and there will be multiple locations available.

The redesign of the website has been a great development and we continue to make improvements to the CPD logging system, register of members and online CPD questions.

I'm sure you are all aware that the SVT research committee has recently

DATES FOR THE DIARY 2017

SVT Revision Days, Coventry
29th-30th March

SVT Research Grant Application Deadline
21st April

CX Symposium, Olympia Conference Centre, London
25th-28th April

Venous Forum Annual Meeting, Royal Society of Medicine, London
10th July

Vascular Societies ASM, Manchester
22nd-24th November

BMUS Ultrasound 2017, Cheltenham Racecourse
6th-8th December

President: Helen Dixon • **Vice President:** Sara Causley • **Past President:** Tracey Gall • **Membership Secretary:** Sara Causley
Shadow Membership Secretary: Lynne McRae • **Conference Secretary:** Dominic Foy • **Treasurer:** Kamran Modaresi
Newsletter Editor: Gurdeep Jandu • **Web Site Manager/ Job Adverts:** Lee Smith • **SVT Website:** www.svtgbi.org.uk

invited applications for the SVT research grants. The closing date for applications is the 21st April and further details on the grants can be found on the website.

The 2016 ASM was a very successful event and we received positive feedback from the membership. Early discussions for the 2017 event have started and there may be

some additions and changes to the format this year. The SVT continues to maintain and strengthen links with other organisations the Vascular Society, BMUS, VASBI, SCoR, NSHCS, AHCS, NAAASP, VERN, CASE and the Circulation Foundation. We are also involved with projects within the Department of Health and Health Education England.

I would like to take this opportunity to thank all the members of the executive, education, professional standards and research committee for all the hard work and time they put in to the Society. As a Society we will continue to maintain high standards across our profession and I believe we can also provide support and education to all those who perform elements of vascular ultrasound.

The Society for Vascular Technology 25th Annual Scientific Meeting - Thursday 1st December 2016

Hannah Lines, Clinical Vascular Scientist, University Hospitals Birmingham NHS Foundation Trust

The 25th Annual Scientific Meeting of the SVT was held at the Central Conference Centre in Manchester on the 1st of December 2016. The city famed for its rain actually stayed dry for the event; perhaps in order to celebrate the meeting's 25th year. Supposedly Manchester doesn't deserve its soggy reputation as the UK's wettest city and the misconception is thought to be due to dodgy "climate map" published in the 1920's.

How befitting that the welcome meeting was held on the Wednesday evening in the "Rain Bar", and was well attended by many old and new members of the SVT alike.



The following morning saw the lecture theatre fill up and after a brief warm welcome from Tracey Gall previous president, began the scientific presentation section. 13 members took the stage to talk us through their hard work in producing a wide variety of different research projects with topics ranging from audit programs and service changes, giant cell arteritis, doppler waveform analysis to 3D ultrasound. These short presentations were really informative and well designed and prompted many

questions and debate from the audience.

Before lunch we were treated to a lecture on Reconstructive Microsurgery by Mr Jason Wong who showed us the basics of the amazing techniques used in limb reattachment and salvage down to the microscopic level.



James Wong

After lunch was the Jackie Walton lecture on Wilderness and Expedition Medicine by Professor Chris Imray who. Using short videos and his fascinating storytelling he took us through his epic journey to the top of Mount Everest in order to measure the physiological effects it has on the body. I can't be the only one who looked into booking a trip to Everest base camp that evening. Invited speakers then followed with in depth talks on pensions and professional issues and indemnity which affect all of our careers, with a separate trainee breakout session also offered to both those on the STP and SVT training.

Finally the trainees got to present their research proposals

with 6 of them taking the stage offering well thought out and interesting research ideas focusing on a variety of topics including fistula formation, sickle cell disease and ABPI referral practices.



Jodie Weston receives her prize for the best student proposal from Tracey Gall.

Steven Rogers was awarded the prize for the best proffered scientific paper and also received this year's Ann Donald Scientist of the Year Award. The best student proposal was awarded to Jodie Weston. This year the SVT executive committee awarded honorary membership to Paul Brannigan for his contribution to the SVT and vascular science.



Paul Brannigan presented with honorary membership

After handing over of the ceremonial medal to the new president Helen Dixon a fond farewell was said until next year's meeting.



Steven Rogers receiving the prize for best proffered paper and also the Ann Donald Award from Tracey Gall.

bubbles

Alison Charig, Queen Alexandra Hospital, Portsmouth

Infra-inguinal Vein graft Stenoses: Long-term Outcomes of graft Angioplasty.

Mathur, K et al *Eur J Vasc Endovasc Surg* 92016) 52: 189-97

The authors describe this as the largest reported study on venous-only grafts. Graft angioplasty is considered to be a minimally invasive procedure as compared to surgical revision. The purpose of the study was to evaluate the efficacy of single and repeat angioplasty in failing infra-inguinal vein bypass grafts and to determine predictors of medium- and long-term freedom from revision after graft angioplasty.

The need for angioplasty was informed by the Vascular Scientist Duplex surveillance scans at 6 weeks, 3 months, 6 months, and every 6 months thereafter for at least 3 years. Grafts at high risk and requiring intervention were defined as those with >70% stenosis (PSV>300cm/s and velocity ratio >3.5) or uniformly low velocity (PSV <45cm/s) throughout the entire graft.

It was a retrospective analysis of angioplasties carried out between 2003 and 2010 in Birmingham, involving follow-up until death, major amputation or the end of follow-up up until 1st January 2013. There were 178 graft angioplasty procedures in 114 grafts in 103 limbs from 98 patients. Where stenoses were resistant to angioplasty (recoil/residual stenosis) stents were used.

At 5 years the findings were:

- Freedom from revision = 22.6%
- Graft survival = 45.8%
- Amputation-free survival = 57.9%
- Patient survival = 64.9%

Analysis of repeat angioplasties found no evidence that effectiveness of angioplasty was diminished by the

number of previous angioplasties; the authors concluded that graft angioplasties do not lose effectiveness when repeated and have a cumulative effect in prolonging graft survival.

The positive predictors of medium-term patency following graft angioplasty were:

- Treatment of claudicant
- > 6months between insertion of graft and first angioplasty.

The authors acknowledge that further studies will be needed to assess the performance of drug-coated balloons which have been introduced at their institution since completion of the above study.

Stroke after cardiac surgery and its association with Asymptomatic Carotid Disease: An updated systematic review and meta-analysis

Naylor, A. R and Bown, M. J *Eur J Vasc Endovasc Surg* (2011) 41:607-624

If like us, you are being asked to perform carotid scans for increasing numbers of potential cardiac surgery patients, it may be helpful to review this paper from 2011.

Stroke is a complication of 2% of all cardiac surgery and understandably a number of strategies have been implemented to minimise the risk. The use of carotid endarterectomy (CEA) or stenting (CAS) for diseased carotid arteries is one of these strategies. The rationale for performing prophylactic CEA/CAS is dependent on carotid disease being an important cause of stroke following cardiac surgery and the risks associated with operating on the carotid and heart do not exceed the risk of stroke should the cardiac procedure be performed in isolation. This strategy is described by

the authors as the most controversial strategy, particularly in patients with asymptomatic disease, and they state that previous studies which have suggested that there is a causal relationship between asymptomatic carotid disease and stroke following cardiac surgery may be open to challenge.

