BOA Travelling Fellowship 2014

REPORT

prepared by

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INTRODUCTION

I was honoured to be the recipient of the prestigious BOA Travelling Fellowship Award 2014 which gave me the opportunity to visit prominent orthopaedic centres in both Canada and the United States. The fellowship was organised to focus on my sub-specialty interests, namely upper limb orthopaedics and clinical research. My personal aims for this fellowship were to enhance my existing orthopaedic experience and observe the centres of excellence and gain an insight into their way of managing upper limb problems. In addition, with my special interest in elbow surgery, I was keen to meet Professors Graham King and Shawn O’Driscoll, two of the most prominent elbow surgeons in the world, and to observe their practise. I visited three institutions (McMaster University, St Joseph’s Healthcare Centre and the Mayo Clinic) in two countries over a continuous three-week period.

HAMILTON, CANADA

I first visited the city of Hamilton, famous for being the seat of the world-renowned McMaster’s University. There I met with Professor Mohit Bhandari, the Canada Research Chair in Musculoskeletal Trauma and Surgical Outcomes.

Professor Bhandari has developed a research program that meets the need for high quality surgical research aimed at answering clinical questions of international importance. His clinical interests include the care of patients with musculoskeletal injuries and his research broadly focuses upon clinical trials, meta-analyses, methodological aspects of surgery trials and the translation of evidence into surgical practice.
Specific areas of interest include identifying optimal management strategies to improve patient-important outcomes in patients with multiple injuries, lower extremity fractures and severe soft tissue injuries. Professor Bhandari is currently co-ordinating trials of tibial fracture management and various wound irrigation techniques in open fractures. He also oversees many research projects aimed at increasing awareness and screening for intimate partner violence (IPV). These activities are co-ordinated through the CLARITY Research Group.

I met up with Professor Bhandari on 2nd September at his 293 Wellington Street CLARITY Research Group Office. He explained to me how he had over the years managed to develop a world renowned research facility which is now co-ordinating multi-centre clinical trials, both nationally and internationally. We discussed his interest in clinical research and the under-reporting of IPV in orthopaedic practice.

With Professor Mohit Bhandari at CLARITY Research Group headquarters

Professor Bhandari had organised a number of meetings with various people involved in his research team and also his orthopaedic colleagues at Hamilton General Hospital. First I met an orthopaedic trainee Dr. Nathan Evaniew, who is undertaking his post-doctoral research with Professor Bhandari. Nathan showed me around the research department and also explained how the department initiates and runs systematic reviews and meta-analyses on various clinical subjects. Thereafter I met with Tricia Schneider, the research studies co-ordinator who is managing a multi-centric RCT. She explained to me the structure of the research team and how closely it runs and what her post of research co-ordinator entails. We briefly had a chat about the problems with running trials and how they as a team best manage them.
Finally Professor Bhandari invited me to participate in his very successful and oversubscribed Research for Surgeons Course in September 2014 which for me personally and professionally I was keen to attend but unfortunately due to my prior arrangements in during the three-week Fellowship I had to unfortunately decline. We also had a discussion about the possibilities of organising such an event in the UK, possibly in Dundee.

In summary it was a very fruitful day especially to observe and learn from a centre of excellence of clinical research and also to meet Professor Bhandari who definitely displayed positive signs of future collaborations.
LONDON, CANADA

I then travelled to London, Ontario to meet Professor Graham King and his other orthopaedic colleagues, namely, Dr Ken Faber and Dr George Athwal at the St Joseph’s Healthcare Centre (SJHC). Professor King is a world renowned authority of elbow disorders.

He was kind enough to pick me up from my hotel on the 3rd September at 6:30am; they are early starters in Canada! After buying me a lovely coffee from the famous Tim Horton’s Café we went to the daily teaching where the topic was ‘The value and cost of Canadian orthopaedic service’ by Dr Joel. It was extremely interesting to see another health system struggling to meet clinical demands whilst financially restrained and hear about the measures they were contemplating to improve services.

Professor King had lined up quite a few interesting cases for my visit. We had a pre-operative discussion regarding the cases for the day which included a radial shortening for Keinbock’s disease, ulnar osteotomy for impingement and an arthroscopic elbow debridement and in-situ ulnar release for elbow arthritis. Theatre began sharp at 8:00am and Professor King was very patient in explaining his techniques and the rationale behind them. There were quite a few learning points from the various cases, especially the elbow debridement case.

Post-operatively, we had a long discussion regarding various problems and interest in cases that I had collected for his opinion including radial head fractures and DRUJ instability. We concluded the day’s work with a detailed post-operative ward round at 18:00pm.
The following day I attended Dr Ken Faber’s theatre at SJHC. Dr Faber is an upper limb orthopaedic surgeon with special interest in elbow trauma. He also informed me that he was involved with Mr David Pitts in developing The Orthopaedic Curriculum & Assessment Project (OCAP) in Dundee several years previously. Due to his interest in elbow trauma he was referred a case of a 30-year old motocross driver involved in a high-energy trauma where he was thrown 150 feet while undertaking a manoeuvre on a steep hill. The driver sustained mainly bilateral upper limb injuries and underwent a right-side radial head replacement with Evolve prosthesis (designed by Professor King) and lateral ligament reconstruction. On the left side, he sustained a Monteggia fracture, radial head fracture, coronoid avulsion and both medial and lateral ligament injuries. He underwent fixation of both bones of the forearm, forearm compartment decompression, radial head fixation, coronoid fixation and both medial and lateral collateral ligament fixation. This was a pure master class in elbow trauma and it was delight to watch Dr Faber patiently and expertly tackle this series of injuries and also educating me with his tips and tricks over the six-hour operation.

