Dear Member,

It is a pleasure and honour to introduce you to the first edition of your Section´s newsletter. The aim is to reach out to our members and friends, and to keep you updated about the latest developments - clinically, academically, and politically - in our specialty. Also, we are happy to stir up some discussion within the multiple fields of current controversies around treatment of neurovascular pathologies.

Although I am privileged to write this brief introduction, it is certainly not my responsibility that this project was realized in such an outstanding way. My special thanks go to the Newsletter´s Editorial board - Nils Hecht, Menno Germans, and Jan-Karl Burkhardt. It is exclusively due to their unique motivation that created this momentum which enabled us to realize the Newsletter project so excellently and efficiently. Already now, I am looking forward to the many newsletters that will follow. My final thanks go to Lucinda and the other unique personalities at the EANS office; without them we would not be able to advance.

All suggestions of publication in any part of the newsletter can be addressed by email to peter.vajkoczy@charite.de and nils.hecht@charite.de.

Sincerely,

Peter Vajkoczy, on behalf of the Neurovascular Section
Nils Hecht, Newsletter Editorial Office
Comments

Please do let us know if you have something for comment, or would like to comment yourself.

Case Discussion!

Case discussions are a great opportunity to debate and obtain second opinions for your cases in a secure and helpful group comprised of your fellow Vascular Section members. We’re currently running this facility on Medshr.

Join now!

Featured Cases

Hybrid OR perspective: Cerebral revascularization combined with endovascular internal carotid artery occlusion.
Lars Wessels, Nils Hecht, Thomas Liebig, Peter Vajkoczy
Charité – Universitätsmedizin Berlin, Berlin, Germany

Introduction:
Treatment of very large or giant aneurysms remains an interdisciplinary challenge, because on the one hand direct clipping is often not possible due to the complex configuration with involvement of a whole vessel segment and on the other hand, endovascular treatment is associated with high reperfusion rates and the risk of peri-interventional ischemia due to occlusion of perforator vessels. In such cases, cerebral revascularization is necessary to maintain blood flow after sacrificing the aneurysm-bearing vessel, preferably immediately proximal to the diseased segment. Particularly in the case of dissecting aneurysms of the internal carotid artery (ICA), however, proximal ICA-occlusion can be technically challenging due to the space-occupying effect of the aneurysm requiring retraction or the need for extensive drilling of the skull base. Although proximal ICA-occlusion at the level of the carotid bifurcation is the preferred option in such cases, this strategy is sometimes not possible due to a surgically inaccessible (high) carotid bifurcation or atherosclerotic calcifications that prohibit safe and complete ICA-occlusion via Clip or Hunterian ligation. Here, a combined endovascular ICA-occlusion following surgical flow replacement through an extra-intracranial bypass presents a simple and safe alternative. The main limitations of this approach are that it typically needs to be
performed in a two-staged fashion with the double requirement of general anesthesia and the increased risk of spontaneous bypass occlusion due to the comparatively low perfusion pressure gradient across the bypass during the time-delay between surgical and endovascular intervention. Here, a hybrid operating room (OR) with intraoperative angiography offers the unique possibility of performing bypass grafting and endovascular occlusion in a single setting (Figure 1), which is illustrated in the following report.

Figure 1 Hybrid OR setting with intraoperative angiography

Case report:
This 22-year old patient presented to our Department with an incidental fusiform / dissecting giant-aneurysm of the right internal carotid artery arising from the carotid siphon (Figure 2).
Due to the aneurysm size, localization and configuration, we decided to perform a flow replacement high-flow bypass using a saphenous vein interposition graft from the external carotid artery to the middle cerebral artery (M2 segment), in order to allow exclusion of the diseased vessel segment by proximal ICA-occlusion at the level of the carotid bifurcation. Due to unexpected calcifications and vessel degeneration at the cervical level of the ICA, however, direct clip occlusion or ligation was not feasible. Therefore, we chose a combined surgical / endovascular approach: After grafting of the bypass, an intraoperative digital subtraction angiography was performed to confirm bypass patency. Next, endovascular test-occlusion of the ICA evidenced an increased hemodynamic flow redistribution via the graft, which was the indicator to permit proximal endovascular ICA-occlusion with two vessel plug devices (Figures 3 A - C).
Postoperatively, the patient recovered well and was discharged 1 week later without deficit. Remarkably, the dissecting ICA aneurysm was no longer evident on follow-up MRI (Figure 4).