This review and meta-analysis set out to determine the prevalence of stroke in:

- i. symptomatic/asymptomatic patients with carotid disease (including occlusion) undergoing cardiac surgery without prior CEA/CAS.
- ii. asymptomatic patients with carotid disease (excluding occlusion) undergoing cardiac surgery without CEA/CAS.
- iii. the hemisphere ipsilateral to a non-operated asymptomatic stenosis in patients with severe bilateral carotid disease undergoing unilateral carotid and cardiac surgery.

Three systematic reviews and meta-analyses were undertaken and 166 individual studies were identified for inclusion in one or more of the parts of this review.

The results were:

- i. 7.4% risk of stroke within 30 days of cardiac surgery in >50% carotid stenosis patients as opposed to 1.8% prevalence of stroke in cardiac surgery patients with no evidence of significant carotid disease
- ii. 3.8% risk of stroke in presence of an untreated 50-99% carotid stenosis, and only 2.0% risk of stroke in presence of untreated 70-99% carotid stenosis, for bilateral significant carotid disease the risk was 6%.
- iii. 4% for 50-99% carotid stenosis.

This is a wide ranging and complicated review, the findings of which I have briefly summarised here. I would recommend reading the original paper.

In summary, the conclusions and recommendations are as follows:

- "this systematic review has highlighted important anomalies that challenge the hypothesis that asymptomatic carotid disease (especially unilateral) is an important cause of stroke after carotid surgery"
- "There is no compelling evidence supporting a role for prophylactic CEA/CAS in cardiac surgery patients with unilateral asymptomatic disease"
- "Prophylactic CEA/CAS might still be considered in patients with severe, bilateral asymptomatic carotid disease, but such a strategy would only benefit 1-2% of all cardiac surgery patients".

These recommendations may be a useful starting point for any discussion you have with your cardiac surgeons.

Cardiac Effects on Peripheral Vascular Doppler Waveforms

Bendick, P.J. Journal for Vascular Ultrasound (2014) 38(3): 156-62

This interesting paper describes some of the most common effects of cardiac pathology on peripheral arterial and venous Doppler waveforms, and reminds us that the underlying assumption that cardiac function may be normal when interpreting them is not always justified. As patients with peripheral arterial disease tend to be older, the likelihood of our group of patients having heart disease is moderately high, and an understanding of the peripheral effects of any abnormalities is important.

Venous

A common example is readily seen in the venous Doppler waveforms of the leg, where pulsatility, at the patient's heart rate, can be seen in the femoral

and popliteal veins. The pulsatility is a function of increased right heart pressure which allows transmission of right heart haemodynamics to the lower limb veins because the increased pressure keeps the vena cava and iliac veins dilated throughout the cardiac cycle. The elevated pressure also maintains vena cava dilation through the respiratory cycle, diminishing its effect on venous flow. Increased right heart pressure may be a result of several pathologies including heart failure, cardiomyopathy, valve disease and pulmonary disease; these are often collectively termed "congestive heart failure".

Arterial

Cardiac arrhythmia is generally the most difficult problem as it impacts on accurate measurement of absolute velocities, with differences possibly being up to 50% between cardiac cycles. The authors recommend application of "representative data" and "consistency". The "representative" velocity is one that in the operators view represents the approximate velocity that would be measured in the absence of any arrhythmia. Several methods are proposed, averaging 2 successive peak systolic or end diastolic measurements, or if the arrhythmia is more random it may be possible to find a sequence of at least 3 cardiac cycles in a normal rhythm and measure the second or third cycle (as recommended by Oates et al in the paper "Joint Recommendations for reporting carotid Ultrasound Investigations in the UK"). Another option for a random arrhythmia is to simply wait, the patient may go into normal sinus rhythm. Use of velocity ratios may also be employed, ensuring "consistency" whereby measurements are taken from waveforms with similar cardiac cycle lengths. "Consistency" is also applied by ensuring that any velocity interpretations are "consistent" with B-mode and colour information, and applied "consistently" for all measurements.

Other abnormalities include *low cardiac ejection fraction* resulting in

diminished flow velocities throughout the entire peripheral arterial system. In these cases the left ventricular pressure is not sufficient to reach the high velocities we normally use to diagnoses stenotic disease, and velocity ratio must be employed in stenosis diagnosis, and is reported by the authors as being a reliable method.

Aortic valve stenosis causes a damping of the peripheral waveforms; carotid waveforms may be persistently turbulent or have increased systolic rise times. Usually this particular pathology will be known about because a particular patient will be severely limited in their physical activities due to the valvular disease.

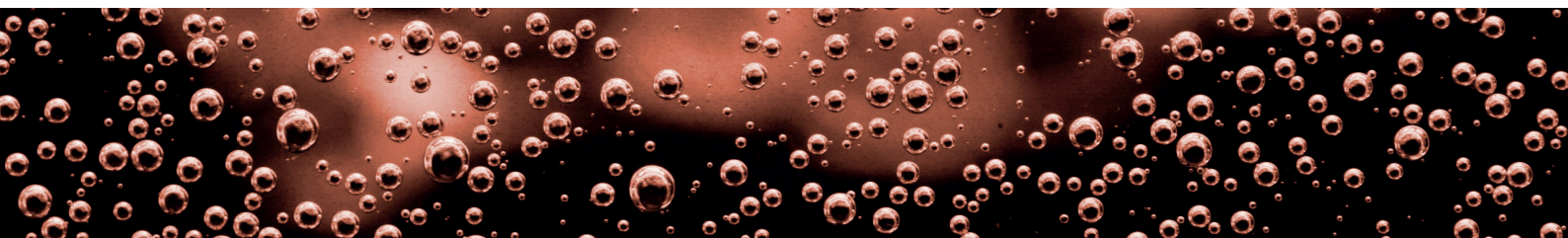
Aortic valvular incompetence or *aortic insufficiency* may affect both the systolic and diastolic flow phases of waveforms and can cause a double peak due to regurgitation back into the left ventricle. The first peak should be considered representative of peak systolic flow and used for velocity measurements. Aortic insufficiency can also affect diastolic flow, particularly in low resistance systems resulting in low or no diastolic flow. In carotids this can wrongly be interpreted as flow into a distal occlusion. Differentiation between aortic insufficiency and distal ICA occlusion can be made by bilateral assessment, the cardiac effect will be bilateral, whereas if this is a carotid effect it will often be unilateral. In addition, caution should be applied to interpretation of end diastolic velocities (EDV) in the case of a significant ICA stenosis because the effect of the aortic insufficiency may suppress the ICA EDV.

In summary, cardiac effects can present in various ways, but follow 2 general rules:

- Cardiac effects are systemic – on the arterial side they will be seen in various sites, e.g. aorta, carotid and femoral
- Cardiac effects are bilateral – if an abnormality is seen only in one carotid artery it is more likely to be of carotid origin.

With an understanding of these principles, it is still possible to acquire the quantitative velocity information to make peripheral vascular diagnoses. The paper contains many photographic examples of typical Doppler waveforms in the scenarios described

above and no matter how long you have been scanning carotids, will probably encourage you to scrutinise and interpret your waveforms with new confidence.



How did we achieve IQIPS Accreditation?

Alison Charig, Queen Alexandra Hospital, Portsmouth

The IQIPS programme has been running for several years but so far there has been very little take up from Vascular Labs. The Portsmouth Vascular Assessment Unit is the second vascular diagnostic provider to achieve accreditation and is the first vascular lab which is fully managed by an NHS Trust and staffed with NHS-employed Vascular Scientists.

