The CX Vascular Imaging Course reviewed latest imaging modalities used in the diagnosis and management of vascular disease yesterday. Delegates were shown data and practical application of technologies such as 3D central line, imaging required for complex branched and fenestrated procedures, MRA and duplex ultrasound which is increasingly used in office-based vein practice.

The CX Vascular Imaging Course director is Stephan Haulon, Lille, France.

"Imaging using current methods has attracted increasing attention in recent years for playing an important role in planning the delivery of vascular care," Rachel E Clough, London, UK, told delegates. In the session ‘Overview of vascular imaging modalities’, she claimed that magnetic resonance imaging has advantages over CT.

"Computed tomography provides a fast and non-invasive method of gathering anatomical information over large fields of view, and in many centres forms the mainstay of both pre and post procedure imaging. MRI, however, is able to provide detailed cellular, molecular, tissue and organ functional and anatomical information in a single non-ionising examination and represents a rapidly expanding area of innovation and technology research,” Clough said.

She stated that, over the past century, medical care has been based on standards of care derived from epidemiological studies of large cohorts. “However, large cohorts do not take into account the variability of individuals within a population. Magnetic resonance imaging may provide an objective basis for consideration of such differences and a method for tailoring individual patient care,” Clough concluded.

The programme included consensus on TIA/Stroke guidelines which both place great emphasis on CEMRA for first line or confirmatory imaging. As carotid duplex can only directly image the carotid bifurcation in order to identify those who would benefit from intervention and exclude alternative sources of emboli, CEMRA can easily be added to the work-up of patients requiring carotid intervention; UK guidelines favour DWI MRI brain imaging for these patients and an MR angiogram can be added to the imaging paradigm without unnecessary fuss. Such imaging will confirm the degree of stenosis well and exclude alternative sources of emboli.

Most active stroke units currently have access to such imaging and it is no longer feasible to argue that such ‘sophisticated’ tests delay time to intervention,” she said.

In the abdominal aortic aneurysm session, Jesper Swedenborg, Solna, Sweden, spoke about imaging for rupture risk.

Currently treatment for abdominal aortic aneurysms is largely based on the maximum diameters measured on the CTA data of the patient although sometimes the surgeon has additional patient information which motivates an earlier intervention. Particular with the reduced risks associated with minimum invasive surgery, the most relevant question is when to operate the individual patient. Both the location of the weakest area within the aneurysm and the individual Peak Wall Rupture Risk (PWR) are parameters which have been included in different clinical studies and are available in a new software programme from Vascope called A4clinics.

One study performed by Swedenborg has used the software to investigate the correlation between the PWR and maximum diameter.

According to Swedenborg it is clear that the decision when to operate can be motivated by the absolute value of the PWR together with the location of the area at risk. Highest values at the anterior part of the aneurysm have to be considered as urgent as survival rate outside the hospital is very low compared to posterior aneurysm ruptures.

"This value is an accurate assessment which can be determined on existing CT data objectively without the expert knowledge of complex mathematical models like Finite Element Models," said Swedenborg. "This PWR value is calculated in a robust and timely manner, which fits in our busy clinical routine,” he added.

According to a survey of Vascope data, it seems that more than 15 % of the abdominal aortic aneurysms smaller than 5.5cm in male patients will have a higher PWR value than the value associated with 5.5cm