The European Society for Vascular Surgery 39th Annual Meeting 2025 Selected Abstracts

We are pleased to present the abstracts from the ESVS 39th Annual Meeting held in Istanbul, Türkiye on 23rd – 26th September, 2025.

This year, we received a total of 585 abstract submissions, of which 358 were accepted for presentation. Each abstract underwent a rigorous review process by at least four reviewers, who scored them across four critical categories: Originality, Scientific Importance, Scientific Content, and Potential, with ratings ranging from 1 (very poor) to 10 (best).

Following the review, the Program Committee carefully selected the abstracts for inclusion based on their total scores and other key criteria. Specifically, 140 abstracts scoring above 26.6 out of 40 were chosen for oral presentations, while 228 abstracts with scores ranging between 26.6 and 21.8 out of 40 were designated for e-poster presentations.

In this document, you will find both oral and poster presentations, identified by their respective codes: abstracts beginning with "O-002" are oral presentations, while those starting with "P-001" are poster presentations.

Only abstracts that were presented at the meeting and for which the authors agreed to publication are included.

Please cite this article as follows:

Surnames and initials of Author(s) of paper. Title of abstract: Abstract number. ESVS 39th Annual meeting in Istanbul, Türkiye, September 2025. Eur J Vasc Endovasc Surg; 2025. DOI. 10.1016/j.ejvs.2025.09.037.

https://doi.org/10.1016/j.ejvs.2025.09.037

Table 1. Patient characteristics and comorbidity	OSR (%)	EVAR (%)	Total (%)
Female	582 (18.4)	538 (15.9)	1120 (17.1)
Male	2576 (81.6)	2841 (84.1)	5417 (82.9)
> 80	340 (10.8)	1093 (32.3)	1433 (21.9)
Diabetes	383 (13.3)	448 (12.1)	831 (12.7)
Hypertension	1919 (60.8)	2067 (61.2)	3986 (61.0)
COPD	840 (26.6)	1004 (29.7)	1844 (28.2)
Cerebrovascular disease	324 (10.3)	490 (14.5)	814 (12.5)
Cardiac disease	1173 (37.1)	1622 (48.0)	2795 (42.8)
Atrial fibrillation	302 (9.6)	576 (17.0)	878 (13.4)
Current smoker	1150 (36.4)	866 (25.6)	2016 (30.8)

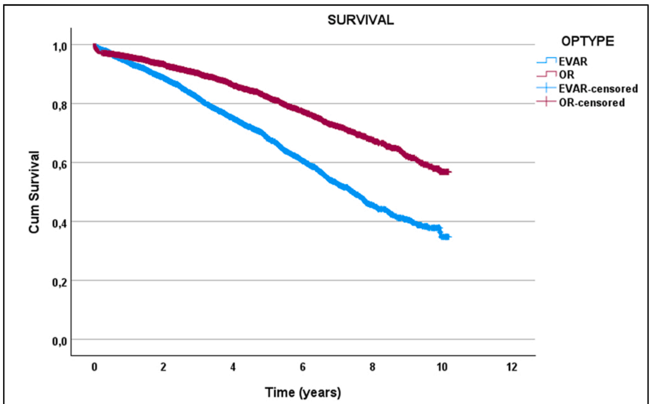

Figure 1: Long-term survival after OSR and EVAR

Conclusion: Population-based data for long-term survival after EVAR and OSR for asymptomatic AAA in Norway 2015-2024 show a significant association between the operation method and long-term survival. It is obvious that much of this difference is due to selection bias, however, the regression analysis suggests that EVAR is a risk factor, associated with poorer long-term survival. 30-day mortality is higher after OSR, but the short-term survival benefit is minimal. Survival curves cross after 1-2 years, and after 6 years, survival in the OSR group is about 20 % higher. Even though much of this difference is likely due to selection bias, the results of this study support a policy where OSR is preferred in suitable patients with life expectancy of more than 10 years, as there is not much to win in terms of perioperative mortality by increasing the proportion of EVAR.
Disclosure: Nothing to disclose.