We thought it may be helpful to give you an insight into why we felt it important to seek accreditation, how we did it and what the benefits have been for our patients and the department.

For those who are not familiar with IQIPS: There is a lot of information on the IQIPS website (<https://www.iqips.org.uk/>) about the programme. It is essentially a structured method of improving various aspects of service quality for patients undergoing physiological diagnostics and treatment. The programme is administered by the Royal College of Physicians (RCP) and was written in conjunction with the physiological science professional bodies. There are 4 domains covering:

- Patient experience
- Facilities and Workforce
- Safety
- Clinical

Each of these is broken down into several standards and sub-standards (nearly 150 in all). The majority are generic and can be applied to any of the physiological science specialisms, with some specific to each discipline. This means that you may be able to share the workload if you go through the process with your Cardiology, Respiratory etc colleagues.

The accreditation is a badge of quality and is now CQC approved, making it easier to sell to your management teams when seeking funding for the fees.

I have attempted to answer various questions that you may have about IQIPS:

What is the difference between IQIPS, SAIT and UKAS?

The different parts of the process can be very confusing – I have only just got my head around it all having been through the whole process. The IQIPS scheme describes the standards that are required, and the Self Assessment & Improvement Tool (SAIT) is an on-line resource that helps you to check your compliance with the standards. The SAIT is essentially a list of the standards with additional details on what is required and allows you to answer “Yes” or “No” to whether you meet each requirement. It can be used in various ways depending on how you work (more about how we did it later), and is also a method for IQIPS/RCP to

audit progress across all subscribed organisations twice yearly. You can save your responses and come back to it as and when you have time.

When you are happy that you have met the standards of IQIPS (using the SAIT), you are ready to apply for accreditation. Accreditation is assessed and granted by the United Kingdom Accreditation Service (UKAS). It is a separate organisation to IQIPS and RCP, and independently uses their standards to assess against. Registration with IQIPS and access to the SAIT requires a fee, which can be reduced by applying jointly with other departments in your Trust. Further fees are payable to UKAS to cover the cost of accreditation visits etc when you reach this stage.

When you reach accreditation standard can you forget the SAIT?

This was what I thought until very recently, but apparently you still need to submit twice yearly SAIT returns to IQIPS..... and pay the fees. I understand that the SAIT has further information about higher levels of compliance with the standard and can be used to further develop your service. However, my experience is that this can be done via the separate UKAS web-based tool which you move onto following SAIT and seeking improvement becomes part of your everyday approach to your service.

Having spoken to other SAIT users who have also reached accreditation,

this seems to be the consensus view. I personally think that the usefulness of the SAIT to departments post accreditation needs reviewing.....and saving on the fees would help cash-strapped budgets.

How long did it take?

For our department it was a long journey. We started in soon after the scheme was launched in 2012 and had completed the SAIT by September 2015, we then received our accreditation (October 2016).

Don't let this put you off as there were good reasons for it taking us so long. In 2012 we were a very under-staffed department with 3 part-time AVS (1.4wte in total) and 2 STP students to train. For the majority of 2013, one of our AVS was unavailable due to ill health. At that time we completed around 6500 scans each year including the DVT service, so were a very busy department. We managed this by having 3 wte support staff who do all of our bookings and look after the patients so that the scanning staff can be really efficient. We didn't do much apart from scanning for a couple of years and were very fortunate that our STP students were excellent and able to spend some of their time contributing to our service from fairly early on. We check all of our trainees' images and reports until they are AVS, and fondly remember those days of scanning in one room and having trainees in the 2 other rooms to supervise – only achievable by having such a good team. In 2013 we were lucky enough to have a qualified Vascular Scientist apply for one of our job adverts (after 8 years of advertising!) and the team was expanded, this was a turning point and enabled us to concentrate more on IQIPS.

My approach to the SAIT was to go through it systematically from the beginning to the end putting into place the requirements (writing policies where we only had the information in our heads/starting patient satisfaction surveys/reviewing our protocols etc) as I ticked things off on the SAIT. The other approach would be to spend a few hours going through the whole SAIT ticking either "yes" or "no", resulting in a "% complete" figure. The

whole process is so daunting anyway that I thought a "% complete" score would be rather off-putting, so I took the view that gradually working my way through it and having more "yes" than "no" answers was the way to maintain morale. It took about 2 years to complete the SAIT from when we first registered.

Having scored enough "yeses", we applied for accreditation in Sept 2015. Because the Audiology department in our Trust were accredited the previous year, we took the decision, encouraged by UKAS, to become "an extension to their scope". This had advantages and disadvantages. The advantages were that all the generic Trust documents and policies that they had uploaded to the UKAS "evidence" web-based tool were accessible to us and we didn't need to replicate them. This also reduced our UKAS fees. The disadvantage was that we had to piggy-back onto their accreditation cycle which meant that we couldn't actually have our first accreditation visit until summer 2016 which seemed like a long delay. This actually proved to be a very good decision as it gave us 6 months to submit all of our evidence to UKAS (I don't think we could have managed it any quicker).

We finished uploading all the information to UKAS by the end of March 2016, and had the assessment visit to our department at the end of June. The visit was quite an experience and we all found it totally exhausting, although the 3 assessors were very approachable and carried out their inspection without interfering with our usual workload. We were given detailed feedback at the end of the day and informed of several "findings", which are essentially minor things to attend to before accreditation can be granted, with a 3 month deadline to evidence that we had done this. Our accreditation was finally granted in October 2016, so, it was a 4 year journey altogether.

Did one person do all of the work?

I took responsibility for the majority of the web-based submissions and writing policies, but there were plenty of other tasks for members of the team to help with. The total workload was very much

a shared approach, which we found worked very well.

How did you find the time?

Once our staffing levels improved we allocated all scanning staff 20% of time away from scanning duties to reduce risk of musculo-skeletal injury and this was fundamental to creating time for IQIPS. We still have "IQIPS" protected time and use this to develop various aspects of the service and for research.

We divided up the departmental responsibilities and have staff who are responsible for:

- Patient information
- Manual Handling
- PACS/CRIS
- Clinical protocols
- QA (see the article Penny Gill & Catherine Rogan wrote for the last Newsletter)
- Etc etc etc – the list fills an A4 sheet

This has been beneficial in terms of giving staff increased responsibility and hence job satisfaction and has given the STP students, in particular, the opportunity to fulfil some of their STP competencies. This sort of responsibility is also excellent portfolio evidence for anyone seeking Academy of Healthcare Science Equivalence. Responsibilities have been allocated according to staff skills and particular strengths and this has resulted in service improvements that otherwise wouldn't have been thought of.

Do we need to have PACS?

Lack of access to PACS is often thought of as a barrier to gaining IQIPS accreditation but isn't actually a requirement.

What are the benefits of IQIPS accreditation?

Our service has improved substantially over the last 3-4 years, we have increased understanding and control of our processes and now have an established culture of continuous improvement. We have flourished as individuals in various ways as we have had to tackle new challenges. This has increased our

confidence in our abilities and enabled us to discover new talents.

We also have a service which routinely scores over 98% in our patient satisfaction surveys so we know that our patients are benefitting. Our QA programme has helped us ensure that our machines are performing well and given us reassurance that our images, reports and diagnoses are consistent between different Vascular Scientists. We have been able to inform our managers and Trust Board that we have gained this CQC approved badge of quality which helps to increase our departmental profile within the Trust.

