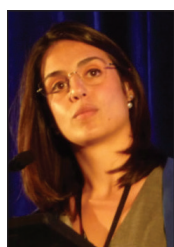


AN INTERVIEW WITH...

# Sarah Onida, BSc, MBBS, MRCS, PhD

Insights on the pathway to vascular surgery, data-driven decision-making in the superficial venous field, metabolic phenotyping for venous disease, the COVER study on vascular practice during the pandemic, and much more.



**To start, can you share why you chose vascular surgery and how you came to your current role of Clinical Lecturer at Imperial College London?**

The first operative case I ever observed was a laparotomy during a work experience placement. Surgery enthused me, and I knew that a surgical specialty was likely to be a career path of interest to me. Over the years, I became increasingly fascinated by detailed, methodical surgery; this was one of the factors that drew me to cardiac surgery as a medical student and vascular surgery during my early training as a junior doctor. The breadth of pathology, the ability to intervene in different areas of the body, and the presence of supportive mentors who inspired me during my rotations led me to choose a career in vascular surgery.

Vascular surgery is a highly academic specialty and trainees are encouraged to undertake a formal period of research. The year after attaining my vascular surgery national training number, I decided to undertake a higher degree at Imperial College London (a unit where I had already worked during my earlier training years) to develop my academic skills. My PhD was on the subject of the metabolic phenotyping of chronic venous disease; although this was a basic science project, I was also exposed to outcomes research, clinical trials, and epidemiological research during my PhD. This experience inspired me, and I enjoyed academic activities such as grant writing, supervision, and following through a longer-term stream of work. After my PhD, I decided to continue being involved in academia and applied for a National Institute for Health Research Clinical Lecturer position, which is a structured post that provides both clinical and academic time during the vascular training (or residency) years.

**Is there a particular aspect of your work with the Vascular Science Network at Imperial College that you are most proud of?**

The Vascular Science Network at Imperial College was set up to promote collaboration between researchers interested in vascular research and vascular biology, as well as to promote novel research streams. Much of the work the network performs pertains to high-quality, robust, innovative translational research that aims to bring innovation from the laboratory bench to the patient bedside and covers areas such as thrombosis and hemostasis, heart and vessel wall structure, novel imaging modalities, and biomarker development for vascular conditions ranging from vasculitis to venous ulceration.

Being based in the Section of Vascular Surgery, I am very fortunate to work in a unit that has such breadth and depth of research opportunities. I am proud of all the work the department performs, ranging from basic science (deep venous thrombosis, chronic venous disease, diabetic foot ulceration, limb ischemia) to the epidemiology of different vascular presentations to clinical trials. I am particularly enthused by the metabolic phenotyping research stream that has developed over the years and is the focus of my research. I think this has the potential to make a real impact on the care of patients with venous and vascular disease in the longer term, particularly in patients with chronic ulceration.

**From your doctoral thesis in 2017 to more recent published studies, understanding the pathophysiology and progression of venous disease through biomarkers has been one of your main areas of research. Can you briefly summarize how you apply metabolic profiling**

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**to venous disease? Why was this subject of interest to you, and where would you like to focus further research on this topic?**

Metabolic phenotyping is relatively novel technology that permits examination of the biochemistry of a given sample (tissue or biofluid) to a level of detail unattainable with other analytical approaches such as genomics, proteomics, or transcriptomics. It provides us with information on the end products of cellular metabolism, therefore detailing what cellular processes are occurring, as opposed to informing us of what might occur, which is information provided by alternative omic disciplines. Metabolic phenotyping has mainly been employed in cardiovascular disease and in cancer, although preliminary work in venous disease has demonstrated its applicability.

The main applications to venous disease are twofold: it allows better characterization of the mechanisms of disease (whether in superficial and/or deep venous pathology), ultimately improving our understanding of disease pathophysiology, and it may change patient care by permitting the identification of diagnostic/prognostic biomarkers and biological pathways that can be acted upon for therapeutic purposes or personalization of patient management. As such, the studies center around a better understanding of disease biology while still maintaining a translational focus to develop applications for patient benefit.

This is a very novel, exciting field where much is yet to be discovered. Having the opportunity to work closely with, and be mentored by, experts in this field has been inspiring and greatly developed my interest during my PhD and clinical lectureship. Moving forward, I aim to focus further research on venous leg ulceration and wound biology in general, an area that urgently requires improved management.

**Have you seen any improvement in the effectiveness of data-driven decision-making (DDDM) in superficial venous pathology since bringing attention to the importance of it in 2017?<sup>1</sup> What needs to be done to ensure that venous care recommendations are assessed with this approach?**

I have seen increasing awareness of the importance of DDDM in the venous field, including in superficial venous pathology. Practitioners recognize the need for evidence-based practice and understand that it should rely on the availability of well-designed, high-level evidence. In addition, practitioners are also increasingly

aware of shortcomings in level 1a/b data, including issues with study design and the generalizability of study results to the general patient population.

Our department has previously highlighted the heterogeneity of different venous care recommendations,<sup>2</sup> which is often due to differences in the way these are developed. Moving forward, it is important that recommendations are developed according to robust methodology; furthermore, there must be an improvement in the pathways to communicate such recommendations to those managing and caring for patients with venous disease on a daily basis. The practitioners who are most aware of such recommendations, and are therefore following DDDM, are usually most engaged with the scientific community, attend conferences, and remain up to date with the latest literature. The concern is that there may be a large group of individuals who care for patients with venous pathology but are not aware of or following DDDM. Measures to promote guideline and evidence awareness need to be improved, particularly for conditions managed by different members of the multidisciplinary team.