**Conclusion:**
A hybrid OR setting allows the combination of microsurgical and endovascular treatment strategies and may help to increase the safety and efficacy of complex neurovascular procedures. Importantly, treatment of these rare cases should remain in specialized centers and...
long term results need to be validated in larger case series or prospective registries to identify the best individual treatment option for patients suffering complex cerebrovascular lesions.

Technological Developments

New technologies - The woven endobridge (WEB) device
Jan-Karl Burkhardt, MD

The endovascular field is constantly improving techniques and devices for the treatment of intracranial aneurysms to further increase aneurysm occlusion rates and to treat aneurysms in challenging locations or of unfavorable shapes. Generally speaking, endovascular treatment strategies aim for either a direct intra-saccular aneurysm occlusion, such as with aneurysm coiling, for indirect aneurysm occlusion using flow-diversion in the parent vessel such as with pipeline embolization devices, or for a combination of both. Since wide-neck bifurcation aneurysms and particularly MCA aneurysms remain challenging for endovascular treatment to achieve complete aneurysm occlusion, novel treatment devices targeting the aneurysm lumen (WEB device) or neck with flow diversion (eCLIPs device) are currently undergoing investigation in clinical practice.¹²

As such, the woven endobridge (WEB) device is an intra-saccular standalone braided-wire device (nitinol mesh) and was designed for patients with wide-neck bifurcation aneurysms such as middle cerebral artery (MCA) bifurcation or basilar apex aneurysms. This devise aims to disrupt flow through the aneurysm ostium similar to a coil-packed aneurysm but with less porosity. The device as double- or single-layer version was recently tested in prospective studies including WEBCAST, WEBCAST 2, French Observatory (FROBS), WEB-IT and CLARYS.³⁻⁶ In all studies the WEB device was described as being safe and efficient. In a recently published summary of three prospective, multicenter series including FROBS, WEBCAST and WEBCAST2, a morbidity rate of 1.2% (2/168 patients) with no mortality was reported.⁷ However, the complete aneurysm occlusion rate was 52.9% (81/153 aneurysms) with a neck remnant in 26.1% (40/153 aneurysms) and aneurysm remnant in 20.9% (32/153 aneurysms) at 1-year follow-up, respectively. In 50.9% (86/169) of the cases, aneurysms were located in the MCA bifurcation. In 21.3% (36/169), they were located in the anterior communicating artery (ACoA), which are two aneurysm locations favorable for microsurgical clip occlusion. Due to the low complete aneurysm occlusion rate with the WEB device, these results were further stratified based on the Raymond grading scale in “adequate occlusion rate” defined as patients with complete aneurysm occlusion (class I) plus patients with neck remnants (class II), which
increased the occlusion rate from 52.9% to 79% of the treated aneurysms.\textsuperscript{7}

Although the authors have demonstrated an excellent safety profile with the WEB device, the radiological aneurysm occlusion results are disappointing and are not competitive with microsurgical clipping in classic surgical aneurysm locations where high occlusion rates of 89-99% with comparable morbidity/mortality are achieved.\textsuperscript{8-10} It remains to be determined if an adequate occlusion rate (Raymond grading scale class I and II) is valid to report treatment success. As we know from previous studies such as the CARAT study, incomplete aneurysm treatment in ruptured aneurysms is a predictor for re-hemorrhage.\textsuperscript{11} Furthermore, both unruptured and ruptured aneurysms treated with coiling have an increased risk of aneurysm rupture in both class II (residual neck) and class III (residual dome) aneurysms.\textsuperscript{12} Therefore, we have to be careful putting class II aneurysms together with completely occluded aneurysms into an “adequately occluded” group just for the sake of increasing the treatment success of a new device.

Despite criticism, this device may have its place in wide neck aneurysms in locations where surgical treatment comes with a higher morbidity/mortality rate such as basilar apex aneurysms. But as with any early device or technology, the results should be taken with caution for now. Besides the competition for the WEB device with excellent clinical and radiological outcomes for microsurgical clipping of MCA and ACoA aneurysms, the ability to define “adequate occlusion rate” as a valid approach to measure treatment success in treated aneurysms is yet to be determined.

