

EDITORIAL

History and Evolution of Vascular Surgery in Sri Lanka: The Journey and Ongoing Challenge

The journey of vascular surgery in Sri Lanka has been a remarkable story of evolution to its current state, amidst the complexity of social, logistic, and financial constraints. In essence, it is a journey of transformation from conventional basic surgery to extreme efforts at reconstruction and salvage, achieved in a resource limited setting, through sustained improvisation, perseverance, and discipline.

PRE-WORLD WAR II

The earliest records, from Ceylon, as it was called at the time, are of arterial trauma with outcomes synonymous with primary amputation. The first documented systematic account of vascular disease appeared in R.L. Spittel's *Essentials of Surgery*,¹ describing peripheral and pulmonary thrombosis, aneurysms, and varicose veins, albeit with no data on actual treatment. Isolated case reports followed, including symmetrical peripheral gangrene with hypotension, possibly a missed saddle embolus (S. De Silva, 1939), and a popliteal pseudoaneurysm caused by perforation from a bony exostosis,² among others.

POST-WORLD WAR II

Records from this period were predominantly of thromboangiitis obliterans (TAO), first described locally by Joseph in 1955.³ It described the disease affecting young men, heavy smokers addicted to hand rolled local cigarettes (beedi), with distal gangrene and intractable rest pain. These young men invariably ended up with amputation, with surgeons often abandoning attempts at salvage, and eventually vascular surgery altogether, owing to poor outcomes. Kradjian and colleagues from the visiting American "Hope ship" published the first indexed paper, describing this high prevalence of TAO with Asian cigarette use.⁴

The turning point in vascular care came with A.H. Sheriffdeen, considered the father of vascular surgery in Sri Lanka, joining the Colombo Medical Faculty in 1968. Having trained under eminent surgeons such as Harold Ellis, Eastcott, and Mansfield, he returned to Sri Lanka carrying donated grafts and sutures to embark on a journey of re-igniting vascular surgery. He introduced arterial reconstructions and found encouraging results, coinciding with the turning epidemiological tide where atherosclerotic disease became the predominant pathology over TAO.⁵

Parallel developments unfolded in Kandy, where Channa Ratnatunga brought back expertise gained during his time in London to establish a vascular service in the Central Province. He maintained a detailed log, imaging and dissecting amputated limbs to map the distribution of occlusive arterial disease. His audit of 1503 patients earned him the prestigious Royal College of Surgeons' Moynihan Lecture in 1995, describing the more proximal lesions (femoropopliteal disease) in patients originally thought to have TAO.⁶

1980–2000

Through the 1980s the two centres, Colombo and Kandy, thrived with increasing numbers of arterial reconstructions, vascular trauma, and open aneurysm repair.

The 1990s were defined by three distinct developments. Firstly, a rapid surge in vascular trauma seen with the ethnic conflict in the country. This resulted in large numbers of high velocity injuries being successfully managed by the trauma services. These complex injuries and the experience gained in successful salvage resulted in Sri Lanka being awarded authorship of the Asia chapter in *Rich's Vascular Trauma*.⁷ Second was the rapid development in imaging with the introduction of colour duplex in 1997. This revolutionised the diagnostic and surveillance protocols through surgeon performed duplex imaging. This was a true turning point, with all vascular surgical trainees to follow being independently competent in duplex scans for arterial, venous, and carotid disease. Thirdly, and perhaps most emphatic, was revascularisation of ischaemic diabetic foot ulcers, hitherto labelled unreconstructable. From 1994, Mandika Wijeyaratne pioneered distal and ultradistal bypass to the tibial and pedal vessels in diabetic feet with infrapopliteal disease. This paved the way for a generation of surgeons who have continued that legacy and made Sri Lanka a hub for distal revascularisation, transforming occasional success into routine limb salvage.