My final day in SJHC was scheduled to be with Professor King in the morning during his outpatient clinic and then with Dr George Athwal in the afternoon for his shoulder clinic. We began at 6:45am when I attended the teaching session for trainees on assessment of glenohumeral arthritis. Professor King’s clinics were all secondary or tertiary referral with complex wrist and elbow problems. I saw cases of DRUJ instability, Keinbock’s disease and malunited distal radius fractures, advanced elbow arthritis, complex pain (CRPS) and some post-operative reviews. There was a lot of learning with this enjoyable half-day clinic.
The afternoon clinic was packed with complex shoulder cases. Dr George Athwal is an excellent clinician and a very active researcher with many trials underway in his unit. I saw cases with malunion of proximal humerus, various post-operative shoulder arthroplasty patients, rotator cuff tears and patients having undergone arthroscopic Latarjet Procedure. Dr Athwal is a faculty member on the North America Arthroscopic Latarjet course and kindly invited me to attend next year.

With Dr Athwal and Team

MAYO CLINIC, ROCHESTER, MINNESOTA, USA

Attending the Mayo Clinic was like a dream come true for me both personally and professionally. The clinic is the first and largest integrated non-profit medical group practice in the world, employing more than 3,800 physicians and scientists and 50,900 allied health staff. The practice specialises in treating difficult cases through tertiary care and spends over 500million dollars a year on research. This year, 2014, marks Mayo’s 150 years of continuous service to patients.

I reached Rochester, Minnesota on 7th September. The whole town seems to have built around the Mayo clinic which is spread throughout different parts of the city. After my induction and orientation at the magnificent Plummer’s building, I was taken to meet Professor Scott Steinmann, a leading upper limb surgeon specialising in shoulder and elbow disorders at the St Mary Hospital, Rochester. He has an extremely busy upper limb practice and has written and published numerous papers and book chapters on upper limb disorders. He is a faculty of various shoulder and elbow courses worldwide.
St Mary’s Hospital, Rochester

After a warm welcome Professor Steinmann invited me to his theatre where he had booked some interesting upper limb cases for me which included two cases of large cuff tears listed for arthroscopic repair. There was a case of advanced rotator cuff arthropathy which was posted for a reverse shoulder replacement. We also had a case of radial tunnel decompression which was very interesting to see and reconnect the anatomy around the elbow and of the radial nerve. The day concluded with discussion regarding some interesting cases especially one patient with massive heterotrophic ossification following reverse shoulder replacement which Professor Steinmann had excised a few weeks previously (see X-ray over page).
The following day I travelled with Professor Steinmann to a new satellite hospital of Mayo for an operative list and again he had posted two difficult shoulder replacements and two large cuff repairs for me to observe. It was an excellent teaching exercise to observe and discuss his approach to these cases, especially his surgical techniques and the pre-operative planning. I managed to gather quite a few pearls of wisdom which I can adapt to my own shoulder and elbow practice once back home.

On the 10th September I was scheduled to meet Professor Kai-Nan An (Head of Orthopaedic Clinical Research at Mayo) and Professor Kenton Kaufman (Head of Biomechanical Studies at Mayo). I was shown the Mayo Orthopaedic clinical laboratory, which is a state of the art facility for research. I got the opportunity to meet the researcher working on a rotator cuff cadaveric study and reverse shoulder replacement muscle recruitment study. Both these studies were novel and extremely pertinent to the clinical practice. I also discussed the work of Professor Shawn O’Driscoll on radial head replacements with one researcher. I then presented my work ‘Clinical Applications of Musculoskeletal Biomechanical Assessment’ at the monthly Mayo Research meeting. I am glad to say that this which went down very well and generated a lot of interest and discussion from the young investigators and researchers. Professor Kaufmann kindly gave me a tour of the Mayo Museum where all the exhibits regarding the Mayo brothers are displayed including the rooms where they practiced. It was humbling to see where it had all began and to where the Mayo Movement has since reached! Thereafter Professor Kaufmann gave me an insight into the biomechanical work at Mayo, his laboratory and also a chance to speak to some of his researchers including one from Edinburgh of all places!
Presenting my work at the Mayo Research Meeting

Lunch with Professor Kaufmann and Professor An

The Mayo Museum
The next day I was invited to deliver a talk on my work ‘Kinematic analysis of humeral head resurfacing’ to the orthopaedic team in the Mayo clinic during the monthly orthopaedic meeting at 7:00am. It was a slightly unnerving experience as the audience consisted of Professor Bernard Murray, Professor Cofield, Professor Steinmann, Professor Sanchez-Sotelo and other highly distinguished orthopaedic surgeons. Thankfully the talk was well appreciated with quite a few questions for me to answer. There were also some talks of future collaborations with the University of Dundee.
After a well-deserved coffee it was onto an all-day clinic with Professor Steinmann. The case mix was excellent with both shoulders and elbows. There were quite a few complex cases of shoulder arthritis, failed arthroplasty of both shoulder and elbow and failed internal fixations of upper limb fractures being referred from across the USA. It was a good exposure to decision making and management of complex and complicated cases. I was then generously invited for dinner by Professor Steinmann and his wife Dr Julie Adams, a distinguished hand and elbow surgeon at Mayo, where I also met their delightful eight-week old daughter Sarah.