What are your top tips?

- Ask your ICT department for a departmental Generic area where you can store all of your documents, policies and a Vascular Outlook mailbox which

includes a staff calendar/rota for all staff to view. Use the generic area to develop a repository for all of your evidence and store it as you go through the SAIT.

- Think "audit" - "how can we prove that we do what our policies require?" This needn't be complicated – you just need to regularly check processes.
- Divide the work up, but have 1 organised person who is responsible for storing and uploading the evidence.
- Consider "IQIPS" time for all staff.
- Start the process and don't be daunted – it is achievable.

I am very happy to provide further advice and encouragement.

Alison Charig

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PRIZE
ARTICLE

Femoropopliteal bypass graft entrapment: A Case Study

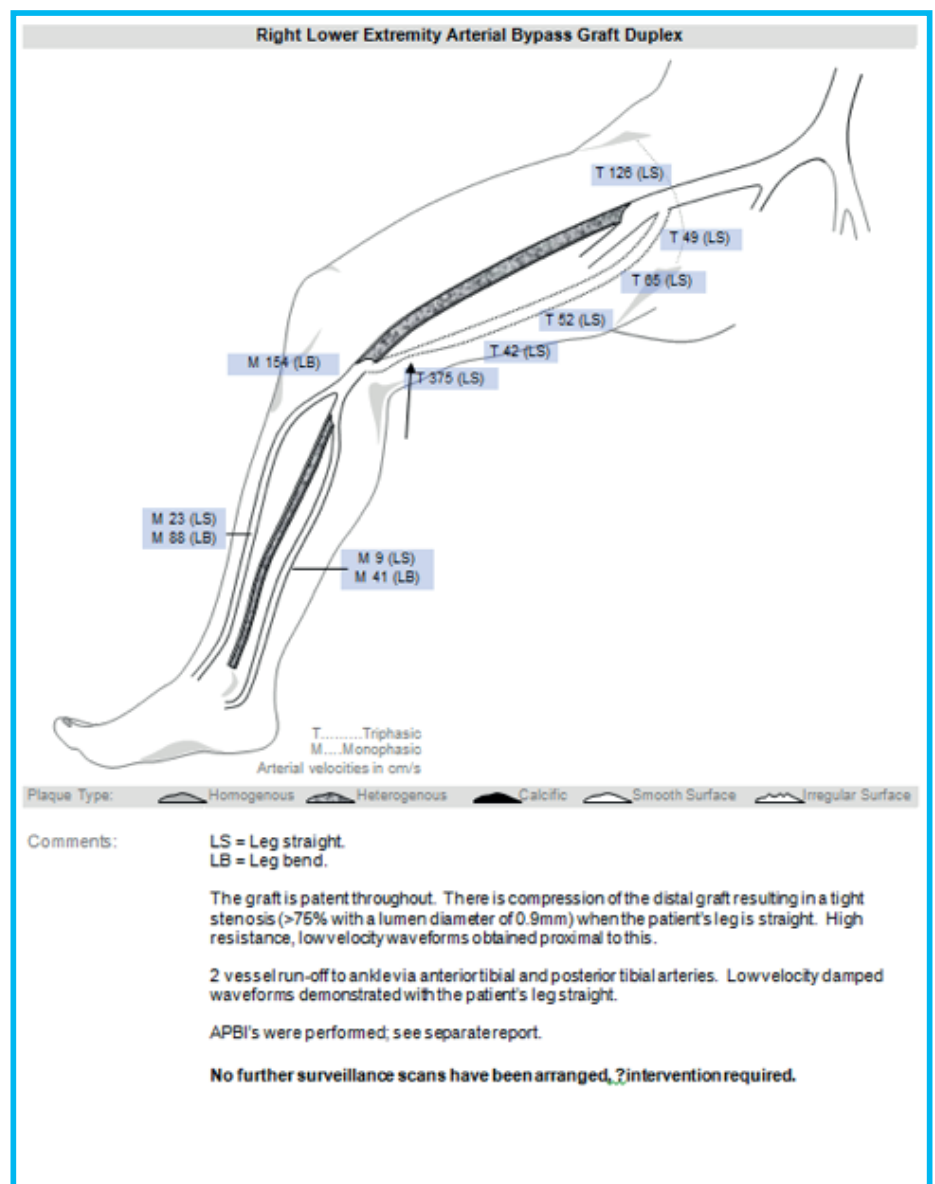
Michelle Cooper, Clinical Vascular Scientist, Peterborough City Hospital

Presentation

A 65 year old man attended for a routine duplex surveillance scan of his right femoropopliteal bypass graft. The surgery was undertaken as an emergency procedure for a critically ischaemic limb that was of questionable salvageability. The patient was 11 weeks post procedure and had recovered well from his surgery with the ulcer on his heel a quarter of the size it was during his admission. The patient had ceased smoking five weeks prior to his surgery. His consultant review four weeks post operation was positive and a strong dorsalis pedis pulse was palpable.

Imaging and findings

A duplex ultrasound scan of the right lower limb arteries and bypass graft was performed using a Phillips Epiq 5G machine and a L12-3MHz transducer. The patient was initially positioned supine. The bypass graft was patent but with high resistance waveforms obtained. Just above the knee the graft was compressed producing a tight stenosis with a lumen diameter of 0.9mm and a peak systolic velocity ratio of 8.9 across the narrowing. On assessing the graft from a posterior approach with the patient in a left lateral decubitus



position with his knee slightly flexed, this section was no longer compressed and the waveform become a lower resistance profile. The anterior tibial and posterior tibial arteries were patent and assessed 1. with the patient's knee flexed to approximately 30°, and 2. with his knee fully extended. The flow velocity decreased significantly in both vessels with the patient in position 2 (image A) in comparison to position 1 (image B), with the waveform becoming damped. The peroneal artery was occluded.

Due to the abnormal findings, ankle brachial pressure index (ABPI) measurements were performed in order to further assess the effect of knee extension on limb perfusion. The posterior tibial artery could not be accessed due to the location of the patient's ulcer so ABPIs were calculated using only the dorsalis pedis. The ABPI decreased from 0.83 when performed with the patient supine in position 1 to 0.40 with the patient supine in position 2.

Patient Management

The patient was admitted to the regional vascular centre and a repeat duplex confirmed the findings of extrinsic compression of the graft on knee extension. The patient also had a CTA; this was performed with the patient's leg straight which meant the graft was compressed and appeared occluded.

Surgery was performed to relieve the compression of the graft on knee extension in order to prevent graft failure. Initially several fibrous bands were released which appeared to be the cause of the compression. However, an on-table angiogram revealed that this had not resolved the graft entrapment (image C). The medial head of the gastrocnemius muscle was then divided which released the entrapment and was confirmed by a further on-table angiogram (image D). The patient was reviewed by the vascular consultant seven days later and was found to have a warm foot with excellent pedal Doppler signals on both knee extension and flexion.

Discussion

Popliteal artery entrapment syndrome is an uncommon but potential cause of ischaemia. It occurs due to extrinsic compression of the popliteal artery due to either an anomalous course of the artery or an abnormal arrangement of fibrous or muscle bands. A similar condition can arise following femoropopliteal bypass graft surgery where entrapment of the graft can occur when the graft is tunnelled superficially to the medial head of the gastrocnemius muscle (Carpenter et al., 1993). This can result

in graft stenosis or complete occlusion with the knee in extension and can lead to graft failure due to thrombosis. Stenotic lesions can also develop within the artery due to persistent long term trauma to the vessel wall during knee movements (Sanni et al., 2005).

