Laparoscopic Colorectal Surgery Course & Master Class

Dates: 26th and 27th September 2012
Venue: Prince Charles Hospital, Merthyr Tydfil, Wales

Course Manual
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Welcome

Dear Delegate,

Welcome to the third Laparoscopic Colorectal Course & Masterclass at Prince Charles Hospital in Merthyr Tydfil. This course is aimed at surgical trainees as well as consultants wishing to gain expertise in this field and has been very popular and very well received in previous years.

This two day event is designed to provide plenty of exposure to live operations for a range of indications, including colorectal cancer as well as benign conditions. In addition to the live links, there will be structured lectures/presentations covering various aspects of the speciality, delivered by a faculty of experienced laparoscopic colorectal surgeons. The faculty/delegate ratio is deliberately kept high to achieve a comfortable and friendly environment with plenty of opportunity for delegates to interact with the faculty and the organizers, both in the auditorium as well as during the course dinner.

Looking forward to meeting up with you during the course, which, I hope you will find both instructive and enjoyable.

Best wishes,

Prof. P. N. Haray
Course Convenor
## Candidate List

<table>
<thead>
<tr>
<th>Name</th>
<th>Position</th>
<th>Hospital/Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mr Daniel Thomas</td>
<td>Associate Specialist</td>
<td>Queen Mary’s Hospital, Sidcup</td>
</tr>
<tr>
<td>Mr Chiaka Anthony Anozie</td>
<td>Consultant</td>
<td>Selkirk General Hospital, Canada</td>
</tr>
<tr>
<td>Mr Jay Nath</td>
<td>Specialist Registrar</td>
<td>Russells Hall Hospital, Dudley</td>
</tr>
<tr>
<td>Mr Ben Carrick</td>
<td>Specialist Registrar</td>
<td>Wansbeck General Hospital, Ashington</td>
</tr>
<tr>
<td>Mr Jonathan Wild</td>
<td>Specialist Registrar</td>
<td>Northern General Hospital, Sheffield</td>
</tr>
<tr>
<td>Mr Senthil Ganapathi</td>
<td>Specialist Registrar</td>
<td>University Hospital of Wales, Cardiff</td>
</tr>
<tr>
<td>Mr Alastair Brookes</td>
<td>Specialist Registrar</td>
<td>Queen Elizabeth Medical Centre, Birmingham</td>
</tr>
<tr>
<td>Ms Suchira Sarkar</td>
<td>Specialist Registrar</td>
<td>Eastbourne District General Hospital</td>
</tr>
<tr>
<td>Mr David Chan</td>
<td>Specialist Registrar</td>
<td>Wrexham Maelor Hospital</td>
</tr>
<tr>
<td>Mr Abraham Ayantunde</td>
<td>Senior Clinical Fellow</td>
<td>Southend Hospital, Westcliff-on-Sea</td>
</tr>
<tr>
<td>Mr Rajesh Chidambaranath</td>
<td>Trust Grade Doctor</td>
<td>Prince Charles Hospital, Merthyr Tydfil</td>
</tr>
<tr>
<td>Mr Pervez Akhtar</td>
<td>Senior Clinical Fellow</td>
<td>Lewisham University Hospital, London</td>
</tr>
<tr>
<td>Mr Neil Yeomans</td>
<td>Specialist Registrar</td>
<td>St James's University Hospital, Leeds</td>
</tr>
<tr>
<td>Ms Emma Collins</td>
<td>Specialist Registrar</td>
<td>Nottingham City Hospital</td>
</tr>
<tr>
<td>Mr Shahzad Ather</td>
<td>Associate Specialist</td>
<td>Morriston Hospital, Swansea</td>
</tr>
<tr>
<td>Mr Mubashar Hussain</td>
<td>Specialist Registrar</td>
<td>Wishaw General Hospital</td>
</tr>
<tr>
<td>Mr Buddika Jayathilaka</td>
<td>Specialist Registrar</td>
<td>Withybush General Hospital, Haverfordwest</td>
</tr>
<tr>
<td>Mr Kai Leong</td>
<td>Specialist Registrar</td>
<td>Russells Hall Hospital, Dudley, Birmingham</td>
</tr>
<tr>
<td>Mr Jun Cho</td>
<td>Specialist Trainee</td>
<td>University Hospital of Wales, Cardiff</td>
</tr>
</tbody>
</table>
# CORE COMMITTEE AND FACULTY