P-108

Comparison of Manual versus Fully Automatic AI-based Detection of Small Diameter Changes in Abdominal Aortic Aneurysms

AAA - Abdominal Aortic & Iliac Aneurysm

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Introduction: To this day, aortic diameter remains the main parameter used for diagnosis, clinical decision making, and surveillance of abdominal aortic aneurysms (AAA). However, diameter measurement has some limitations, such as high inter- and intra-observer variability and poor ability to detect small changes. This study aimed to evaluate the ability to manually detect AAA maximum diameter (Dmax) enlargement and compare it with a fully automatic method.
Methods: Ten sets of initial and follow-up abdominal and pelvic CTA scans from 10 patients with AAAs (totaling 20 CTA image series) were used. An expert examiner performed diameter measurements in all scans using 3D reconstruction, and these measurements were further used as the ground truth. 14 specialists (10 vascular surgeons, 2 vascular surgery residents and 2 interventional radiologists) measured maximum diameter (mm) of the abdominal aorta based upon their standard practice. Cases for measurement were presented in a random order. Time consumption (s) for each measurement was recorded as well. Aortic diameters in all cases were also calculated automatically using the EndoArt artificial intelligence (AI) algorithm. The ability to detect diameter enlargement in follow-up images was compared between specialists (manual measurements) and the AI algorithm.
Results: In total, 280 manual measurements were made. Time consumption for manual diameter measurement ranged from 12 to 172 seconds per case, with an average of 48 seconds. A good agreement among observers was found (intraclass correlation = 0.878). However, in 47 out of 280 measurements (16,8%), specialists failed to detect a diameter increase or even measured smaller maximum diameter in follow-up images. Despite individual errors in detecting size changes in certain cases, a mutual trend of measuring a smaller Dmax in follow-up images was observed in 2 out of 10 cases. Meanwhile, the AI algorithm accurately detected diameter enlargement in all cases.
Conclusion: Manual maximum diameter measurement is not completely accurate in detecting small aneurysm size changes. Whereas in this study, the AI algorithm demonstrated superior performance, correctly identifying size changes in 100% of cases. These findings highlight the importance of implementing automatic aortic segmentation tools into clinical practice to enhance measurement accuracy, reduce human error, and optimize surveillance strategies for aneurysm progression.
Disclosure: Nothing to disclose.

P-109

Artificial Intelligence and Wearable Technology for Early Deep Vein Thrombosis Diagnosis: An Ongoing European Project

Vascular Imaging / Diagnostic

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Introduction: Deep vein thrombosis (DVT) is a condition in which blood clots form in deep veins, typically in the lower limbs, obstructing blood flow. In 50% of cases, these clots can dislodge and cause pulmonary embolism, which can be life-threatening. The challenge in diagnosing DVT lies in the fact that up to two-thirds of

cases present no symptoms, making early detection difficult. Current diagnostic methods, such as ultrasound imaging, require trained operators and do not allow continuous monitoring.
Methods: The ThrombUS+ project aims to revolutionize DVT detection through a wearable, AI-powered diagnostic device that enables continuous, point-of-care monitoring for high-risk patients. This novel device integrates:

- Wearable ultrasound technology for real-time vascular imaging
- Impedance plethysmography to assess blood volume changes
- Light reflection rheography to monitor clot formation

The project, supported by Horizon Europe Innovation Action, runs from January 1, 2024, to June 30, 2027, with funding of 9.5 million euros and 18 partner institutions across Europe and the USA.
Results: So far, the ThrombUS+ project has successfully developed a prototype of the wearable device and has begun four clinical studies to validate its effectiveness.
1. Study A (Ongoing): This study is collecting labeled ultrasound images and plethysmography signals from 3,000 patients undergoing routine DVT scans to train AI models. Image analysis will be implemented via a convolutional neural network based on the U-Net architecture.
2. Study B (Ongoing): This study has the aim to collect and create labelled ultrasound and plethysmography image data sets from patients that undergo routine ultrasound scans because of suspected deep vein thrombosis and will test the first prototype against conventional DVT detection methods.
3. Study C: A controlled, double-blind trial with 150-200 patients will assess the wearable device's design, safety, sensitivity, patient acceptability, functionality, and software usability against traditional ultrasound.
4. Early Feasibility Study: A trial involving 50-100 post-surgical patients to evaluate the device's design, safety, usability, and patient acceptance before wider clinical trials.
Conclusion: The ThrombUS+ project represents a groundbreaking shift in DVT detection, moving from operator-dependent diagnostics to AI-driven, wearable, and autonomous solutions. By combining innovative ultrasound technology, artificial intelligence, and real-time monitoring, this project has the potential to transform DVT management, making early detection more accessible, efficient, and life-saving.
Disclosure: Nothing to disclose.