Features at presentation vary from asymptomatic, such as in this case, to claudication or severe ischaemia (Abbas et al., 2004, Abbas et al. 2006). Symptoms can arise during the immediate postoperative period or months or years after bypass surgery (Carpenter et al., 1993) and can be sudden, frequently occurring during exercise and resolving with a change of position (Abbas et al., 2004). It is important that asymptomatic patients are identified to allow for surgical intervention to release the entrapment to prevent graft failure.

Duplex assessment is widely used in the surveillance of bypass grafts and is a useful diagnostic tool in the early identification of graft entrapment. It has the advantage over other imaging modalities of providing functional haemodynamic information which can aid in the diagnosis, particularly when used as part of a dynamic scan with knee extension and flexion. ABPIs can further assist in the diagnosis of graft entrapment by demonstrating the reduction in pressures with knee extension. CTA and angiography can be useful in confirming the diagnosis although careful interpretation is required as the imaging may be deceptive if performed during knee extension as the absence of flow may suggest graft occlusion (Abbas et al. 2006). MRA can also be of use in demonstrating graft entrapment and has the advantage of also showing the detailed relationship of the graft to surrounding structures which can aid in planning surgical intervention (Carpenter et al., 1993).

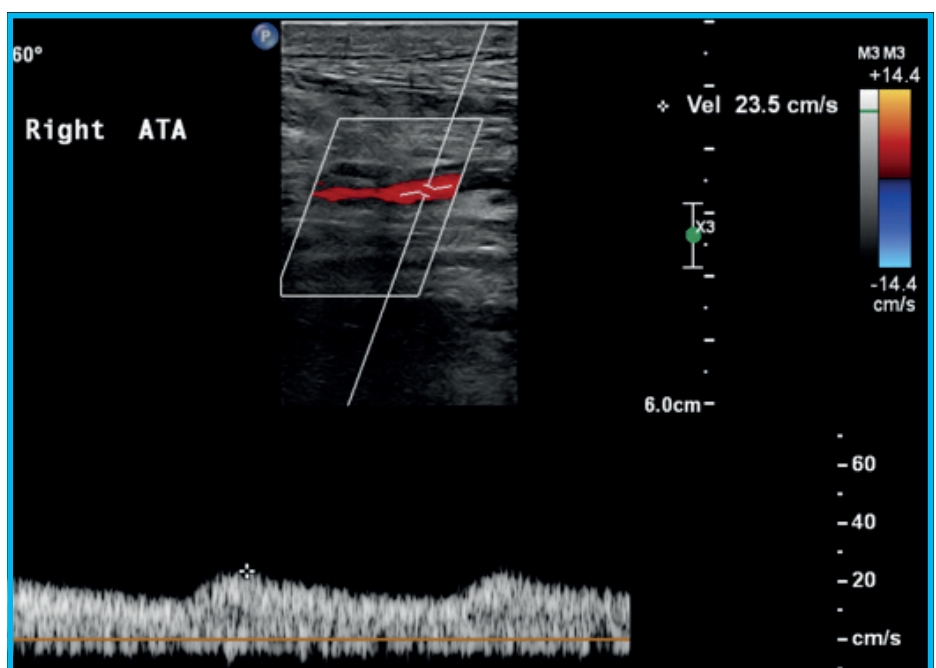


Image A: Right anterior tibial artery with the patient positioned with their knee fully extended (position2).

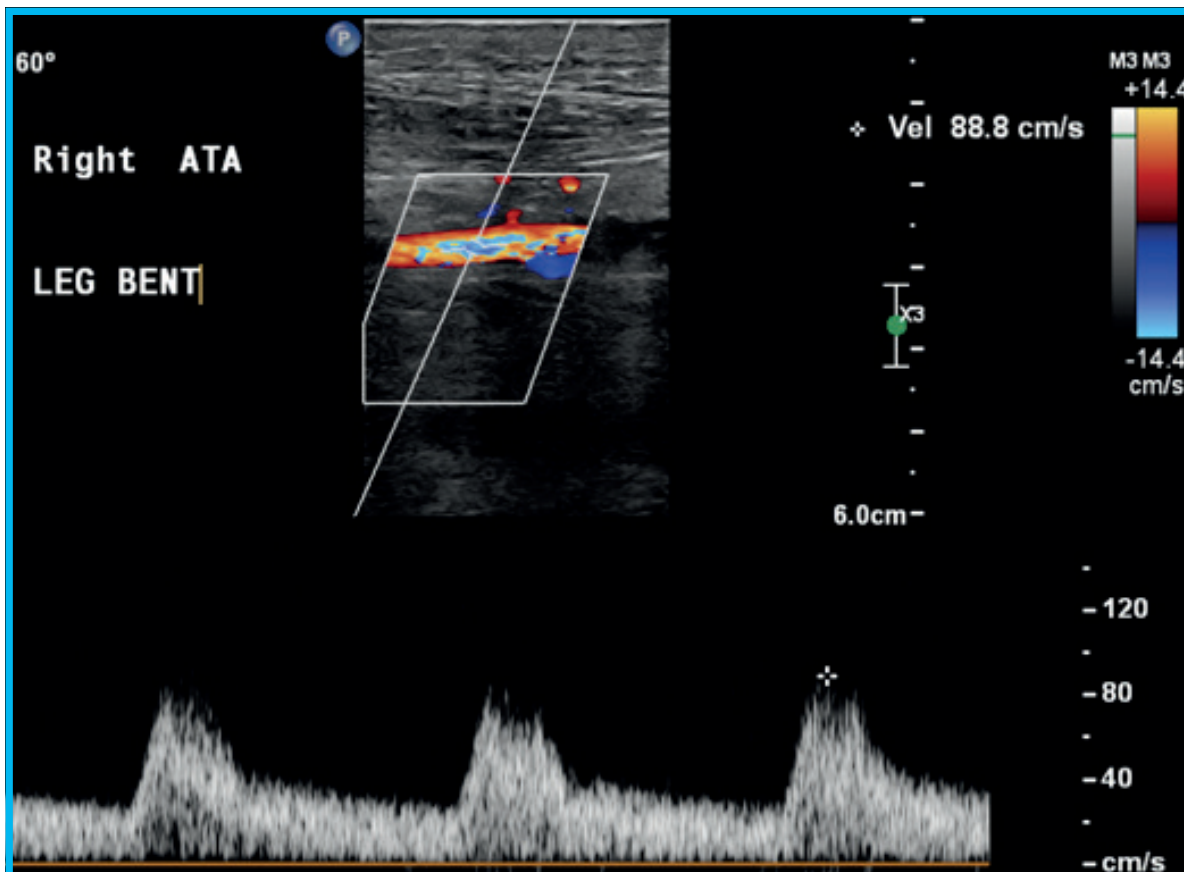


Image B: Right anterior tibial artery with the patient positioned with his knee flexed to approximately 30° (position 1)



Image C: On table angiogram demonstrating compression of the femoropopliteal bypass graft with the patient positioned with his knee extended.