**Earlier this summer, your team published the results of a survey on venous leg ulceration referral and management post-EVRA trial in Phlebology.<sup>3</sup> What were your most surprising takeaways from the survey, and what do you think is needed to change practice overall?**

The survey aimed to assess standards of referral and management of patients with venous leg ulceration in primary care following the publication of the EVRA study. The survey highlighted that referral patterns and pathways for patients with venous leg ulceration were variable and that there was an important proportion of practitioners who wished to refer patients with venous leg ulceration to secondary care early but could not due to barriers such as local referral pathways, training, and time restrictions. Furthermore, an important proportion of practitioners (approximately 60%) were not aware of the recommendation for referral within 2 weeks. This survey highlighted some of the barriers affecting the adoption of the EVRA study findings in the community.

This links to my previous point regarding DDDM. We may be driven by high-quality data, but if we are unable to enact their recommendations, the data will have limited impact on improving patient care. Changing practice is challenging because it is influenced by a number of factors, particularly in pathologies man-

aged by different health care professionals: practitioner knowledge of existing recommendations, local referral setup in the community, and ease of access to secondary care, among others. To change practice, it is important to clearly characterize existing barriers for patients and primary care practitioners and potentially develop a revised pathway to help prioritize venous leg ulcer patient assessment and management. This is an area of work that the Section of Vascular Surgery at Imperial College London is currently developing.

**On the subject of venous ulceration, what is your process for determining a patient's optimal intervention strategy, given that there isn't always a clear pathway for patients with leg ulceration?**

In our unit, patients with venous leg ulceration are assessed by a vascular surgeon and investigated with venous duplex ultrasound and ankle-brachial pressure index. The decision regarding optimal intervention strategy is influenced by a number of factors, including ulcer etiology, presence of underlying superficial and/or deep/perforating reflux, presence of obstruction, subulcer plexus, chronicity, and infection. Each patient is assessed on an individual basis, and intervention is offered based on the results of the assessment and patient preference.

This may include endovenous ablative techniques such as thermal, mechanochemical, and chemical ablation; compression therapy; and, in some cases, debridement and skin or decellularized dermis (DCD) grafting. DCD application is currently being assessed as part of the randomized controlled DAVE trial, which is comparing DCD to standard care in patients with ulceration secondary to underlying venous insufficiency.

**The Vascular and Endovascular Research Network (VERN) Executive Committee, which you are a part of, is aiming to capture global data on vascular practice during the COVID-19 pandemic via the COVER study. How did this study come about, and how do you intend to use it for the benefit of the current and any future public health crises? Are there any trends you are seeing so far that you can share?**

VERN is a multidisciplinary research collaborative aiming to advance vascular research. When it became apparent that the worldwide pandemic would heavily impact clinical and operative practice, VERN recognized the need to document this impact globally and describe

how the pandemic would affect patient care, clinical management, and training.

The COVER study is a global, prospective, mixed-methods cohort study.<sup>4</sup> It is a collaborative effort comprising 251 centers across 53 countries. The study is split into three tiers that aim to document: (1) the changes in vascular service delivery internationally using an online survey (thresholds for treatment, screening, staff redeployment); (2) all vascular and endovascular interventions performed across a 12-week period during the pandemic and their outcomes; and (3) changes in how patients presenting with any vascular pathology during the pandemic were managed, including patients with and without COVID-19. Importantly, the study recognizes the dynamic nature of the pandemic worldwide and can quickly adapt to collect additional information when needed. Data from the United Kingdom, Europe, and elsewhere have been analyzed, with ongoing data capture in other areas of the world that are currently affected by the pandemic (eg, Brazil).

Tier 1 data have been published and highlighted a marked reduction in operative work and vascular services offered to patients, such as screening programs and outpatient clinics.<sup>5</sup> This information is already guiding policy decision-making in the United Kingdom and is regularly being presented to the United Kingdom government. Future work will aim to analyze medium- and long-term data for operative and nonoperative patients. Analysis of tier 2 and 3 data is currently underway and we will soon report on in-patient mortality for > 1,000 patients who underwent vascular procedures during the first wave. Importantly, COVER follows the VERN collaborative authorship model, with all collaborators named on manuscripts as authors.

The results of the COVER study will help us understand the impact of COVID-19 on vascular service provision, patient management, and outcomes in multiple countries at different stages of the pandemic. These data will be invaluable in informing the development of measures to help mitigate the impact of future peaks and/or pandemics on patients, staff, and the health care service.

**If you could develop a societal guideline for one aspect of venous disease, what would it be and why?**

Numerous societal guidelines recommending evidence-based approaches in the assessment and management of patients with venous disease already exist, so there is arguably limited scope in the development

of a further societal guideline. Despite this, guidelines developed by different societies may have differences in their key messages, leading to confusion and inconsistent recommendations. This has been an issue with venous leg ulceration guidelines,<sup>2</sup> where management is diverse and can center around compression, wound care, and intervention. Despite the presence of guidance, venous ulceration remains a significant issue and cause of morbidity and health care service budget expenditure.

Part of the issue is how the guidelines have been developed. Venous ulceration is a condition managed by different members of the multidisciplinary team, with different assessment and management algorithms based on which primary health care professional is responsible for the patient's care and limited overlap between the responsibilities of the multidisciplinary team members.

A global intersociety guideline on the assessment and management of these patients including key information on the importance of early recognition of venous leg ulceration, referral, management principles, and promotion of patient and health care professional education would be welcome to help unify the management approach and clarify the importance of factors such as early referral. For this to be successful, it is important that all relevant stakeholders are represented in the guideline development group—including, and most importantly, patients. ■

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