References

Vascular Section Journal Club

International multicentre validation of the arteriovenous malformation-related intracerebral haemorrhage score


Some of the authors of this article have developed the arteriovenous malformation-related intracerebral hemorrhage (AVICH) score, which was published in 2016 (The AVICH Score: A Novel Grading System to Predict Clinical Outcome in Arteriovenous Malformation–Related Intracerebral Hemorrhage. World Neurosurgery 2016; 92: 292-297). In this study they externally validate the performance of the AVICH score.

Summary of study

Methods:
The AVICH score was developed in a single-center database and needed external validation for assessing the performance. A total of 11 neurosurgical centers (USA (n=3), Europe (n=5), Japan (n=3)) provided their data for the validation. Only patients with an AVM without previous hemorrhage and a prehemorrhage modified Rankin scale (mRS) score <2 were selected. The relevant data that were collected included parameters to calculate the Spetzler-Martin (SM) grade, the supplemental SM grade, the ICH score and the AVICH score. The outcome was assessed at least 6 months after hemorrhage by the mRS score and dichotomized into favorable (mRS 0-2) and unfavorable (mRS 3-6). The
statistical analyses included univariate analyses and area under receiver operating characteristic curves (AUROC). Continuous variables were compared using the Mann-Whitney test, and categorical variables by the X2 of Fisher exact test. The different scores were evaluated by comparing the AUROCs and p-values of 0.05 were considered significant.

Results:
By combining the data of several neurosurgical institutions, the number of patients increased almost 5-fold (n=325) in comparison to the original development of the AVICH score. The combined databases included 44% females and 210 patients had a favorable outcome, versus 115 patients with an unfavorable outcome (65% vs. 35%, respectively). The baseline characteristics showed significant differences in almost all parameters, except for sex and compactness of the nidus. The receiver operating characteristics (ROC) curve of the AVICH score showed an AUROC of 0.765, which discriminated significantly better than the supplemental SM grade and ICH score. An AVICH score of ≥10 was associated with a favorable outcome in only 1.4% of patients.

Author’s conclusions:
The AVICH score performs significantly better in the prediction of outcome in patients with a ruptured AVM than the generally accepted scores for outcome prediction in unruptured AVMs or ICH due to other causes than AVM hemorrhage.

Journal club comments:
This scale is a weighted combination of the supplemental SM grade and the ICH score. The single point attributed to hemorrhage in the first scale is substituted with the more detailed values provided by the second one. This scale thus enhances the value of the hemorrhage with respect to the AVM characteristics as a prognostic factor. Ruptured AVMs had been frequently evaluated together with unruptured ones, and often the hematoma had been considered a facilitating element in surgery. We (Cenzato and colleagues) have just published a comparison between outcomes in ruptured (337 pts) versus unruptured (208 pts) AVMs (World Neurosurgery – in press) with almost the same value of unfavorable outcome in ruptured (37%), much higher than that of unruptured ones (6%). We therefore fully agree that the hemorrhage plays a major role in determining outcome in ruptured AVMs.
It is rational that merging a scale that takes into account the complexity of the AVM and the severity of the hemorrhage. This could lead to a better prediction than looking only to a single side of the problem, but from a statistical point of view it is difficult to deduce from the present article how relevant the role of the hemorrhage really is. As a practical surgeon I would rather like to see a table with a more direct correlation between the score and the outcome, which is not clearly indicated in this paper.
Surgical clipping or endovascular coiling for unruptured intracranial aneurysms: a pragmatic randomised trial

This a study from the Collaborative UnRuptured Endovascular versus Surgery study group (CURES) aiming to examine trial feasibility and compare angiographic and clinical outcomes following clipping and coiling after 1 year.

**Summary of study**

**Methods:**
The study hypothesis is that clipping is superior to coiling for saccular unruptured intracranial aneurysms (UIA) in terms of lowering treatment failure. The calculated goal sample size was 260 patients with statistical power of 0.80 and p-value of 0.05. CURES is an Investigator-led, pragmatic, multicenter randomized-controlled trial conducted in four Canadian and one European center from 2010 to 2016. Inclusion criteria: >18 year-old patients, mRS < 3 with any intradural saccular UIAs 3-25 mm in size. Exclusion criteria: patients requiring endovascular flow diversion or parent vessel occlusion with or without bypass. Previously treated aneurysms were initially excluded then in October 2014 the protocol was revised (2 patients with recurrence were included). The primary outcome was treatment failure at one year, defined as initial failure of allocated treatment, intracranial hemorrhage or a residual/recurrence in CTA, MRA or DSA on one year. Secondary outcomes were neurological deficits within 30 days following treatment, hospitalization longer than five days, overall morbidity and mortality, and angiographic results at one year.