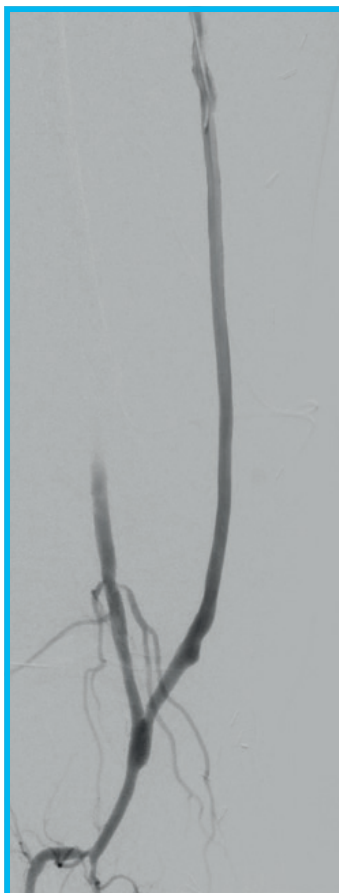


Image D: On table angiogram with knee release extended post of the graft entrapment

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RENEWAL OF PUBLIC VOLUNTARY REGISTER OF SONOGRAPHERS

REGISTRATION PERIOD MARCH 1st 2017 TO FEBRUARY
28th 2019.

All sonographers whose name is listed on the Public Voluntary Register of Sonographers will be required to renew their registration in March 2017 for the registration period leading through to the end of February 2019.

If your name is already listed on the voluntary register this will be very straight forward and is similar to HCPC renewal processes. There will be no charge if you are an SCoR ordinary or associated professional member, Society for Vascular Technology (SVT) PII member or are statutorily registered with the HCPC or NMC.

Full details of how to renew will be sent by e-mail to the address we on file, so please update if necessary via www.sor.org. If you have any problems with updating records then please contact Christian Ellwood in our membership department ChristianE@sor.org

As previously notified those voluntary registrants who are not also statutorily registered will be subject to audit of their continuing professional development (CPD). Those randomly selected to present their CPD portfolios for audit will be separately notified.

SVT Research/Innovation award and Travel/ Education grants relaunched!

Deadline: Friday 21st April 2017 at 11:59pm

The SVT Research Committee is pleased to announce the relaunched SVT Research grants. We have designed two types of awards, which are open to both ordinary and special interest groups.

The *Research/Innovation award* is for small-scale studies such as pilot or feasibility studies, with the hope that larger grants will be applied for at a later date. There is a total of £9,000 per year, with a maximum of £4,000 per award.

The *Travel/Education grant* is for things like travel to another lab to learn a new modality, educational courses, or conference expenses to present results. There is total of £1,000 available, with a maximum of £250 per award.

For both of these awards we will operate a top down funding approach, so the best applications will get the full amount and so on. The application forms and guidance are available in the research area of the website. Please email Richard Simpson with any questions and to submit the application forms.

Email: richard.simpson@nuh.nhs.uk

Online CPD

The CPD questions which usually feature in the newsletter will now be available for members on the SVT website.

When members first visit the site they will need to complete the registration form *Please note this is separate from your SVT website login so everyone will need to complete this registration step*

Results for the assessments are available immediately and CPD certificates are emailed straight to the address provided on registration.

Answers: Summer 2016 Newsletter

1. Atherosclerosis, fibromuscular dysplasia (FMD), arteritis, dissection and neurofibromatosis.
2. 1-5%
3. PSV, RAR, no Doppler signal and visualisation of colour artifacts (aliasing and turbulence).
4. PSV <180cm/s and RAR < 3.5
5. If PSV in pre-renal abdominal aorta <0.40cm/s.
6. PSV-EDV/PSV
7. Intrinsic renal diseases (nephroangiosclerosis, hypertension, tubular-interstitial disease, diabetes mellitus and severe bradycardia).
8. Tardus-Parvus
9. Dampened waveforms, slow systolic acceleration, increased acceleration time, slow velocity.
10. 20-30%
11. RA flow is in direction that is parallel to the Doppler beam.



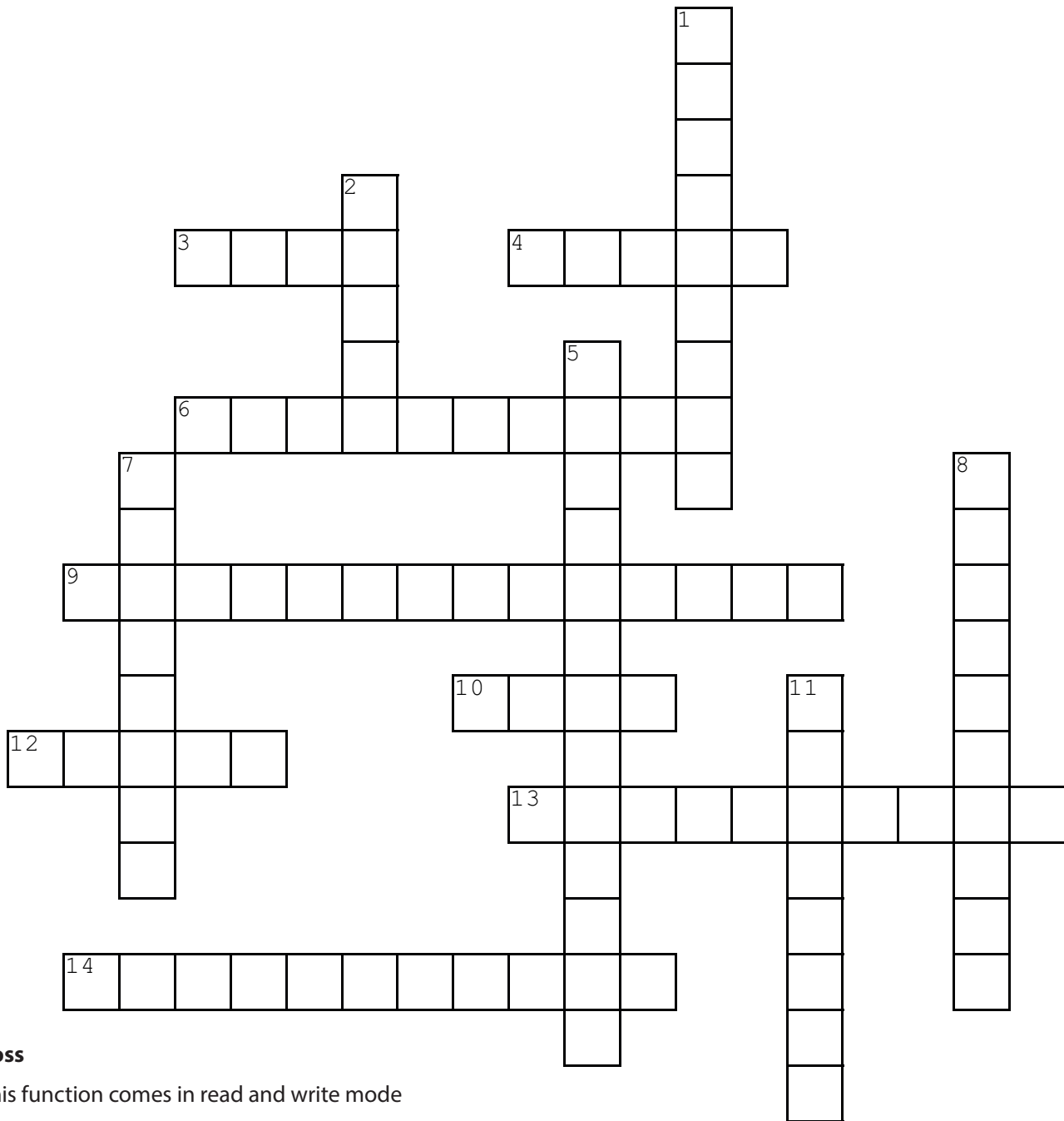
Trainee Competition

- A. When measuring an ABPI, it is important to use the correct sized cuff for the limb being assessed. Will the blood pressure be falsely increased or decreased when using a cuff in which the air bladder does not cover at least 80% of the circumference of the limb?
- B. A patient has an ABPI of 0.70 in the Right Lower Limb and an associated symptom of intermittent claudication. What is the cause for the decreased lower limb blood pressure; what is happening to the pressure energy?
- C. Explain 3 contraindications to performing an ABPI and list 3 alternative investigations which could be performed to assess for lower limb arterial disease.