On Friday 12th September it was half-day theatre list with Professor Steinmann. Again it was a day with cases of revision ulnar nerve decompression and a total shoulder replacement. It was fascinating to see Professor Steinmann perform a total shoulder in one hour with ease. The rest of the day I visited the famous Mayo Library which is known to house most of the rare and important orthopaedic and medical books in the world. For the remainder of the day and evening I feasted on six upper limb books that I could never have gotten my hands on in the UK ... and photocopied some important chapters for my own use.

The following week I was to observe Professor Shawn O’Driscoll who is one of the world leaders in management of elbow disorders. On Monday 15th September I met him in the clinic in Ganda Building in Mayo Clinic. The clinic was full of tertiary referrals of complex elbow cases. I saw cases of elbow instability, locking of elbow due to plica, elbow fractures and elbow arthroplasty including a case of partial radial head replacement. He demonstrated his detailed history taking and elbow examination technique which was very rewarding. In addition, he also informed me about his assessment of his post-operative patients and his subjective scoring and its correlation to a similar score with the patient. It was a novel concept to me but I thought it was very useful in clinical practice. He demonstrated the serving plate test for diagnosis of
medial epicondylitis and also shared his thinking on neurogenic contractures of elbow and heterotrophic ossification and the rationale behind the thought. He educated me on his concept of ‘hypothesis driven thinking’ and the ability to question our own practice in order to improve it. It was an extremely busy day with only thirty minutes for lunch but it was a pure master class in elbow disorders.

With Professor Shawn O’Driscoll

The following day was Professor O’Driscoll’s theatre day at the Methodist Hospital where we again began sharp at 8:00am with pre-operative ward rounds and discussions regarding each case.

Professor O’Driscoll had collated some very interesting cases for me, the first of which was a patient with moderate elbow arthritis and contracture for elbow arthroscopy. He performed an arthroscopic elbow debridement and soft tissue release with an excellent arc of range of motion. His tips on patient positioning, portal placement and sequential tackling of soft and bony issues were extremely valuable. Thereafter he performed an elbow arthroscopy on a patient whom he had done a custom-made partial radial head replacement 12 years previously. This patient still had an asymptomatic partial radial head and had some ulno-humeral pain which was noted to have some early degenerative changes. The third patient had an elbow arthroscopy to review a tendo-achilles allograft insertion as an interposition for symptomatic traumatic radial head deformity in childhood. This graft was still well cushioning the radio-capitellar joint at 10 years. Thereafter he took me see his post-operative rehabilitation protocol for patients following elbow debridement for severe contractures.
The following day I was in sports injury clinic with Professor O’Driscoll in the morning where I experienced cases of distal bicep rupture, elbow tendinitis, severe CRPS following ulnar nerve release and new techniques for managing this complex condition. Finally he invited me to the well-known Mayo Elbow Course ‘Teach the Trainers’ event held annually. This course is by invitation only with 48 emerging elbow surgeons from around the world being invited so this was understandably a very proud moment for me professionally. Similarly to yesterday I rushed back to the Mayo Library to drink copious amounts of their excellent coffee whilst soaking up numerous upper limb literature.
My three-week Fellowship unfortunately had to come to an end and I reluctantly began the journey back to the UK on 18th September from Rochester Airport. After a gruelling flight schedule I landed on 19th September in Edinburgh amidst the declaration of the Scottish Independence Referendum results.
EPILOGUE

This BOA Travelling Fellowship has given me a unique opportunity to meet and speak with some of the best upper limb surgeons in North America. My hosts taught me a great deal on the practice and principles of upper limb surgery which I will incorporate into my future practice and hopefully are of benefit to my future patients. More importantly I was deeply impressed by their dedication towards their patients and their perseverance in the pursuit of the art of shoulder and elbow surgery. I shall remain forever grateful for the generous hospitality that my hosts showered upon me throughout my time there.

Acknowledgement

I would like to express my gratitude to the BOA for awarding me this travelling fellowship and to Professor Ian Trail and Mr Adam Watts for supporting my application. Special thanks go to the various Consultants, Fellows and Trainees who made my stay in North America memorable. Thanks also to Mr Ian Christie for his help in the formatting and editing of this report.

Last but not least, I must thank my wife who single-handedly managed our home and children for the time I was away. Knowing they were all safe allowed me to enjoy this trip of a lifetime.

The Mayo Clinic - a dream come true for me