Association of Coloproctology of Great Britain and Ireland / Dukes’ Club Travelling Fellowship

Advanced rectal cancer fellowship and Extra levator abdomino - perineal excision (ELAPE)

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Dates: March 28th - June 25th 2015

Supervisor: Professor Torbjorn Holm

Location: Karolinska University Hospital, Stockholm, Sweden
Introduction

Advanced rectal cancers can be difficult to treat adequately with standard abdomino-perineal excision (APE). Furthermore the APE of the rectum is associated with local recurrence rates of up to 20% in some European studies and this is believed to be due to the higher rate of intra-operative specimen perforation and positive resection margins.

The ELAPE technique was developed at the Karolinska and has been used here since the year 2000. This technique involves the en bloc excision of the external anal sphincter and levator muscles with the rectum and mesorectum, leading to a more cylindrical specimen. This results in a lower perforation rate and lower local recurrences rates.

Controversies still exist regarding the operative and non-operative management of advanced rectal tumours including issues such as the extent of distal dissection from the abdominal approach, patient positioning for the perineal dissection and the methods of pelvic floor reconstruction. Following my one year experience in a tertiary referral centre in the Northwest of England dealing with advanced and recurrent rectal cancers, I decided to further my knowledge by visiting an internationally recognised centre of excellence, renown for dealing with advanced cases.

Aim

To gain decision making experience regarding advanced and recurrent rectal cancers through attendance at multidisciplinary team meetings
To discuss details of peri-operative management and approach
To gain operative exposure and technical experience
To gain experience of working in a foreign national healthcare system
To be able to import knowledge and skills gained abroad into UK practice as junior consultant
Karolinska Hospital

This is a busy university teaching hospital located in the area of Solna in Stockholm. It has 1600 beds and over 1,5 million visits per year resulting in 108,000 admissions per year. It also boasts 44 000 visits from other counties or countries per year leading to a further 6000 admissions. It currently has 15,300 employees and is the flagship hospital of Sweden. The New Karolinska Hospital project is well under way with a phased completion due in mid-2017. This has had significant financial issues being greatly over budget, and is currently a hot topic for discussion amongst local personnel.

Departmental Structure

Professor Anna Martling
Professor Torbjorn Holm
3 Ass. Professors
6 Consultants
4 Senior Registrars
10 Specialist trainees
8 Core trainees
3 Foundation Doctors

The Swedish way is one of equality, equal opportunities and a good work life balance. This is seen throughout society both inside and outside the hospital. Likewise in the working environment of the hospital the hierarchy has been completely flattened, both amongst the medical staff and across all disciplines. Personal clothing is not allowed and instead everyone wears the same blue and white scrubs to comply with the infection control policy. Everybody is addressed by their first name irrespective of their title or role.
The department is very well staffed compared to English standards. The aforementioned list shows just how many personnel the department has at its disposal. The working day starts at 0740 with a hand over from the night team and then everyone heads off to their respected duties.

No report on the Swedish way would be complete without the mention of the much loved 'fika'. This is a mid-morning coffee break usually accompanied by a small sweet snack. People tend to congregate within the department for their fika, and again for lunch, sharing each other's company. It is a very friendly and almost familial experience which happens on a daily basis. This all results in a very pleasant working environment where everyone's opinion is listened to and valued.

**Timetable**

My schedule was one that most trainees would envy. Despite spending the three months prior to this placement trying to learn very basic Swedish, I was clearly never going to be in a position to communicate sufficiently well enough to allow me to work independently in the outpatient clinic or endoscopy unit. As a result I was in theatre four days a week, which I of course did not complain about.

There were three multidisciplinary team (MDT) meetings each week which included discussions of local cases and those from across the country. The department also has regular MDTs with a Dutch group. These meetings typically had about twenty to thirty people present and were very kindly conducted in English to allow me to understand and participate. Everybody was exceptionally accommodating of me, even when it was obvious they were uncomfortable discussing complex surgical cases in a second language.