**Results:**
Due to slow recruitment and increasing costs the study coordinators decided to evaluate and publish the available data as of May 2016. In total, 136 patients with 181 UIAs (136 index aneurysms) were recruited. The surgical group had 66, and endovascular group 70 patients. Only 1 in clipping and 4 in coiling group had a posterior circulation UIA. Mean size was 8.7 and 8.2 mm in clipping and coiling groups respectively. The crossover was low, two patients in the surgical arm and three in the endovascular arm, respectively. There were no significant baseline differences between both arms.

Two patients, one of each arm, were not yet treated, which resulted in a remaining 134
patients available for analysis at 6 weeks. Primary outcome data at one year were available for 104/136 (76%) and two year outcome data for 106/136 (78%) patients, respectively. There was no significant difference in the primary composite outcome. Treatment failed in 10/56 patients [17.9% (10.0%–29.8%)] with coiling and 5/48 [10.4% (4.5%–22.2%)] with clipping (OR 0.54 [(0.13–1.90), p=0.40]).

Regarding secondary outcomes there was significantly longer hospitalization (>5 days) OR 2.87 (1.02–8.93), p=0.038) and more new postoperative neurological deficits OR 8.85 (3.22–28.59), p<0.001) with clipping. No significant differences were seen in functional outcome at discharge, six weeks or one year. No difference in mortality or angiographic outcome was seen at one year.

Author’s conclusions:
Surgical clipping or endovascular coiling of UIAs did not show differences in morbidity at one year. Trial continuation and additional randomized evidence will be necessary to establish the supposed superior efficacy of clipping.

Journal club comments:
This study was scheduled to address the question of the reputed clinical benefit of surgical clipping compared to coiling for the UIA preventive obliteration. The study shows, what is widely recognized, that clipping for UIA is associated to higher risk for post-operative morbidity, in most cases mild and transient, with no change in mRS at discharge and at one year. Despite in the coiling group there were six recurrences (two retreated), the study proved that at one year both treatment modalities are safe. On the other hand, the study failed to show that the more durable clipping, offers better patient safety over patient’s lifetime. This failure is the result of the small number of patients recruited and the short follow up period.

It is well known that some coiled aneurysms can recur after one year and some of them may need to be retreated. Microsurgical clipping could prove to be better, by avoiding the risks of re-rupture, repeated angiography and re-treatment. As a consequence a study with long term follow up could give the answer to the question this study tried to address.

These preliminary results show that despite the higher post-operative morbidity of clipping group and the higher recurrence rate of the coiling group, both treatment modalities show similar good clinical outcomes at one year follow-up. The durability of clipping can overcome the post-op morbidity and offer better lifetime protection to the patients? The question still remains unanswered and a long term follow up RCT could most efficiently address this question.

By: Mohammed Basamh, resident neurosurgery, Hamburg, Germany (Journal Club) and
Journal clubs are open to volunteer suggestions to feature the latest interesting articles in the field of neurovascular surgery and dedicated to critical discussion and short review.

Get in touch to volunteer your assistance!

Interviews

Interview with Clemens Schirmer, MD, PhD
Associate Professor and Residency Program Director
Department of Neurological Surgery
Geisinger Health System, Danville, PA, USA

Clemens Schirmer is an ABNS board certified and CAST fellowship certified dual trained vascular neurosurgeon practicing in the US with a German background. He is the director of the Stroke Center, the system director of cerebrovascular and endovascular neurosurgery as well as the program director of the neurosurgical residency training program at Geisinger. After obtaining his medical degree and doctorate from the Ludwig Maximilian University Munich, Germany and from Harvard Medical School he completed his residency in neurosurgery as well as fellowship in interventional neuroradiology at Tufts Medical Center in Boston.

1) In your opinion, what makes a good vascular neurosurgeon?
A good vascular neurosurgeon is not necessarily limited to his own toolbox of techniques which he or she knows really well when it comes to surgical technique but is equally acquainted with endovascular techniques and open surgery and also the medical management of the cerebrovascular disease entities that we treat. What is becoming more important this day and age as well as the coming future are the genetic foundations of the diseases that we treat and the treatment options and counseling strategies that arise from that. The neurosurgeon of the future really has to become a disease manager more so than a technical expert and has to offer the entire spectrum of management, be that conservative as well as operative or interventional.