**Professor P N Haray**  
Consultant Colorectal Surgeon  
Course Convenor  
Prince Charles Hospital, Merthyr Tydfil

**Mr Parin Shah**  
Associate Specialist, Colorectal Surgery  
Chief Course Organiser  
Prince Charles Hospital, Merthyr Tydfil

**Mr Ashraf Masoud**  
Consultant Colorectal Surgeon  
Prince Charles Hospital, Merthyr Tydfil

**Mr Jared Torkington**  
Consultant Colorectal Surgeon  
University Hospital of Wales, Cardiff

**Mr Gethin Williams**  
Consultant Colorectal Surgeon  
Royal Gwent Hospital, Newport

**Mr Umesh Khot**  
Consultant Colorectal Surgeon  
Singleton Hospital, Swansea

**Mr Chelliah Selvasekar**  
Consultant Colorectal Surgeon  
Christie Hospital NHS Foundation Trust, Manchester

# LOCAL ORGANISERS AND HOSPITALITY

**Mr Nader Naguib**  
Associate Specialist in General Surgery  
Prince Charles Hospital, Merthyr Tydfil

**Mr Mahmoud Abdel Dayem**  
Speciality Doctor in General Surgery  
Prince Charles Hospital, Merthyr Tydfil

**Dr Rhys Thomas**  
Core Trainee in General Surgery  
Prince Charles Hospital, Merthyr Tydfil

**Dr Eleanor Anwen Williams**  
Core Trainee in General Surgery  
Prince Charles Hospital, Merthyr Tydfil

**Dr Elizabeth Goodchild**  
Foundation year Trainee  
Prince Charles Hospital, Merthyr Tydfil
Programme

Day 1

8.30 – 8.45  Coffee & Registration
8.45 – 8.50  Welcome & Introduction to the Course
8.50 – 9.10  Overview of Laparoscopic Colorectal Surgery
9.10 – 9.20  Case Presentation of 1st live link case
9.20 – 12.30  Laparoscopic Anterior Resection
Live link to Operation Theatre

Presentations by Moderators:
  o Relevant anatomy
  o Port Positioning
  o The Stepwise Approach to Anterior Resection
    (Videos/ discussion around specific steps)

12.30 – 13.15  Lunch

13.15 – 13.25  Case Presentation of 2nd live link case
13.25 – 15.15  Laparoscopic Right Hemicolectomy
Live link to Operation Theatre

Presentations by Moderators:
  o Theatre Set Up
  o Relevant anatomy
  o Port Positioning
  o The Stepwise Approach to Right Hemicolectomy
    (Videos/ discussion around specific steps)

15.15 – 15.30  Coffee

15.30 – 15.45  Anaesthetic and Peri-Operative considerations
15.45 – 16.00  Enhanced Recovery Concepts
16.00 – 17.00  Presentations/ video lectures by various faculty
19.00  Course Dinner at the Ty Newydd Country House Hotel
## Programme

### Day 2

<table>
<thead>
<tr>
<th>Time</th>
<th>Activity</th>
</tr>
</thead>
</table>
| 8.30 – 8.45 | **Coffee & Registration**  
8.45 – 9.00  | Case Presentation of 3rd live link case                                  |
| 9.00 – 12.30 | **Laparoscopic Multi Segmental Resection**  
Live link to Operation Theatre  
Presentations by Moderators:  
- Flexure mobilisation  
- Left hemicolectomy  
(Videos/ discussion around specific steps) |
| 12.30 – 13.15 | **Lunch**  
13.15 – 14.15  | Pouch Surgery video presentation  
Laparoscopy in IBD  
Training in Laparoscopic Colorectal Surgery |
| 14.15 – 15.15 | Tips, Tricks and Potential Hazards  
(Videos and Discussion) |
| 15.15 – 15.30 | Formal Feedback  
Education Centre Manager + IT |
| 15.30 – 16.00 | **Coffee Certification and Close** |

Live Operating will be carried out by Prof. P. N. Haray with interactive moderating by experienced laparoscopic colorectal surgeons.  
During Live Link – the moderators will give PowerPoint presentations/video presentations on different aspects of laparoscopic colorectal surgery.
Selected Reading Material and Relevant Publications
Steps for Laparoscopic Anterior Resection of Rectum