<table>
<thead>
<tr>
<th>Monday</th>
<th>MDT/ Theatre</th>
<th>Theatre</th>
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<tbody>
<tr>
<td>Tuesday</td>
<td>MDT/ Theatre</td>
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<td>Wed</td>
<td>MDT/ Theatre</td>
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<td>Fri</td>
<td>Admin</td>
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**Operative experience**

I began assisting for the first couple weeks until I got accustomed to the local theatre procedures and quickly learnt how to ask for the instruments I required in Swedish. This small gesture was warmly received by the staff. The nursing staff are very much in control of the theatre suite. Surgeons were called to theatre only once the patient had been anaesthetised, positioned, prepared and draped. The scrubbed nurse then assisted each surgeon with gowning and gloving.
I worked under direct supervision for all major cases and was able to assist more junior surgeons with intermediate and minor cases. The regular operative cases that I performed in part or completely included ELAPE, pelvic exenteration with Bricker deviation, right hemicolectomy with complete mesocolic excision and cytoreductive procedures with hyperthermic intra-peritoneal chemotherapy (HIPEC). It was common to share the procedure equally with local trainees, but when there was none present I would perform the procedure in its entirety under supervision. There were also other standard resections of the colon and rectum which I participated with.

I was also fortunate enough to assist with more radical resections of the rectum including ischioanal resection of the rectum and a hind quarter amputation. The hospital does not perform routine general or coloproctology cases and surgical trainees must rotate to other hospitals in order to gain this experience.

Having spent many sessions discussing the finer details of the ELAPE with Professor Holm and other senior surgeons of the department, I have summarised the technical points of the procedure that are areas of contention.

Initially there is the need to for the surgeon to recognise when to stop the dissection along the well-known TME plane at the level where the levator muscles start, even if the plane tempting to follow. The completion dissection is then done once the patient has been turned in to a prone position offering superb access and direct views of the back of the prostate. This prevents the surgeon from continuing along the standard TME plane, causing waisting of the specimen, a less radical resection and a potential recurrence.

Once proned the external anal sphincter is the landmark to be followed cephalad leading to the levator muscles, which are in effect a continuum rather than distinct entities as described in text anatomical books. Care should be taken at this point to keep the ischio-anal fat package inactive as this can lead to a more radical resection, the ischio-anal APE.

Pelvic floor reconstruction was performed using a porcine matrix which was attached to the remnant of levator muscles circumferentially and folded inwards at the sides to act as a 'scoop' and retain the small bowel more effectively.

All the aforementioned major cases created ample opportunity to work with allied specialities such as hepatobiliary, orthopaedic, vascular and plastic surgeons. I have not listed the urologist in this list the colorectal surgeons continue to perform cystectomies and urinary reconstructions with very good results. Large defects following radical resections were usually closed by the plastics team. Having just completed a six month laparoscopic colorectal fellowship I was able to pass on various laparoscopic techniques to a team of surgeons who were setting up the service within the department. The laparoscopic experience is still quite limited. There is however, much enthusiasm and ongoing effort to improve this.

I was also able to demonstrate the technique of anterior component separation of the abdominal wall and assist with the closure of a difficult abdomen.
**Personal Log book** – selected cases over 3 months

<table>
<thead>
<tr>
<th>Procedure</th>
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<tbody>
<tr>
<td>Left hemicolecction</td>
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<tr>
<td>Right hemicolecction</td>
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<tr>
<td>Panproctocolectomy</td>
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</tr>
<tr>
<td>Anterior resection</td>
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</tr>
<tr>
<td>ELAPE</td>
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</tr>
<tr>
<td>Pelvic clearance</td>
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<td>HIPEC</td>
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<td>Splenectomy</td>
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**Departmental logbook 2014**

A very impressive number of resections performed by open surgery and the numbers of robotic and laparoscopic cases continue to grow year upon year as the experience increases.

<table>
<thead>
<tr>
<th>Procedure</th>
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<td>11</td>
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<tr>
<td>HIPEC</td>
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<tr>
<td>Anal</td>
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Emergency and Trauma

The Karolinska is the tertiary referral centre for trauma with over 1500 trauma cases a year. On average ten percent of these require an operation. The surgical department's building houses the helipad which seemed to be in use very frequently. The purposed built dedicated trauma room opened straight into an emergency operating theatre and was adjacent to a hybrid interventional angiography and operating suite. It was commonplace for trainees to spend time in South Africa on trauma fellowships and the unit ran definite trauma skills workshops regularly.
Research department

The Karolinska Institute is well known for its excellence in research. The hospital has very close links with the Institute and it too has a busy research division headed by Professor Anna Martling. The unity currently has two professors, four assistant professors and nine PhD students and publishes a very respectable number of articles on an annual basis.

