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The BAUS Endourology WCE Fellowship Report.
The University of Southern California. Sept -Nov 2019.

Motivation for applying for this fellowship

I am a consultant urological surgeon in NHS Lothian, Edinburgh, with a subspecialist interest in renal cancer. This post allows me to manage patients with renal cancer and I have already established a high volume practice in laparoscopic and open nephrectomy as well as open partial nephrectomy. Our unit has a da Vinci SI robotic system for performing robotic prostatectomy but it is not currently used for other urological procedures.

Appreciating the many potential benefits of Robotic Assisted Partial Nephrectomy (RAPN) over the open approach, we intend to introduce this technique into our unit in early 2020. However, recognising the learning curve for RAPN, I felt it was important to immerse myself in a high volume robotic unit to observe and gain advice on the subtle technical aspects that can improve outcomes and gain insight into the management of complex or complicated cases. This experience would hopefully reduce my own learning curve for the benefit of my patients.

I spent my eight week fellowship at The University of Southern California's Institute of Urology, which is a world leading uro-oncology and robotic centre. I chose to visit this unit both given the unit's international reputation and a personal recommendation from a colleague who enjoyed a two year robotic fellowship at USC Urology. At USC Urology, they perform over 1400 uro-oncologic cases annually with approximately 700-800 robotic cases. There are currently 31 clinical faculty with a similar number of fellows, residents and physician assistants and a large and active research unit. The department was recently ranked number 4 in the nation for urology in the 2019-20 Best Hospitals rankings. I'm grateful to Dr Monish Aron who helped facilitate my trip to USC and hosted me within the department during my stay.

Operative Exposure

During my time at USC I had the opportunity to observe 1-2 robotic partial nephrectomies on an almost daily basis using both the SI and XI robotic systems. These were performed by Drs Gill, Aron, Djaladat, Desai and Hung who were welcoming and enthusiastic whenever I was in their operating rooms.

I always had an opportunity to review the imaging and history with the attending surgeons and gain insight into the pre-operative decision making and operative planning. There was regular discussion regarding the importance of both pre-operative imaging and intra-operative ultrasound to aid decisions on the extent of renal mobilisation, the appropriateness of partial vs radical nephrectomy, regions of tumour dissection and the requirement for arterial +/- venous clamping. I became familiar with patient position and port placement for both robotic systems. All of the surgeons had a very similar approach up to and including excision of the renal tumour and I gained insight into how to use the robot and the associated instruments for economic, effective and safe tissue dissection. The techniques for renorrhaphy were varied and this allowed me to feel confident that the

technique I use in open surgery can be easily translated into the robotic technique. During these cases intra-operative ultrasound was used on every occasion and I received training on interpretation of these images, a skill which I will be able to use in my own practice.

As well as the benefit of the general volume of cases to appreciate the routine stages of the robotic technique and the instruments required, I also gained insight into some of the difficulties that can be encountered including dealing with bleeding during robotic partial and radical nephrectomy. Uncommon cases which helped me appreciate the potential diverse role of robotic renal surgery included a partial nephrectomy in a patient with a cT2a tumour, another from the ischmius of a horseshoe kidney and also a partial nephrectomy in combination with renal vein thrombectomy.

As well as robotic renal surgery, I observed a number of other robotic procedures including, radical nephrectomy, nephro-ureterectomy, pyeloplasty, RPLND, radical prostatectomy, simple prostatectomy and ureteric reimplantation. I was able to appreciate many generic technical aspects of these cases which will be transferrable to RAPN. Additionally, I was able to write procedure specific operative records including positioning, equipment and surgical steps with technical notes which I hope will be useful in future for further developing our robotic programme. I was particularly taken by the operative ease of a complex post chemotherapy RPLND, which could potentially change practice in Scotland. We currently also perform open nephrectomy and LND when there is significant lymphadenopathy on pre-operative CT but this too could potentially be performed robotically with a number of benefits to the patient.

In addition to robotic surgery, I had the pleasure of observing Dr Daneshmand in a number of open nephrectomies with IVC thrombectomy and open RPLNDs. This was a fantastic opportunity to discuss my own open experience and practice with an experienced high volume surgeon. New techniques and approaches discussed in particular, which may help my own future practice included the role of IVC resection in T3b/c renal cancer, the use of a flexible cystoscope for visualisation of the IVC following resection to confirm macroscopic clearance and the retroperitoneal approach to RPLND with reduced size of incision resulting in decreased pain and no ileus.

As well as learning from the wealth of experience from the surgeons I observed, I built up a fantastic rapport with them and will look forward to linking up with them again at future academic meetings or visits to LA or Edinburgh. Building these friendships means I have an easily accessible network of skilled and experienced surgeons to discuss difficult and complex cases with, in the future.

Attendance at the Kidney Cancer Association Annual Meeting

During my fellowship, I also had the opportunity to attend the Kidney Cancer Association's annual meeting in Miami. This was one of the best renal cancer specific sessions I have attended. There was a varied programme of basic and translational science, oncological trial updates and surgical development discussions. I had the opportunity to discuss my own research projects with a number of leading international renal cancer academics, which will help develop my own projects and hopefully lead to future collaborations. If I hadn't been in

the USA, I may not have attended this meeting but I will certainly attend this and the associated European meeting in the future.

Summary

My time at the University of Southern California's Institute of Urology has helped me better understand the pre-operative, intra-operative and post-operative factors and the many team members required to build a successful robotic programme. I am sure my time speaking with and observing fantastically skilled and experienced surgeons at USC Urology will help develop my own surgical practice for the benefit of my patients. I am grateful to the British Association of Urological Surgeons for providing me with the BAUS WCE Endourology Fellowship, without which this would not have been possible.