1. Port positions and patient positioning
2. Omentum to supracolic compartment & small bowel stacking.
3. Identify right ureter.
4. Start medial dissection at the promontory.
5. Identify left ureter, then left gonadal, pelvic nerves.
6. Protect left ureter with surgicel® and Pedicle dissection.
7. Identify ureter through both windows of mesentery either side of pedicle.
8. Transect pedicle, confirm haemostasis.
9. Left lateral dissection, identify left ureter and proceed up to peritoneal reflection; IMV high tie and splenic flexure mobilisation, if required.
10. Mesorectal Dissection - Prepare Rectum for Division
11. Intra-corporeal cross stapling of rectum at appropriate level protecting lateral and anterior structures & Grasp stapled end of specimen.
12. Left iliac fossa transverse incision for specimen delivery; protect wound and deliver specimen by the stapled end.
13. Complete mesenteric ligation, proximal bowel division and prepare proximal bowel for anastomosis.
14. Close wound, re-establish pneumoperitoneum
15. Intra-corporeal bowel anastomosis with no tension, no twist and vital structures protected.
10.a. Right mesorectal dissection up to peritoneal reflection.
10.b. Posterior dissection (presacral plane down to levator), keep left ureter in view.
10.c. Divide peritoneal reflection anteriorly and dissect till seminal vesicles/ vaginal fornix.
10.d. Complete both lateral dissection, identify the ureters all the way.
10.e. Anterior dissection keeping to the plane just posterior to the vesicles/ vagina
10.f. Cross stapling deep pelvis
10.g. Laparoscopic APER
Steps for Laparoscopic Right Hemicolecctomy

1. Port positions and patient positioning.
2. Omentum to the supracolic compartment and small bowel stacking.
3. Identify ileocolic pedicle.
4. Start dissection at the lower leaf of ileocolic pedicle.
5. Identify duodenum through mesenteric window.
6. Protect duodenum with surgicel®.
7. Dissect upper leaf of ileocolic pedicle.
8. Identify duodenum through both mesenteric windows.
10. Mobilise right colon & hepatic flexure from medial to lateral aspect. Protect Duodenum with surgicel®.
11. Start lateral mobilisation at distal ileum, then caecum and then ascending colon.
12. Mobilise hepatic flexure & confirm full mobilisation of the segment to be resected.
13. Free up proximal transverse colon towards hepatic flexure protecting gallbladder & duodenum.
14. Free up omentum from transverse colon at planned site of resection.
15. Midline transumbilical incision for specimen delivery.
16. Protect wound, deliver specimen, complete mesenteric ligation.
17. Side to side ileo-transverse anastomosis and specimen resection.
18. Close incisions.
The Merthyr Coaching Tool for Laparoscopic Colorectal Surgery

Mr. P. R. Shah, Professor P. N. Haray

Abstract:
Laparoscopic surgery is being increasingly offered to patients across the world for benign and malignant colorectal disease. National Training programmes are being developed in some countries to improve standards and train surgeons. Meanwhile, many surgeons have been and continue to be trained thorough a variety of mechanisms. Currently there appear to be no publications in the international literature suggesting a standard format for the provision of such training. We present here a coaching tool that we have developed and used effectively to provide targeted training for laparoscopic colorectal surgery.

Introduction:
Laparoscopic surgery for colorectal disease is becoming increasingly used across the world following the publication of the results from the CLASICC trial as well as NICE guidance (1, 2). In the UK, more and more surgeons are beginning to be trained through a variety of channels to undertake these procedures. National training programmes are being set up in some countries and it is envisaged that training will be imparted through regional centres (3). In addition, there are a considerable number of experienced surgeons providing training informally as well as formally through structured preceptorship programmes (3, 4). There is, therefore, an urgent need for a standard format for the provision of this training.

Aim:
To develop a coaching and assessment tool to aid the provision of training in laparoscopic colorectal surgery.