Please send answers to Sophie McDermott, member of the Education Committee, at Sophie.McDermott@porthosp.nhs.uk

The winner will receive a £25 book token and have their answers printed in the Spring newsletter
Closing date: 10th May 2017

Vascular Ultrasound Physics



Across

3. This function comes in read and write mode
4. Can be adjusted to improve the lateral resolution of an image
6. This type of flow can be seen in arteries when an infection is present
9. If this function is set too high, low velocity blood flow may be missed
10. This is the ratio of output signal strength to the input of signal strength
12. A higher frequency will give better ----- resolution
13. If the frequency increases, this decreases
14. A reduction in the intensity and amplitude of a sound wave as it passes through a medium

Down

1. Increasing this will improve the resolution of the image
2. An image display where the brightness of each point in the image varies in relation to the intensity of the detected signal
5. The process by which small voltages are increased to large ones
7. Increasing the PRF will reduce this
8. A measure of the system to distinguish between closely spaced objects
11. The breaking up of the frequency components of a wave

President's Annual Report 2016

Tracey Gall, SVT President 2016

The past year as President has been fantastic and one of the busiest of my life! The Society has achieved a great deal this year and this would not be possible without the commitment and dedication of all the committee members. The Society can only continue to grow and be successful because of the generosity of the members who do get involved and are willing to donate their precious time. I would highly recommend becoming a part of the Society as it has opened my eyes to the wider world of ultrasound and presented me with some fantastic professional opportunities.

One of my intentions this year to try to increase benefits offered to the membership. At the beginning of the year the SVT were being asked to join discussions for national research projects with organisations such as the Vascular and Endovascular Research Network (VERN) and the Royal College of Surgeons Vascular Research Group. It seemed that we were being asked to support other researchers but not encouraging and supporting our own members who may feel they don't have time or funding available.

The SVT Research committee was set up with the intention of distributing information on national projects members may wish to be part of, or by offering guidance and advice to members on conducting their own research. A fund of £10,000 per year has been made available for research applications and also for education travel grants. The officers of this new committee have been working incredibly hard this year to get everything onto the website and available to members and I hope that it will develop and become a useful resource for everyone.

The Education committee and Professional Standards committee work incredibly hard behind the scenes and the amount of work they continue to achieve as volunteers is

astounding. The Chairs of all the sub-committees have written reports for this programme so I won't reiterate what they have been doing but would like to thank all the members once again for their commitment – it wouldn't be possible without you all.

At the last ASM I spoke about the collaboration with the American Registry for Diagnostic Medical Sonography (ARDMS). We are still working on this and are on target to deliver the first electronic exams around May 2017. ARDMS has had a restructure and is now part of a larger company called Inteleos. The Physicians Interpretation exams have their own Council called APCA and the SVT has a place on a separate council which is in transition with Physician Assistants and Midwives. Because of the relatively small number of registrants it is not possible to have the exams available throughout the year, however the exams will be available in a 30 day window of opportunity twice a year and there will be no restrictions on which window the registrant may choose. In order for the exams to be statistically significant and to ensure a consistent level of exam difficulty, the results of the exams will not be available straight after the registrant has finished but will be issued shortly after the closure of the exam window. In order to maintain high quality exams there needs to be a large number of questions in the 'bank' and the SVT are planning to hold a question writing workshop in the New Year. Dates and venue to be decided so please keep checking the website if you would be interested in taking part and earning CPD.

Being the President of the SVT is just being part of a team that makes up the executive committee and I am lucky that I have had a fantastic team to work with this year. Tanyah Ewen has been a constant support and it will be a loss to the committee as she

steps down from the Past President and acting Treasurer roles this year. We are fortunate that Kamran Modaresi from Northwick Park has attended the last two executive meetings and is standing by to take over as Treasurer.²⁸

The Executive committee took the decision this year to introduce some formality into the process of handing over Presidency I was delighted to present Helen Dixon from King's College Hospital with a Presidential medal of office at the ASM. Sara Causley who has been involved with the SVT for many years will be the new Vice President and I would like to thank Sara for the great job she has done in keeping all the membership records up to date. A new SVT website was developed this year by design company Capability Cloud. Lee Smith, the website officer, has worked incredibly hard to deal with all the glitches and populate the pages, which is still ongoing. The new website had to launch before July as this was a deadline set by the old website provider and there is still lots of documents to update and images to change. The decision to change the logo was not made lightly but it was felt that in order to attract potential sources of income from advertisers and to appeal to a wide audience the whole website including the logo needed redesigning to give a professional and polished appearance.

Outside of the committees, several SVT members represent us on other organisations. Helena Edlin has taken over from Alison Charig as the SVT representative for the National School of Health Care Science and feeds back any developments within the Vascular STP such as requests for support with interviewing, OSFA assessing and OSFA writing. The Vascular STP continues to be successful with the seventh cohort starting placements

this September. The Modernising Scientific Careers pathway has also extended to offer a vascular healthcare science assistant and associate program (HSAA) and the HSST is now live. Although there is no vascular PTP, discussion are progressing with the ASP (advanced scientific practice) modules which will be available to anyone wanting to access specific modules for continuing professional development.

The IQIPS accreditation program is still ongoing with Jo Walker and Alison Charig acting as vascular assessors. IVS Ltd have been successful in securing reaccreditation for a second year and are now

preparing for third year reaccreditation. Portsmouth have been successful in achieving the Accreditation this year and there are still 7 further labs registered for the process.

You may have noticed a change of correspondence address on the footer of the SVT website. The Vascular Society vacated their offices at the Royal College of Surgeons earlier this year and have outsourced their administration to Fitwise. The British Medical Ultrasound Society have kindly offered us a mail receipt services through their Milton Keynes offices although the SVT may have to look to securing their own employed

administration soon due to size and continuing growth of the membership. I would like to say thank you to the Vascular Society for the support they have given the SVT over the years.

Writing this report has been a challenge, trying to ensure that I have included everyone who has been and continues to be involved with the Society and ensure high standards of vascular ultrasound are continued to be met through education, accreditation and collaboration with other Societies with the same aims. I feel privileged to have been a part of it and wish Helen the very best for her year as President.

Research Committee Report 2016

Richard Simpson, Research Committee Chair 2016

The new SVT Research Committee was set up in April 2016 following increasing demand from other organisations to give input to research developments. There are currently three of us on committee: Laura Scott from Cambridge and Steve Rodgers from IVS, with myself as chair.