2) Which factors influenced your decision to pursue neurosurgical training and eventually practice in the USA?
I had the privilege of being able to do a number of rotations and visits to the medical system in the United States during my medical school training. This was an avenue for me to get to know the medical system in the United States and have an early exposure during my neurosurgical rotations to endovascular neurosurgery as a part of vascular neurosurgery. There are some obvious differences in the training pathway between what is offered in Europe and United States but beyond that I do think that the training in both regions of the world is quite excellent and surgeons on both sides of the Atlantic Ocean have superb skill sets. At some point along my training it became more attractive to stay than to try and go back and re-invent my practice in Europe. Part of this decision had to do with the difficulty of translating the endovascular component of my practice into the framework of what was then and is currently possible in Europe.

3) How is your microsurgical and endovascular caseload divided as a dual-trained ("hybrid") vascular neurosurgeon? Which aneurysm treatment option do you choose when both microsurgery and endovascular treatment is feasible?

Due to the inclusion of diagnostic catheter-based work the pure number of procedures that is done in the endovascular portion of the practice is significantly higher than in the open procedural aspects of my practice. Due to the recent advances in interventional stroke therapy this practice pattern has been even more pronounced, leading to probably somewhere around 80% to 20% split between endovascular an open door surgical work. At the same time the inclusion of endovascular work allows me to focus solely on vascular diseases and cerebrovascular patience. When it comes to the question of which technique I prefer the answer is the technique that is the least invasive and works efficaciously for a given patient. This does not always have anything to do with the length of the incision - it is important to realize what factors affect patients more over the long run off their deceased episode. For some patients, the duration of travel for follow up visits and further procedures as well as the need to take medications for months and years is potentially more decisive about the modality of treatment than a single surgery day and incision on the head. For other patients, this is the complete opposite and the concern is more about things that to us seem rather cosmetic but can be very important to a patient. This concept of shared decision-making and trying to look at what is the most straightforward and efficacious treatment modality in the long run is the mainstay of my decision-making framework when it comes to deciding between technically equally feasible modalities.

4) What is your opinion regarding endovascular training in Europe based on the increasing number of endovascular cases especially for the treatment of acute stroke? Do you think neurosurgeons should be more routinely trained in endovascular procedures, particularly due to competition from other specialties, such as cardiology or perhaps even neurology?

Neurosurgery in Europe is at an interesting crossroads where a decision has to be made how
much of a role it wants to play in the management of super vascular diseases at large. There are many ways to address the need for care delivery and patient centric teams can be built around a disease process is the way of the future to address all of the needs that can be identified. At the same time I personally do believe that Neurosurgery is in a unique position and superbly qualified to lead the way in this effort and therefore I would encourage colleagues that want to pursue super vascular Neurosurgery for the coming years and decades to assess whether not they would personally benefit from bringing additional skills such as endovascular to the table or whether it is better to play more specialized roll and a larger team takes care of these patients. The debate around this sometime spun in terms of exclusionary principles and being in charge of a certain disease process at the detriment of a different specialty however it is important to note that as long as we look for the best patient centric solution as a guiding principle that this will prevail in the long run as it will always be right to do what’s right for the patient.

5) How do you see the future of vascular neurosurgery and in particular open microsurgery with the recent technical developments such intra-saccular devises (WEB), aneurysm neck bridging devices (eCLIPs) or flow diverter to treat traditionally surgical aneurysm cases?

If anything has been shown to be true is that predictions about the future of a given field have been wrong, along these lines it is probably safe to assume that we have not seen the end of innovation both in the endovascular realm as well as with open surgical modalities. Advances in microsurgical technique and mentally invasive access surgery have allowed us recently to have results that are better perceived by patients and sometimes allow us to discharge patients earlier and overall achieve potential better patient satisfaction with continued excellent results on the inside. Hybrid approaches can also play a role in certain cases. It is also important to note that there will always be cases that are better treated by a rather straightforward and simple surgical solution than a complicated endovascular solution and there are cases that require a surgical solution after a failed endovascular solution in the same way as there are cases that require an endovascular solution after a suboptimal surgical outcome calls for further procedures.

6) If a young resident is thinking about going into vascular neurosurgery and is asking for your advice, what would you recommend?