Methods:
We have been undertaking laparoscopic colorectal surgery at our Hospital since 1998 (5). Our initial experience was with benign disease and participation in the CLASICC trial. Since 2006, our range of laparoscopic procedures has expanded to include the majority of elective colorectal surgery for both benign and malignant pathology. The unit has been training Middle grade and consultant surgeons (preceptorship) and to support this training, we have developed a simple tool which we have used very effectively to provide targeted training for laparoscopic colorectal surgery. Various factors used to assess a trainee are case selection, safe access, exposure, port positioning, patient positioning, small bowel stacking, use of retraction, awareness, identification & protection of vital structures, safe vascular pedicle dissection & division, various aspect of bowel handling & mobilisation, bowel division & anastomosis, use of energy devices, extra-corporeal component, team Working & communication. To support this training, we have developed a simple tool (appendix I), which we have used very effectively over the past 3 years.

Results:
This tool has been used initially in self assessment by the two authors over 225 cases. Subsequently, it has been used on 8 trainees of varying levels of experience and 11 consultant colorectal surgeons over a total of 66 cases to assess the performance as well as provide targeted feedback.
The Merthyr Coaching Tool for Laparoscopic Colorectal Surgery

Discussion:
Unlike laparoscopic cholecystectomy, the laparoscopic colorectal operation has a higher level of complexity because of several factors including multiple quadrant working, several intra-corporeal instruments (some of which will be out of the field of vision), care during bowel handling, the use of high energy devices for dissection and a rapidly expanding range of instrumentation etc (6). Furthermore, the majority of such procedures involve resections for malignancy and it is imperative that good technique and adherence to oncological principles are adopted.

Laparoscopic surgery lends itself very well for a structured approach to training because of the fact that the trainee and the trainer have the same view of the procedure and the trainer can be actively involved without even being scrubbed in as an assistant. Like all surgical procedures, the laparoscopic colorectal operation can be conveniently broken down into individual components and training imparted either for the entire procedure or for specific sections, depending on the expertise of the trainee.

The tool that we have developed (Appendix 1) has been invaluable as a coaching aid in identifying specific areas for targeted training and for providing constructive feedback. It has also been an effective tool for self assessment. There are several publications outlining different ways of assessing and evaluating laparoscopic cholecystectomies. Some of these have detailed weighted scoring systems which have been carefully developed (7, 8) and have been found to be useful mainly in trainees (9). However, because of the complexity of laparoscopic colorectal procedures and the fact that the majority of surgeons being trained in this technique are likely to be either consultants or senior trainees, we feel that such an approach with a graduated scoring system would not be suitable. We have therefore, deliberately adopted a simpler approach and each step that is assessed is marked simply as either ‘needing improvement’ or ‘competent’. We have used this effectively as a coaching tool in over 225 cases for self assessment, for surgeons in training as well as for consultants who are being preceptored.

Conclusion:
This paper has demonstrated an easily reproducible tool for standardising the assessment and providing feedback for laparoscopic colorectal surgery. Preliminary results have been encouraging though formal validation has yet to be completed. In due course, this tool can be developed into a weighted scoring system for accreditation and revalidation.
The Merthyr Coaching Tool for Laparoscopic Colorectal Surgery

References

### Appendix I: Coaching Tool for Laparoscopic Colorectal Surgery

<table>
<thead>
<tr>
<th>Date:</th>
<th>Procedure:</th>
<th>Trainee:</th>
<th>Trainer:</th>
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<tbody>
<tr>
<td>1.</td>
<td>Case Selection</td>
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</tr>
<tr>
<td>2.</td>
<td>Safe Access</td>
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</tr>
<tr>
<td>3.</td>
<td>Exposure</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Port positioning</td>
<td>N/A</td>
<td>Needs Improvement</td>
</tr>
<tr>
<td></td>
<td>Patient positioning</td>
<td>N/A</td>
<td>Needs Improvement</td>
</tr>
<tr>
<td></td>
<td>Small bowel stacking</td>
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<td>Needs Improvement</td>
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<tr>
<td></td>
<td>Use of retraction</td>
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<td>Needs Improvement</td>
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<tr>
<td>4.</td>
<td>Vital Structures</td>
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<tr>
<td></td>
<td>Awareness of……….</td>
<td>N/A</td>
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<tr>
<td></td>
<td>Identification of ……</td>
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<td>Needs Improvement</td>
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<td></td>
<td>Protection of ………</td>
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<td>5.</td>
<td>Vascular Pedicle</td>
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<tr>
<td></td>
<td>Dissection of vascular pedicle</td>
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<td></td>
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<tr>
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<td>Protection of vital structures</td>
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<tr>
<td></td>
<td>Selection of appropriate instruments</td>
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<td>6.</td>
<td>Bowel Mobilisation</td>
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<td>Bowel handling</td>
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<td>Handling of pathology</td>
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<td>Medial dissection</td>
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<td>Superior dissection</td>
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<td>Combination…..</td>
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<td>7.</td>
<td>Bowel Division – Intra-Corporeal/ Extra-Corporeal</td>
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<td>Dissection of mesentery</td>
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<td>Division of bowel</td>
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<td>Anastomosis – Intra-Corporeal/ Extra-Corporeal</td>
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<td>Instrumentation</td>
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<td>Spatial awareness of instruments</td>
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<td>Awareness of residual energy</td>
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<td>Extra- corporeal component</td>
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<tr>
<td>11.</td>
<td>Team Working &amp; Communication</td>
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<tr>
<td>12.</td>
<td>Overall Performance</td>
<td>N/A</td>
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</table>
Preceptorship Programme for Laparoscopic Colorectal Surgery