An example of a few of the ongoing research studies include the ALASCCA trial to assess the prophylactic effects of aspirin in colorectal cancer, the RAPIDO trial assessing the effects of neoadjuvant chemotherapy post short course for locally advanced rectal tumours and the Stockholm III trial to assess the effect of fractionation of radiotherapy for rectal cancer and the effect of delay to surgery.

Annual publication count

<table>
<thead>
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<td>2012</td>
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<td>2013</td>
<td>89</td>
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Additional opportunities during fellowship

As I chose to spend three months at this hospital and had many opportunities to experience significantly more than just the advanced rectal cancer work and ELAPE which was the main objective of this placement.

Emergency work - I spent time on call during the nights and weekends and was able to participate with emergency operations and see the trauma team in action. I shadowed the more senior trainees and tried to understand how the hospital systems work. We spent time comparing and contrasting between the Swedish system and the NHS, trying to decide which country does what better.

Endoscopy – I visited the endoscopy suite to observe an elective list of colonoscopies. Although it was interesting I did not notice and significant differences in the technique. Of note is that only a minority of surgeons are endoscopically trained and this service is provided almost entirely by medical colleagues.

9th Advanced Course in Colorectal Cancer Surgery in Erlangen – Professor Anna Martling very generously offered me a place at Professor's final meeting before his retirement in Erlangen with all expenses paid. The meeting included interactive live operating sessions, lectures and debates around the complete mesocolic excision technique and was exceptionally interesting. I flew from Arlanda airport with Professor Holm who kindly invited to all the faculty dinners over the two day meeting allowing me to meet and socialise with some highly respected clinicians including Professors Hohenberger, Heald, Brown and Quirke to mention but a few.
PhD defence on early rectal cancer and screening for colorectal cancer by Deborah Saraste – Professor Bob Steele was invited to this session as the external assessor. This was an excellent three and a half hour debate in great detail on the chosen subject, with questions down to the molecular level of FOB testing. The Deborah's family were also invited to the PhD defence and were present for the whole viva process. Everybody commented on how well Professor Steele conducted the viva. Drinks and food were then served for all and a party was held in the evening.

Value Stream mapping participation – As part of the new Karolinska Hospital project, General Electric was chosen to provide the PET CT scanning facilities. This is a fourteen year contract and has the additional benefit of proving a team of experts who visit the site to drive change and continuous improvement. The aim is to identify waste and increase the efficiency and effectiveness in existing pathways of referral and treatment. I was able to participate in such sessions and actively contributed, being able to offer alternative options based on my UK experience. This was a new experience for me which I found very interesting and highly beneficial. Being able to collaborate meaningfully with service developers is a crucial part of being a senior clinician and is of paramount importance at my stage of career.

Cancer research network meeting KI – Professor Anna Martling, head of research at Karolinska’s surgical division, was concerned that there was too much disjointed research between the institute and the clinical side. She arranged a meeting in Stockholm city centre to bring together the basic scientists and clinicians working in the field of colorectal surgery research. This was a day of lectures ranging from molecular level to national screening programmes. The event provided ample opportunity for introductions, networking and to improve relationships between these two sides who met less and less.
Conclusion

The ELAPE is a technique that has shown to reduce local recurrence rates and increase cancer free survival for advanced rectal cancers. It is not a technique that is performed widely across the UK, although there are scattered hospitals, who have a good working relationship with the Karolinska, performing this operation regularly.

This fellowship has been more beneficial than I could have ever hoped for. I have achieved my primary objective of gaining operative experience performing the extra levator abdomino-perineal resection of the rectum. I have however experienced so much more than this from super radical resections, management and development pathways but most of all the experience of working in a foreign healthcare system has truly invaluable. I have seen both simple and complex cases treated in completely different ways to what I was used to with good results and I have met a wonderful group of people whom I hope to keep as friends for life.

Thank you

I am very grateful to the Association of Coloproctology and the Dukes’ Club for providing me with the financial support to spend this time abroad. I would also like to thank my supervisors Professors Carlson and Soop for supporting my application and the team at the Karolinska for making me so welcome.

I have thoroughly enjoyed my time in Stockholm. I have been very fortunate to meet and work with a great team of people who proved to be friendly and enthusiastic. I was welcomed into the department and enjoyed every day of my visit.
I am particularly grateful to Professor Holm for being so supportive and ensuring that not only was I achieving my fellowship goals but also that I was integrating with the team and enjoying Stockholm.