AN INTERVIEW WITH...

Anna Prent, MD, MSc, FEBVS, FRCS

Miss Prent talks about why she chose vascular surgery, how she risk stratifies female patients with TAA, factors she considers for type I endoleak management, her deep venous course, and working in the ICU during COVID-19 at Royal Free Hospital, and more.

Was it always your goal to be a vascular surgeon, or did you consider other career paths? What drew you to vascular surgery specifically?

Born into a family of doctors, medicine was an obvious career path. On the other hand, my dad was a photographer and came from a more creative family of architects, artists, and writers, so art history was my other option. In the end, I decided to study medicine, as art and photography can be a hobby, and medicine cannot. My grandfather and mother were neurologists, and brain tricks fascinated me throughout my studies. However, during my internships, Prof. Marcel Levi recognized that a surgical specialty might be a much better fit for me. In the Netherlands, you train as a general surgeon first, which includes trauma, oncology, and vascular. During those years, I was particularly drawn to vascular surgery because the vascular consultants were brilliant teachers. No one else in my group wanted to do vascular, so all the training lists were mine. I was interested in the complexity of the patients, the introduction of hybrid and endovascular options, and all the technology that comes with it. At present, I work as a vascular surgery consultant at the Royal Free Hospital; as for my other passion, I study art history at the London Art Institute.

In a *Journal of Vascular Surgery* publication, you and your colleagues compared outcomes after endovascular thoracoabdominal aortic aneurysm repair in women versus men and concluded that there is increased early mortality in women.[1] How do you personally risk stratify female patients for potential endovascular thoracoabdominal aneurysm (TAA) treatment?

The rationale for examining women undergoing aortic aneurysm repair relates to their perceived increased risk of access complications, mortality, suitability for standard endovascular aneurysm repair (EVAR), and rupture risk scaled to maximal aneurysm diameter and body size.[2] Women who are fit for surgery have more proximal aortic disease, with higher proportions of Crawford type 1, 2, and 3 aneurysms. The increased perioperative mortality in women undergoing fenestrated or branched EVAR for extensive aneurysmal disease suggests that women should be risk stratified based on interventional complexity, including operative time, access site use, and difficulty of target vessel interventions. These observations suggest that women with complex proximal aortopathy and multiple comorbidities require in-depth discussions of their risk. I risk stratify all patients for extensive TAA repair with the help of our complex preoperative multidisciplinary team of cardiologists, respiratory physicians, and anesthesiologists. We consider access, anatomy, comorbidities, smoking, and frailty. Patients are referred to our prehabilitation program for 6 weeks, where they improve their strength, get help with smoking cessation, and receive dietary advice. In the end, it comes down to shared decision-making with the patient, adding up the pros and cons. If access vessels are too small, we decide on a conduit as a first stage. Fortunately, survival up to 3 years is no different between men and women, and women have low reintervention rates and favorable reductions in aneurysm size over time. Finally, turning a patient down for surgery for the right reasons is one of the most robust risk management actions a clinician can take and is part of good clinical practice.

You've spoken about the necessity of "tailor-made" treatment for type I endoleak due to potential for secondary sac perfusion and rupture. How does this work in practice when you encounter a patient with type I endoleak? What factors do you consider?

When you encounter a patient with a type I endoleak after EVAR, you have three options: (1) open surgical repair, (2) endovascular salvage, or (3) medical palliation. Determining the most appropriate strategy involves aortic morphology, available interventional options, fitness, and comorbidities of the patient at the time of failure. Open repair and explantation of the failing device is still the gold standard but is often not an option given that in most cases, the patient underwent EVAR because they were not fit for open repair. The sort of endovascular conversion all depends on the anatomy and can range from EndoAnchors (Medtronic) or a simple proximal cuff to improve graft

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alignment in the infrarenal aorta to creating a more proximal sealing zone with chimneys or a customized fenestrated conversion. When you need more proximal seal, the chimney and cuff is an off-the-shelf, relatively easy technical solution at your immediate disposal. The downsides of this technique are the feared gutters and the high incidence of reinterventions (18%-22%).[3] The fenestrated proximal extension seems the most promising endovascular conversion but has its own limitations. Because it is custom-made, it is expensive and construction takes time. Also, it is a technically challenging procedure done in centers of expertise, and the long distal end can limit their use as a salvage option. Patients need tailor-made treatments that suit their personal/anatomic features, with the goal of having the stent conversion outlive the patient.

Can you tell us about the deep venous course you organize at the Royal Free Hospital? What are the most important principles to teach in this area?

Mr. Chung Lim and I did a venous fellowship at Guy's and St Thomas' Hospital and were trained by Prof. Stephen Black. When we started at the Royal Free Hospital, we formed a deep venous team of three vascular surgeons, an interventional radiologist, and a hematologist. The workshop consists of 2 days: 1 day of teaching about the basics in deep venous disease and treatment and 1 day of cases demonstrated in the surgical theater. Patient selection (who not to stent) is very important, especially in a still-developing field. Technique and technology are evolving fast, and there are still a lot of unanswered questions that need further research. Overall, the three key points for iliac vein stent patency are inflow, stent choice and placement, and, last but not least, anticoagulation. To avoid compromising the inflow, we never gain access in the groin but rather use the mid-thigh femoral or internal jugular vein. During the procedure, we use intravascular ultrasound to ensure our landing zones are accurate. To prevent early stent occlusion, we ensure patients have compression stockings and, during and after the procedure, Flowtrons (Arjo). We also work closely with the hematologist, who provides a personalized anticoagulation plan.