Prof Haray has established a structured programme to train other consultant surgeons in Wales since May 2008. This includes demonstration ‘Master Classes’ to consultant surgeons and their teams at Prince Charles Hospital and then visiting them at their base hospitals to provide on site (outreach preceptorship) training. Though often challenging, this has proved an excellent programme, imparting advanced surgical skills to senior colleagues.

To date, this service has facilitated either the commencement of a laparoscopic service for colorectal cancers or extended existing levels of service at a total of seven hospitals across South and West Wales. Eleven Consultants have been trained across these hospitals and several more have attended Masterclasses. 2/3 consultants are currently still in the programme and 2 more have expressed an interest in joining soon.

Structured Preceptorship Programme for Consultant Surgeons:

1. Mr. A. Masoud Consultant Colorectal Surgeon, Prince Charles Hospital, Merthyr Tydfil - January to June 2008.
5. Mr. C. Arun - Consultant Colorectal Surgeon, Nevill Hall Hospital, Abergavenny – Jan - October 2009.
6. Mr. W. Sheridan, Consultant Colorectal Surgeon, West Wales General Hospital, Carmarthen – November 2009 – on going.
10. Mr. A. Saklani, Locum Consultant Colorectal Surgeon, Princess of Wales Hospital, Bridgend – November 2010 – on going
11. Mr. G. Pritchard, Consultant Colorectal Surgeon, Princess of Wales Hospital, Bridgend – December 2010 – on going.
12. Mr. S. Harries, Consultant Surgeon, West Wales General Hospital Carmarthen – February 2010 – Masterclass only.
13. Mr. M, Henwood, Consultant Surgeon, West Wales General Hospital Carmarthen – February 2010 – Masterclass only.
14. Preceptorship for Mr O. Nur, Locum Consultant Surgeon, Withybush Hospital, Haverfordwest – Masterclass completed, Preceptorship to be booked.
15. Ms D. Clements, Consultant Colorectal Surgeon, Royal Glamorgan Hospital, Llantrisant – to be booked.
16. Mr A. Selvam, Consultant Surgeon, West Wales General Hospital Carmarthen – to be booked.

The entire programme has been funded through educational grants from Johnson & Johnson (Ethicon Endosurgery®) Ltd.
Laparoscopic Colorectal Surgery Training/ Research

Contributions of Prince Charles Hospital, Merthyr Tydfil

Faculty Member/ Course Convenor:

- European Surgical Institute – Hamburg, Laparoscopic Colorectal Training Course: Prof Haray has been on the faculty since 2008
- Prof Haray is a registered preceptor for Laparoscopic Colorectal Surgery, ALS and Ethicon Endosurgery® Ltd
- Laparoscopic Colorectal Surgery Course and Masterclass, PCH–Convenor-annual since 2010
- Laparoscopic Left Side Resection Course–Wales Deanery
- Association of Laparoscopic surgeons of Great Britain and Ireland, Annual Meeting in Cardiff – November 2011 – faculty for laparoscopic colorectal surgery workshop
- Several Masterclasses at Prince Charles Hospital for consultant surgeons; many live-linked demonstrations to Surgical Registrars, Junior Doctors, Medical & Nursing students etc.
- Minimal Invasive Course for surgical care practitioners– Convenor – 2010, due again in 2012
- Colorectal Cancer Course–Nurses & Jr Doctors, PCH- Convenor-2010, due again Oct 2011
- Faculty at various international conferences - India and Ghana 2003 – 2011
- Teaching Day for Surgical and Gastroenterology SpRs – Convenor (several 2005-2011)