The broad aims of the committee are to provide research support/guidance for members including the SVT Executive Committee and to represent the SVT on other groups such as VERN and RCS Vascular Priorities Group. We also have a small pot of money to allocated for research projects and educational/travel grants. Laura Scott was tasked with writing research guidance documents for the SVT website. Steven Rogers has been designing an application form for the SVT research and education grants. All these documents can now be found

on the website and many thanks to both of them for their hard work.

I am in the process of designing a research activity survey for SVT members to increase knowledge about the Research Committee and to get names of people that would be interested in collecting data e.g.VERN projects. This will be circulated to members soon so please give feedback and help make the committee successful.

I also attended a Vascular Research Priorities meeting at the Royal College of Surgeons hosted by Prof. Ian Chetter in June 2016. The aim is to identify the most important research priorities in the vascular disease through a process of consensus and there is a plan to apply to an NIHR RfPB grant to achieve this.

The most exciting news is that the SVT Executive Committee has confirmed

that there is £10,000 per year allocated for grants. The Research Committee has designed two funding streams that should provide an opportunity for members to undertake small research projects and also for those needing educational travel grants.

We are pleased to announce:

- Research/Innovation Award
- Total of £9000 per year available
- Maximum of £4000 per grant
- Travel/Education Grant
- Total of £1000 per year available
- Maximum of £250 per grant

The funding is awarded on a top down basis with the highest scoring application being funded followed by the next and so on. Please do look at the documents on the website and get in touch if you need any advice with conducting research. We look forward to receiving the first applications!

Professional Standards Committee Report 2016

Matt Slater, PSC Chair 2016

This is my third year as chair of the professional standards committee, and it has been a rewarding year. We are a small committee with wide ranging experience and I must thank Richard Craven, Alison Charig and Lila Elliott for giving up their time on behalf of the SVT.

I have been representing Vascular Science and the SVT on the IQIPS accreditation advisory group and as part of this the PSC have been working with IQIPS in the development of the Vascular level A's (Aspirational levels, level B is accreditation level). IQIPS are very keen to hear about the challenges labs are facing in applying for or achieving accreditation. As of July 2016 there were 13 services registered

on the self-assessment tool (up from 9 in 2015).

As a group the PSC have continued to produce guidance documents for the SVT website. Alison has produced a very extensive social media policy helping members to protect themselves and outlining what the SVT expects. In addition, we are currently updating and overhauling the SVT service specification documentation.

Unfortunately this year was a challenging one as the SVT received a complaint about the clinical competence of an individual. This was a difficult situation for the exec committee and therefore in response to this we have produced a complaints document as guidance for

individuals and the SVT should this situation arise in the future. We would as always welcome any feedback on this or any of the documents produced.

Bubbles articles have been provided by the committee for the newsletter each quarter and hopefully you have enjoyed reading the wide range of scientific articles reviewed; look out for more instalments next year. If anyone would like a particular topic covered please let us know.

On the NICE front the diagnostic Services and AAA guidelines are currently in development. So keep an eye out in 2017 and beyond for developments and final publication of the guidelines.

Membership Report 2016

Sara Causley, Membership Secretary 2016

At the end of the membership year, 31st October 2016, there were 490 members:

Ordinary - 473

Associate - 8

Honorary - 7

Special Interest Group- 2

Fees were increased this year to £50 for new members and £40 for renewals.

The new website and database were implemented back in July. As expected there were some minor teething problems but we thank you for your patience during this time. All features are not fully active yet but we are sure that once implemented they will enhance your experience of the website.

Now we have a more advanced website we hope to abolish the set membership year. New members will renew on the anniversary of the date they join. Reminders will be sent each week for the preceding four

weeks before expiry. If no payment has been made one calendar month after expiry, members will be locked out of their account. Late payment fees would also be abolished. The new members' fee would be payable once the membership has expired for more than one month in order to reinstate membership. (These changes are subject to the result of the online vote which took place recently, the results announced during the AGM.)

Renewal payments can be made online by BACS transfer or by Standing Order. We are also currently working with our bank to also offer direct debit payments in the near future. Unfortunately we can no longer accept cheques. Once a membership has been renewed a receipt will be emailed but a copy will also be held in the members' locker on the website along with a certificate of membership. This can be used as evidence for employers if required.

I would like to take this opportunity to once again thank you all for continuing to support our society.

Education Committee Report 2016

Siobhan Meagher, Education Committee Chair 2016

The 2016 Education Committee activities began with the fundamental study days. This is a two day course designed to give a basic overview of vascular technology, suitable for trainees preparing for the SVT exams and anyone interested in vascular ultrasound. 16 trainees attended the fundamentals days.

The annual exam preparation tutorial days took place at the end of March 2016 at the University Hospital in Coventry. The tutorials took place over two days, and the concurrent themes for these days are small tutor group sessions with lots of practice questions and opportunities to discuss answers and exam techniques. We had 26 candidates registered for the physics day and 32 for the technology revision day.

The theory exams took place on the 6th of June. The exams were held at three venues. We had a venue in London, Manchester and the third venue was in Ireland. 43 registrants sat the physics and instrumentation exam and 44 registrants sat the technology exam. I would like to thank all the invigilators across the three venues.

Overall, 40% failed the physics and 60% passed which is an improvement on last year which had a pass rate of 55% and for the technology exam 13% failed the technology and 77% passed which was also an improvement on last year which had a pass rate of 72%. The resit exams took place in September with five members retaking their technology exam and nine members retaking their physics and instrumentation exam with a pass rate of 60% and 22% respectively.

There have been 14 successful practical examinations over the past year and four fails with a further five examinations pending.

For the upcoming year, the Education committee will run the fundamental and tutorial study days. The committee also hopes to organise a study day in Ireland focusing on upper limb scanning. If you would like to volunteer to participate as a tutor or a lecturer please contact the SVT study day organisers their details are available from the SVT website

With the instigation of the new SVT website CPD activities should be available online from 2017. An update

on the SVT audit, lapsed member status and the new online electronic exam system will be given at the ASM.

I would like to take this opportunity to thank all the members of the Education committee who work extremely hard throughout the year. There are a number of changes to the Education Committee for 2017. We have had two new CPD officers in post since mid 2016, Heather Griffiths and Veni Ramachandran, with Julia Habens and Shakila Chowdhury having stepped down earlier this year. Anne Delos Santos will also step down as practical exam officer; Coleen Franco will be taking over this role and Laura Haworth will be taking over from Laura Scott as the trainee representative on the committee. I am also stepping down as Chair of the Education Committee. The incoming Chair will be Naavalah Ngwa- Ndifor.

I would like to thank all outgoing members of the committee for their hard work and donated time.

From the Editor

As always I would like to extend my thanks to those who have contributed to this issue. I am delighted to introduce our new Newsletter Editor, Gurdeep Jandu from IVS, Manchester. I'm sure he will do a great job and bring a fresh approach and some new ideas to the newsletter. As usual any contribution to the newsletter should be sent to newsletter@svtgbi.org.uk

Please email any case studies, reviews, your experiences or any comments that you think would be of interest to members of the society, contributions may also be eligible for CPD points. We would also welcome any comments on articles published

in this edition. As always a £25 prize is offered to the individual chosen for sending in the article or letter of the month.

The prize this issue is awarded to Michelle Cooper for her case study on femoropopliteal bypass graft entrapment.

The next Newsletter will be the Spring Issue, and the closing date for receiving articles will be Friday 14th April.

Helen Dixon
SVT President



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