POST-MILLENNIUM

Dedicated postgraduate training in vascular surgery began in 1998 under the Postgraduate Institute of Medicine. The first specialised vascular unit was established at the National Hospital of Sri Lanka in 2004, with a structured training programme involving two years of local advanced training followed by a further two years of overseas fellowship in a recognised vascular centre, before board certification. The experience gained during these overseas fellowships is integral to the steady progress of vascular

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services locally, bringing back valuable expertise and establishing crucial connections with international centres of excellence.

This period was defined by progressive growth in the specialty with more trainees pursuing vascular surgery. The volume of open arterial reconstructions kept growing with increasing awareness regarding the possibility of limb salvage rather than amputation. It culminated in a landmark 2020 report on clinical outcomes following lower extremity bypass for chronic limb threatening ischaemia (CLTI).⁸ In a cohort of 367 patients, the study reported a peri-operative mortality rate of 4.5% and amputation rate of 3.7%. At 12 months, survival, limb salvage, and amputation free survival were 82%, 81%, and 65% respectively. This was the first report from a lower middle income, resource limited setting to demonstrate the outcomes of vein bypass in CLTI, matching the US National Surgical Quality Improvement Program (NSQIP) benchmark.

Open aortic aneurysm surgery matured in parallel. A single centre series of 79 consecutive infrarenal aneurysm repairs (2004 – 2010) showed a peri-operative mortality of 7.6%, demonstrating the early experience in a resource limited public health sector.⁹ This served as the baseline for subsequent generations, with individual centres achieving peri-operative mortality rates <5% for elective open repairs, and also embarking on complex endovascular aneurysm repairs, thoracic endovascular aortic repairs, and chimney techniques amidst severe restrictions in the availability of grafts and stents.

Carotid endarterectomy for symptomatic carotid artery stenosis was introduced in 2002. Since then, the increased awareness for early referral and stroke prevention has resulted in high volume specialised units, especially in Colombo. Ongoing audits in these centres have shown peri-operative stroke and death rates <1.5% with excellent long term outcomes in a series of nearly 200 patients. Carotid endarterectomy is now well established as the standard of care for symptomatic carotid artery stenosis $\geq$ 50%.

Venous disease has seen its own revolution. Open surgical stripping paved the way for endothermal ablation, with laser and radiofrequency. This has remained the mainstay for all superficial venous reflux disease, with the addition of cyanoacrylate glue and ultrasound guided foam to complete the non-thermal ablative options.

Colour duplex had been pivotal in dismissing the early entrenched belief that deep vein thrombosis (DVT) was rare in Asia.¹⁰ Prompt diagnosis, immediate anticoagulation, and routine thromboprophylaxis became standard practice. More recently, ilio caval DVT has been successfully treated with catheter directed thrombolysis and or suction thrombectomy, with immediate resolution of symptoms and significant reduction in morbidity. Collaboration between vascular and interventional radiology expertise has enabled an efficient, successful service of suction thrombectomy and thrombolysis as routine management for acute ilio caval DVT.

THE ENDOVASCULAR CHALLENGE

Endovascular therapy, in comparison, has shown slow progress in Sri Lanka owing to funding constraints and access to catheter laboratories. Hardware and consumable shortages have been the biggest hindrance in an economy grappling with financial constraints. However, with newer units being established, more cases have been treated by endovascular means with available basic facilities.¹¹ Despite obvious limitations, the endovascular revolution continues to gather momentum, with more complex cases being successfully managed. Nevertheless, the shortage of guidewires, stents, stent grafts, and free access to hybrid suites continue to hamper this progress, with a constant struggle to develop the endovascular treatment arm in the public health sector.

RENAL TRANSPLANT

A unique trend in the country has been the inseparable relationship between vascular surgery and renal transplantation. All vascular surgeons in the country are trained and competent in both specialties. The establishment of two dedicated renal transplant hospitals, in the Western and North-Eastern provinces, with dedicated vascular surgeons, has paved the way to a large volume of transplant related vascular work, including complex vascular access¹² and renovascular disease. To date, the bulk of renal transplants and vascular access management falls under the purview of vascular surgeons.