Laparoscopic Colorectal Surgery teaching DVD

A highly specialized teaching aid has been developed by Prof Haray and his team at PCH in the form of an interactive training DVD. This has been designed to assist senior trainees or established consultants wishing to undertake laparoscopic colorectal surgery. Colorectal resections have been broken down into modules offering the option of either watching the procedure in its entirety or of selecting individual 'steps' to view. Many of the steps have additional video clips highlighting challenges/ potential hazards/ technical tips/ alternative approaches etc. A PDF button provides access to a printable summary of the steps.

Other Training/ Teaching Audio-visual Aids

- Anaesthetic techniques in Laparoscopic Colorectal Surgery – Spinal opioid & TAP blocks Film for anaesthetic education.
- Laparoscopic Abdomino-Perineal Excision of the Rectum Film for nurse education.
- Training the Trainer in Laparoscopic Colorectal Surgery Film aimed at helping consultants become good trainers. In progress.
Publications

PEER REVIEW REFERENCED PUBLICATIONS (Laparoscopic Colorectal Surgery only)

ORIGINAL ARTICLES

A Tool-kit for the Quantitative Assessment of Proficiency in Laparoscopic Colorectal Surgery
P R Shah, P N Haray

A Unique Approach To Quantifying The Changing Workload And Case Mix In Laparoscopic Colorectal Surgery
P R Shah, V Gupta, P N Haray,

Laparoscopic Colorectal Surgery: Learning Curve and Training Implications
P R Shah, A Joseph, P N Haray
Postgraduate Medical Journal, 2005; 81: 537 – 540

Adhesive Intestinal Obstruction In Laparoscopic Versus Open Colorectal Resection
A P Saklani, N Naguib, P R Shah, P Mekhail, S Winstanley and A G Masoud
Colorectal disease, 2012 accepted

Short-term outcomes of Laparoscopic colorectal resection in patients with previous abdominal operations
N Naguib, A Saklani, P R Shah, P Mekhail, M Alsheikh, M abdelDayem, A G Masoud
Journal of Laparoendoscopic & Advanced Surgical Techniques, 2012 - accepted

Laparoscopic Colorectal Surgery in Great Britain and Ireland – Where Are We Now?
G Harinath, P R Shah, P N Haray, M E Foster
Colorectal Disease, 2005; 7, 86 – 89.

Preceptorship In Laparoscopic Colorectal Surgery
M Rees, P R Shah, A saklani, P N Haray – submitted

The Merthyr Coaching tool for Laparoscopic Colorectal Surgery
P R Shah, P N Haray - submitted

CASE REPORTS

Laparoscopic drainage of retroperitoneal abscess secondary to pyogenic sacroiliitis
D Chan, A Saklani, P R Shah, P N Haray
Publications

TECHNICAL TIPS

Trans-anal division of the ano rectal junction followed by Laparoscopic low anterior resection and colo-anal pouch anastomosis, a technique facilitated by a balloon port
A Saklani, P R Shah, N Naguib, N Tanner, P Mekhail, A Masoud

Port Site Closure in Laparoscopic Colorectal Surgery

Use of uterine manipulator in laparoscopic colorectal surgery

ABSTRACT PUBLICATIONS

The Unique Tool-kit for Quantitative Proficiency Assessment in Laparoscopic
P R Shah, P N Haray, Colorectal Disease, 2011; 13(s4): 31

Quantifying The Changing Workload And Case Mix In Laparoscopic Colorectal
P R Shah, V Gupta, P N Haray, Colorectal Disease, 2011; 13(s4): 31

Laparoscopic Rectal Excision Made Easy: A stepwise Approach – Video Presentation
P R Shah, P N Haray, Surgical Endoscopy, 2011; 25(s1): S167

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European Association of Endoscopic Surgery, Brussels, June 2012

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European Association of Endoscopic Surgery, Geneva, June 2010
Course Presentations
LAPAROSCOPIC vs OPEN COLORECTAL SURGERY

AG MASOUD

LCS vs. OCS

- Evidence from CLASICC Trial
- Evidence from RC Trials
- Main advantage of LCS
- Is it really expensive
- AGM database