In an article published this year in *Annals of Vascular Surgery*, you and colleagues noted the connection between postoperative delirium (POD) and vascular surgery.[4] What do you think should be done to combat this issue in high-risk patients?

Vascular surgeons generally treat patients who are old and frail with many comorbidities. It was no surprise that we found that POD after vascular surgery is a frequent complication (range, 5%-39%), and effect-size pooling supports the concept that delirium is a heterogeneous disorder. The following preoperative risk factors were identified: age, hypertension, diabetes mellitus, hearing impairment, history of cerebrovascular accident or transient ischemic attack, renal failure, and preoperative low hemoglobin. We monitor hemoglobin during preoperative assessment and make sure that the patient receives blood transfusions or iron infusions before surgery. The rest of the risk factors cannot necessarily be fixed pre- and intraoperatively, but you can create awareness. Independent of the tool used, the goal is to preoperatively identify patients at highest risk for developing POD. For high-risk patients, special programs to reduce the incidence and duration of POD can be initiated, such as in-hospital geriatric medicine consultation; attention for active visual, hearing, and cognitive impairment; preventing unnecessary immobility; and maintaining a normal sleep/wake cycle. Also, recent studies have shown that a prehabilitation program, including interventions to improve patients' physical and mental health preoperatively, can decrease the incidence of POD.[5]

You've spoken about your experience working full-time in the intensive care unit (ICU) at your hospital for much of the pandemic. What were your main takeaways from that experience?

Working in the ICU during COVID-19 has been intense. During the first and second surge, surgeons at the Royal Free Hospital were unable to do their normal work due to lack of hospital and ICU beds, and we formed one big team to help out wherever we could. In the second wave, Miss Meryl Davis and I coordinated the proning and lines teams. It was hard work physically and mentally, but it was also gratifying. Working with so many different specialties, not only surgical but also general practitioners and obstetricians ranging from professors to medical students, has helped build a stronger team that communicates better now that we know each other. Being able to contribute in a time like this, even if it had nothing to do with what I'm trained for, was very fulfilling and showed me again how essential it is to work as a team and not as an individual. Because no visitors were allowed, we also were involved in patient liaison, which is the most difficult part of this pandemic in my opinion. Setting up video links for family and updating them about their relatives was heartbreaking from time to time but so appreciated by the family.

What do you think is the biggest difference between working as a vascular surgeon in the Netherlands, where you trained and started your career, versus London, England, where you work now?

The Netherlands is a small country with smaller patient groups, distances between hospitals are shorter, and we have not centralized our vascular care as much as in the United Kingdom (UK). As a result, the vascular surgery

department usually consists of three or four surgeons versus 10 to 15 in the UK. It is a section of the general surgery department, which has joint handovers, joint trainees, and a joint voice in the hospital board. The trainees in the Netherlands all start out in general surgery, and after 4 years, you choose your subspecialty. I believe this to be the biggest difference between the Netherlands and the UK. As mentioned before, the number of patients is smaller too, which was one of the main reasons why I went to the UK—to gain experience in complex aortic and deep venous interventions in high-volume centers. Other small differences are in what we wear (white coats instead of suits, no wedding bands or jewelry in theater), no male/female bays on the ward, and the strict line between the theater complex, which you must enter through the changing room only in scrubs, and the rest of the hospital. However, the practice of vascular surgery is the same, and there is great value in having a good scrub nurse who gives you what you need and not what you ask for.

On social media and in a talk with the Association of Women Surgeons, you've described your love of travel and clay shooting, the latter of which you compete in. What do you love most about each of these? Why is it important to build time for hobbies and interests?

Despite more women enrolling in medicine, we do not see this trend progressing in the surgical specialties. I'm proud to say that the Royal Free vascular department has four female vascular consultants, one of whom is a professor and one the Vice President of the Royal College of Surgeons. This is an exception, and we are still only 28%. I try to be a role model who inspires women to not settle for less and give them the confidence to grow in a system with a glass ceiling and to hopefully one day break through it. One of my tips during my coaching sessions is the importance of a life outside of the hospital. Your work is never done, and the pitfall is to basically never go home. To stay mentally and physically strong, you need to find a balance. If all you have is work and, for instance, your patient gets a major complication, you have a disagreement with a colleague, or your article is rejected, all of a sudden your whole world falls apart. If you have other things that give you a positive feeling, it will make you more resilient and stronger to cope with the hard things at work we all encounter. Clay shooting does that for me; practice training and improving my personal best gives me a goal, and when I see my scores go up and the clays break to dust, it gives me a boost. Taking regular breaks and traveling the world for me is important too. The world is a beautiful place, and by traveling, I can immerse myself in different cultures and nature. ■

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