P-110

Improving an Automated Histological Segmentation on Micro-Computed Tomography Images of Atherosclerotic Arteries

Vascular Imaging / Diagnostic

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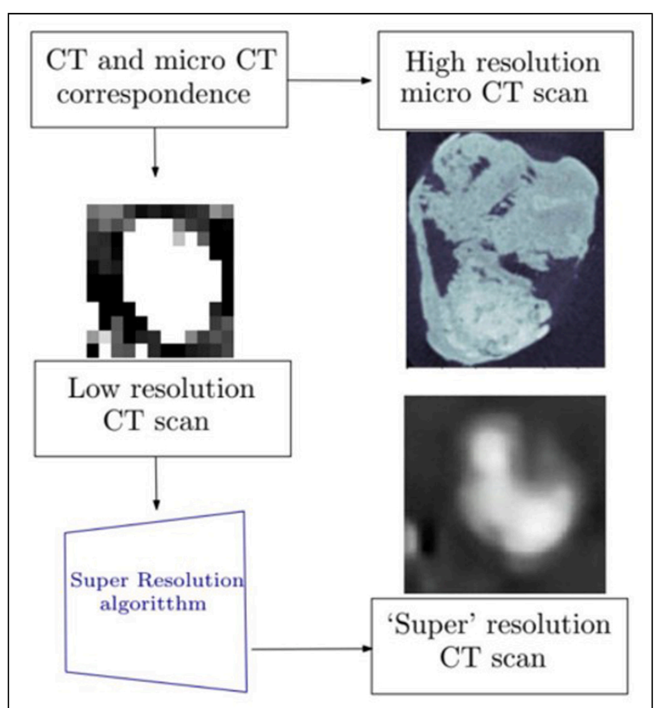
Introduction: Peripheral arterial obstructive disease (PAOD) is a prevalent cardiovascular condition associated with significant morbidity, mortality, and lower limb amputations. Plaque characterization should be critical for determining the appropriate treatment strategies, yet current non-invasive imaging techniques often lack sufficient resolution.

Atheromatous plaques can be classified roughly in three categories: calcified (≈ 70%), fibrous (≈ 20%), and lipid (≈ 10%).[1] There is little non-invasive imaging method that can accurately differentiate lesions. The analysis is usually based on the pre-operative computed tomography angiography (low-resolution images), but there are high-resolution scanners that allow a quasi-histological analysis of the tissue. Using micro-computed tomography (micro-CT), we reached the ability to differentiate those three lesions.[2]
This study aimed to assess the feasibility of using micro-computed tomography (micro-CT) and deep learning models for histological segmentation of atherosclerotic plaques in the femoropopliteal segment.
Methods: Super-resolution (SR) techniques to enlarge scanner images from 12×12 to 96×96 pixels were employed. Post-processing was applied to remove noise, and the SR-CT images were visually and statistically compared to the micro-CT images for medical interpretation. Three and later four histological classes were considered background, nodular calcification, plaque calcifications and soft tissue. U-Net and Probabilistic U-Net models were used to segment calcifications in these SR-CT images.
Results: When three classes are considered (background, nodular calcification, and plaque calcifications), the Dice scores were 0.77 for background, 0.60 for nodular calcifications and 0.59 for plaque calcifications with the U-Net model. Dice scores were 0.72 for background, 0.62 for nodular calcifications, and 0.61 for plaque calcifications with the Probabilistic U-Net model. When four classes were considered, the Dice scores were 0.60 for background, 0.63 for soft tissue, 0.58 for nodular calcifications, and 0.60 for plaque calcifications with the U-Net model. Dice scores were 0.62 for background, 0.64 for soft tissue, 0.58 for nodular calcifications, and 0.67 for plaque calcifications with the Probabilistic U-Net model.



Conclusion: The results demonstrated that automated segmentation using micro-CT is both accurate and reproducible, offering a valuable tool for 3D plaque characterization. Although challenges