MRC CLASICC Trial

- Design
  - 2:1 allocation of laparoscopic to open excision
  - Intention-to-treat
  - Surgeons
  - Proposed site of operation
  - Presence of three resections
  - Preservation of stool continence
- Unpacking of the trial
  - Central pathology and site pathological endpoints
  - Institutions of rectal cancer cases
Endpoints

- Primary
  - Clavien-Dindo
  - Intraoperative & Postoperative complications
  - 30-day mortality
  - Local recurrence (3 y)
  - Disease-free & overall survival (5 y)

- Secondary
  - Disease-free & overall survival (5 y)
  - Peritoneal & wound-site infection
  - Quality of life in cancer patients
  - QOL, end tax
  - Radiation
  - Loco-regional adjuvant & adjuvant
  - Mild transfusion requirements

Participating Centres

- Aberdeen General
- Bedford General
- Breast Hill
- Castle Hill
- Cleveland General
- Edward Van
- University General
- Leeds General Infirmary
- Lewisham Infirmary
- Mersey Maritime
- Monmouthshire
- Netherfield
- Prince Charles
- Princess Elizabeth, Norwich
- Prince Edward
- Prince Leopold
- Royal Centre
- Royal Free
- Royal Liverpool
- Royal North London
- Royal Severn
- Royal Victoria

Recruitment Summary

- 794 patients randomised
- 931 patients recruited by surgeons with 720 patients randomised
- Average no. of patients per surgeon = 23
- Ratio of Open : Laparoscopic = 363 : 536
  1 : 1.66
Surgical Details 3

- Intra-operative conversions to open surgery
  - Total: 478
  - Colon: 240
  - Rectum: 238

No. of patients converted (%)
- Total: 139 (30%)
- Colon: 59 (24%)
- Rectum: 81 (33%)

Summary

CLASICC represents a large scale, pragmatic, multicentre, multidisciplinary, randomised clinical trial, which includes:

- High quality surgery
- High quality pathology
- Good data collection

Conclusion

CLASICC short-term results suggest that in the UK the laparoscopic-assisted technique for colorectal cancer appears to be no different to open surgery in terms of the pathological resection margins, intra-operative morbidity, 30-day operative mortality and 30-day morbidity.
Long Term Results

- Equal oncological outcome
  - Survival
  - DFS
  - Local recurrence
- Equal quality of life

Why LCC if equal outcome

- High conversion in CLASICC
  - 24% colon
  - 34% rectum
- Better short term outcome in recent trials

Evidence from RC Trials

- 652 publications
- 12 RC Trials
- 2/3 with long term outcome
Advantages of LCS

- Less pain, 37% less analgesic
- Better pulmonary function and recovery
- Cosmetic benefit
- Faster return to N diet 37%
- Early bowel function 33%
- Shorter hospital stay 20%
- Less blood loss

LCS Equal to OCS

- Safety
- Morbidity
- Mortality
- Cancer related mortality
- Local recurrence
- Port/scar metastases

Disadvantages of LCS

- 14-87 minutes longer
- Cost - not cost effective
- Steep learning curve
- Debate about rectal cancer - especially in males
Conversion

- Colonic 7 - 25%
- Rectal 12% - 50%
- Worse outcome
- >30% unacceptable
  - economic
  - organisation disruption
  - worse outcome

Learning curve

- Swiss ALS database 1995 - 2006
- 3000 lap sigmoid colectomies for DD
- Conversion trends from 27.3% - 8.6%
- Local complications 23.6% - 6.2%
- General complications 14.6% - 4.9%
- Re-operation rate 5.5% - 2.6%
- Hospital stay 11% - 7%

Sub Group Short Stay Benefit

- < 60  1 or 2 days
- Elderly - no decrease in hospital stay
- 60 - 80 - most benefitted
- Australian colon study
  - 300 cases
  - benefit for over 70
Difficulties in Lap TME

- Narrow pelvis, gun at acute angle
- Most flexible 65
- Zigzag staple line and ischaemic zone
- Difficult tumour localisation
- Less resection from side and more from left side

Options and Alternatives

- Be selective or accept
  - APR rate
  - Conversion rate
  - Morbidity rate
- Alternative techniques
  - Colo-anal hand sewn
  - Pfannensteil and Contour
  - Open surgery