Figure out what’s right for the patient, identify the problems and the solution that we currently have and work on making those better. This is not necessarily novel or groundbreaking advice but also in general terms has not changed since before the time that I trained. Train with the best people in your field that you can find. Try and work with people that are smarter than yourself and challenge you every day. At the same time given pressures of reimbursement funding and time I would stress that it is better to be collaborative and bringing unique skill sets to the table that cannot be duplicated. At the same time link up with other people that work together in the team. As a surgeon we go through a long and arduous training process to learn how to do surgery which is our core competency and is the unique skill set that we contribute to both clinical and
research driven teams and make us a pivotal points of such collaborations. Become the best surgeon that you can be but at the same time keep an eye open for advances that would threaten the need for a surgeon at its very core and stay ahead of the curve. Learning how to generate the evidence for what we do and demonstrate value for our patients is the basis for our continued raison d’être as a specialty.

Jan-Karl Burkhardt conducted the interview with Clemens Schirmer by email.

Join our EANS Vascular Section Discussion Group and share your cases!

At the vascular section business meeting in Nice I was tasked with setting up a discussion group to allow the electronic discussion of cases. I have done this on an app called MedShr which you can easily download to any mobile device you wish to use for this purpose. There is a short process once you register to confirm your medical affiliation and I hope the links below will make the process seamless.

Click here to join the EANS Vascular Section Discussion Group on MedShr. This is a private group for EANS members to share and discuss cases that we we see and treat in our practice to reflect on our approach and learn from each other.

Please note that when sharing cases you must specify whether it is shared to this group alone or to the wider network using the app. This is straight-forward once you tick the “Share case” button.

The app also has a nice feature allowing a record of consent to be taken on your mobile device.

MedShr is an app and web platform for a global network of over 320,000 verified doctors, physios and other medical professionals to engage in clinical discussion. Starting a case discussion takes just a couple of minutes - a few lines of patient history accompanying an anonymised image or scan (if relevant) are often enough to start a thought-provoking discussion. It is very easy to obtain patient consent and anonymise images in the app as needed. Cases can be shared exclusively with members of the private group or openly on MedShr.

It would encourage you to join the EANS Vascular Section Discussion Group on MedShr from your mobile device so that you can download the MedShr app in the process. Once you are
registered, I would encourage you to share a handful of short cases with the group over the coming weeks. If you need any help getting started and sharing your first cases, please contact rosie.barnett@medshr.net.

Daniel Walsh,
Consultant Neurosurgeon, King’s College Hospital, London
Chair, British Neurovascular Group

Upcoming Events from the Vascular Section

Upcoming Events from the Vascular Section will detail any relevant subspecialty events run by the EANS, any event run by a member of the subspecialty committee, and even relevant events outside Europe, together with a brief explanation why it would be good to attend. We’ll be featuring three events at any one time.

Microsurgery of Aneurysms: Recent Advances
February 26, 2018 — March 1, 2018 St Louise, Missouri, USA

Course Objectives:
Describe the microsurgical anatomy of anterior and posterior circulation aneurysm
Discuss indications and timing of aneurysm surgery. Perform the different approaches to intracranial aneurysms under the guidance of renowned experts
Discuss tips and potential pitfalls during surgery of intracranial aneurysms
Demonstrate different adjuncts to the process of clipping aneurysms; discuss options for bypass in aneurysm surgery.

20% discount for EANS individual members

More information

Microsurgery Course on Vascular Anastomoses
March 5, 2018 — March 8, 2018, Pavia Italy
A practical courses microsurgical course for neurosurgeons, vascular surgeons, plastic surgeons, maxillofacial surgeons and residents, that will be held in our labs under the direction of Rosmarie Frick, the worldwide known teacher of the legendary “Zurich Microsurgery Course”.

5% discount for EANS individual members

More information

ESOC 2018 – 4th European Stroke Organisation Conference

May 16, 2018 — May 18, 2018 Gothenburg, Sweden

More information

For more subspecialty events from the EANS' complete listing, please click here

Copyright © 2017 EANS, All rights reserved.
You are receiving this email because you are a neurosurgeon known to the EANS, and we would like to update you with neurosurgical news and events from the Europe and across the world. To unsubscribe, please follow the links at the end of this email.

Our registered address is:

EANS
Kortrijksesteenweg 1142 Bus 5
Sint Denijs Westrem
Gent 9051
Belgium