

Travel Fellowship Report 2015/2016

INTERNATIONAL TRAINING IN VENOUS INTERVENTION

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I would like to take this opportunity to thank the British Society of Endovascular Therapy (BSET) and the Sponsors for awarding me the BSET Travel Fellowship in 2015/2016. I would like to express my gratitude to Mr Colin Bicknell and Mr Mike Jenkins for their advice and support. Finally, I would also like to thank Dr Seshadri Raju, Dr Erin Murphy and Dr Arjun Jayaraj, and all the staff of the RANE Center for venous and lymphatic diseases (particularly Mrs Shaneta Ward, personal assistant to Dr Raju) for all their help, support, and friendliness when I was in Jackson, Mississippi, USA.

Background

Deep venous obstruction of the femoro-ilio-caval vein is a recognised common cause of chronic venous insufficiency of the lower limb secondary to post-thrombotic syndrome (PTS) and non-thrombotic obstructive lesion (NTOL).¹⁻⁴ Patients often present with debilitating leg ulcers, swelling, eczema, pain, itch and heaviness.^{1,4} Previously, the management of patients with such condition is limited to non-interventional approaches including compression hosiery, lifestyle modifications, weight loss and moderate exercise which are often not satisfactory to many patients. Open deep venous reconstructive surgery is relatively invasive with debatable outcome hence it is only limited to very few patients.

Recently, the advancement in the imaging and endovascular technology improves our understanding of the venous physiology and pathology, as well as its management significantly. There is increasing evidence that endovascular stenting of the obstructive pathology of the femoro-ilio-caval vein improves the venous outflow and clinical symptoms of patients with PTS and NTOL.¹⁻⁴ Non-randomised studies have consistently shown that patients reported significant improvement in symptoms including reduction in leg swelling and pain, and increase in rate of ulcer healing following deep venous stenting.¹ Furthermore, the complications arise from deep venous stenting including stent occlusion, infection and bleeding are significantly much less than previously thought.¹⁻³ As a result, endovenous stenting of the obstructive pathology of femoro-ilio-caval vein is likely to benefit and become the mainstay treatment option for many patients with chronic venous insufficiency including in the National Health Service (NHS) in the United Kingdom (UK) although further research and treatment evaluation are still required. As venous stenting technology is relatively new, still evolving, and highly likely to benefit many patients, clinicians all over the world are still learning, developing and optimising the pre-, peri- and post-stenting management of their patients.¹⁻⁴

Dr Seshadri Raju and Dr Peter Neglen are regarded the pioneers of the endovenous stenting of the femoro-ilio-caval vein in the world. They have been carrying out and continuously improving deep venous stenting since early 1990s. They have published widely on this subject, with the largest series of more than 3000 patients in the world with good outcomes.^{1, 2} For these reasons, I decided to travel to and gain experience in venous interventions in their department in Jackson, Mississippi, USA.

My learning objectives

- To understand the indications and contraindications of femoro-ilio-caval endovenous stenting.
- To learn and understand the pre-operative assessment protocol used.
- To observe and understand the techniques of endovenous stenting of the femoro-ilio-caval vein and other related deep venous interventions.
- To understand the post-operative management and follow-up of patients following deep venous stenting and related procedures.
- To learn and understand the management of potential complications of deep venous stenting and related procedures.

Report

I travelled to the RANE Center of Venous and Lymphatic Diseases at St. Dominic's Hospital in Jackson, Mississippi, USA for 3 weeks (16 January 2016 – 7 February 2016) to observe, learn and gain experience in venous interventions of patients with chronic venous insufficiency secondary to obstruction in the femoro-ilio-caval venous system. The centre was led by Dr Seshadri Raju. It was a tertiary venous referral centre for 35 states in the USA and internationally. It was a high volume centre for venous interventions for acute and chronic deep venous obstruction. There were two other attending (consultant) vascular surgeons, Dr Erin Murphy and Dr Arjun Jayaraj who subspecialised in venous diseases. The surgeons were supported by a team of clinical nurse specialists, theatre and ward nurses, vascular scientists, research fellows and administrative staff.

During my 3 weeks in the centre, I was given the opportunity to observe not just the endovascular procedures but also the whole management of patients with chronic venous disease pre-, peri- and post-operatively. I attended out-patient clinics where new patients were seen and assessed (“first consult”). New patients were thoroughly assessed through history taking and clinical examinations. All patients were given disease-specific and generic quality-of-life questionnaires. The patients then underwent a series of investigations comprising blood tests, venous profiling and diagnostic imaging. The venous profiling consisted of a detailed vascular duplex scan, ambulatory venous pressure measurement, and air plethysmography. Patients also underwent venography, either catheter venography, magnetic resonant angiography (MRA) or computed tomographic angiography (CTA). Besides new patients, I also observed the follow-up management of patients who had undergone venous interventions particularly venous stenting. These patients would again undergo detailed clinical assessment and venous profiling.

I observed several interesting venous interventions of femoro-ilio-caval venous system during my three weeks there. These procedures included the followings:

- Femoro-ilio-caval venous stents for PTS and NTOL +/- endovenous ablation of superficial venous reflux
- Balloon hyperdilatation of in-stent restenosis (ISR)
- Catheter directed thrombolysis and pharmacomechanical thrombolysis (Angiojet) +/- femoro-ilio-caval stent
- Difficult inferior vena cava (IVC) filter retrieval / endosmashing +/- femoro-ilio-caval stent
- Laser recanalisation of ISR

The procedures were carried out under general anaesthetics in a catheter laboratory almost every day (Monday to Thursday). Intravascular ultrasound (IVUS) was routinely used in all procedures to identify occlusive sites and stent landing zones. I learned about the rationale of different types and sizes of stents and balloons used. I also learned the peri-operative anticoagulation protocol used in the department. I also participated in ward rounds post-operatively.

I was also given learning materials by Dr Raju especially several scientific papers published by the centre and teaching videos to read and watch, respectively during my time there. I attended interesting talks given by Dr Erin Murphy on venous interventions and stents, and challenging cases of IVC filter retrieval and endosmashing. Dr Arjun Jayaraj also provided me several tutorials on venous physiology and diseases which were very useful. Finally, I was also given the opportunity to observe the research team and their on-going research work on venous diseases and treatment in the department.

Summary

Recently, there is increasing evidence that venous interventions and stenting of obstructive pathology of femoro-ilio-caval vein may be clinically beneficial to a large group of patients suffering from chronic venous insufficiency with PTS and NTOL. Such interventions are still evolving and developing around the world including in the UK. The BSET Travel Fellowship had enabled me to travel to a high volume tertiary venous referral centre in the USA to learn and gain more experience about the overall management of patients with chronic venous disease and deep venous interventions. Such experience would encourage and help me to further develop and use such technology which hopefully would benefit many

patients in the National Health Service when I become a consultant vascular surgeon in near future.

Figure 1. Dr Seshadri Raju and I



Figure 2. Staff at the RANE Center and I



References

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