CURRENT STATUS

Today, the discipline is unrecognisable from its amputating origins. Sri Lanka now has an enthusiastic group of vascular surgeons, a maturing evidence base, and a thriving professional community. At present there are 14 specialised vascular centres covering all areas of the country, with 24 vascular surgeons and more in training. The Sri Lankan Society for Vascular Surgery (SLSVS; <https://www.slsvs.com>) provides an academic and organisational home. The SLSVS is also an official member of the Asian Society for Vascular Surgery and the International Union of Phlebology, further enhancing international collaboration, with its own flagship annual vascular conference in Colombo.

THE FUTURE

The challenge in establishing state of the art endovascular treatment arms has been the biggest hurdle to overcome. However, with slow but steady economic stability and international collaboration, this is a challenge that will soon be overcome. From the beedi smoking young men whose limbs could not be saved, to routine distal pedal bypass and complex endovascular reconstructions, the evolution of vascular surgery in Sri Lanka is a testament to what determination, improvisation, and discipline can achieve with modest means. Continuing the legacy of its pioneers, the greatest asset for vascular surgery in Sri Lanka has been its energetic and cohesive surgical community, assuring us that vascular surgery in Sri Lanka is in safe hands.

REFERENCES

- 1 Spittel RL. *Essentials of Surgery*, Vol. 1. Colombo, Sri Lanka: Colombo Apothecaries Co., 1932.
- 2 Paul M. Aneurysm of the popliteal artery from perforation by a cancellous exostosis of the femur. *J Bone Joint Surg Br* 1953;**35-B**: 270–1.
- 3 Joseph PAP. Juvenile obliterative arteritis. *J Jaffna Clin Soc* 1955;**2**:171–3.
- 4 Kradjian R, Bowles LT, Edwards WS. Peripheral arterial disease in Ceylon. *Surgery* 1971;**69**:523–5.
- 5 Sheriffdeen AH. Peripheral arterial surgery. *Ceylon Med J* 1985;**30**:13–27.
- 6 Ratnatunga C. Chronic peripheral arterial disease in Sri Lanka. *Ceylon Med J* 1998;**43**:182–4.
- 7 Ratnayake AS, Samarasinghe B, Wijeyaratne M, Sheriffdeen AH. International perspectives, Asia: Sri Lanka. In: *Rich's Vascular Trauma* (Rasmussen TE, Tai NRM, eds), 3rd ed. Philadelphia, PA: Elsevier; 2016. p. 287–92.
- 8 Wijeyaratne M, Cassim R, Bradbury A, Hyrin A, Jayawickrema B, Weerasekera A, et al. Clinical outcomes following lower extremity vein bypass for chronic limb threatening ischaemia (CLTI) at the University of Colombo, Sri Lanka. *Eur J Vasc Endovasc Surg* 2020;**60**:560–6.
- 9 Gunawansa N, Goonerathne T, Cassim R, Wijeyaratne M. Open repair of infrarenal abdominal aortic aneurysms: a single centre experience from the developing world. *Ann Vasc Dis* 2011;**4**: 313–18.
- 10 Wijeyaratne SM, Sheriffdeen AH. The swollen leg: is it deep vein thrombosis? The experience of a tertiary referral center in Sri Lanka. *Ceylon Med J* 2002;**47**:16–18.
- 11 Cassim MRN, Godahewa S, Paviththiran S, Wijeyaratne SM. Percutaneous transluminal lower limb angioplasty (PTA) for chronic limb threatening ischaemia (CLTI) in a low resource setting – 4 year experience. *Sri Lanka J Surg* 2020;**38**:13–20.
- 12 Gunawansa N, Sudusinghe DH, Wijayaratne DR. Hemodialysis catheter-related central venous thrombosis: clinical approach to evaluation and management. *Ann Vasc Surg* 2018;**51**:298–305.

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