Laparoscopic colorectal surgery is expensive for hospitals; fact or fiction?
**Introduction**

- NICE Guidelines 2006
- Laparoscopic Colorectal Surgery (LCS) cost difference of zero cf Open Colorectal Surgery (OCS) provided:
  - conversion rate <10%
  - Hospital stay 4 days shorter than OCS

**Cost Analysis**

- Costs for LCS and OCS were estimated with assistance from the Trust’s Finance Department and theatre database
  - General theatre costs
  - Length of stay
  - Critical care
  - Theatre time
  - Disposable instruments
  - Re-operation

- Fisher’s exact & “t” tests were used for statistical analysis

**Results**

<table>
<thead>
<tr>
<th></th>
<th>LCP</th>
<th>OCP</th>
<th>PValue</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Mean Operative Time</strong></td>
<td>212 minutes (60-544)</td>
<td>163 minutes (38-354)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td><strong>HDUT/ITU Admissions</strong></td>
<td>31 days</td>
<td>131 days</td>
<td>NA</td>
</tr>
<tr>
<td><strong>Median post operative stay</strong></td>
<td>5 days (1-44), 40% ≤ 4 days</td>
<td>10 days (2-104), 5% ≤ 4 days</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td><strong>Re-operation rate for</strong></td>
<td>4.76% (6/126)</td>
<td>4.83% (10/207)</td>
<td>NS</td>
</tr>
</tbody>
</table>
### Cost Analysis

- **Average extra-time per case:** 49 min
  - (≈ 0.2 Theatre session)
  - 20% of £1,131.75 cost = £226.35

<table>
<thead>
<tr>
<th>Basis</th>
<th>Normal working week</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 x Consultant surgeon</td>
<td>256.86</td>
</tr>
<tr>
<td>1 x Consultant anaesthetist</td>
<td>256.86</td>
</tr>
<tr>
<td>1 x SPI surgeon</td>
<td>112.66</td>
</tr>
<tr>
<td>1 x Band 7</td>
<td>118.37</td>
</tr>
<tr>
<td>1 x Band 6</td>
<td>90.94</td>
</tr>
<tr>
<td>1 x Band 5</td>
<td>76.87</td>
</tr>
<tr>
<td>1 x Band 4</td>
<td>60.84</td>
</tr>
<tr>
<td>1 x Band 3</td>
<td>51.66</td>
</tr>
<tr>
<td>2 x Band 2</td>
<td>46.36</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>1,131.75</strong></td>
</tr>
</tbody>
</table>

#### Cost Analysis

- **Cost of lap. instruments = £957.23**
  - £431.66 harmonic scalpel
  - £305.57 gun + cartridge (average)
  - £140 ports
  - £80 Hassan port

Cost of reoperation for complications
- No significant difference (4.76% V’s 4.83%)

#### LCS OCP

| General theatre | £350.80 | £307.60 |
| Critical Care | £226.35 | - |
| Theatre time | - | - |
| Lap Instruments | + £957.23 | - |
| Reoperation | Similar | - |
| **Total** | £1,534.38 | £907.60 |

- £631.49 difference = 1.3 days hospital stay
Conclusion

• If we exclude the length of hospital stay, LCS is more expensive by £631.49; equivalent to 1.3 days of hospital stay.

• Providing a Laparoscopic Colorectal Service should be cost effective provided that the hospital stay is shorter by 1.3 days.
Theatre set up and relevant anatomy

Gethin Williams MCh FRCS(GenSurg)
Laparoscopic Colorectal Masterclass

THEATRE SET UP

Patient set up

- Theatre TEAM
- Protect arms & thighs
- Radial N & B. plexus
- Warm patient
- Patient well supported
- Proximity of stack
- Tattoo of lesion?
Laparoscopic Anterior Resection Port Positions

LEGEND: M=Monitor, H=Hasson, S=Surgeon, A=Assistant.
Essential Equipment

- High flow insufflator
- 30° angled 10mm scope & 5mm scope
- Good quality 5 and 12mm ports
- Atraumatic grasping forceps
- Harmonic scalpel / Ligasure / diathermy
- Endoscopic linear cutter stapling equipment
- Endoluminal circular stapler

Graspers
Steep Trendelenburg

Problems!

Respiratory
- Atelectasis
- Worsens compliance
- Decreases FRC

Cardiovascular
- Increases CVP
- Increases C.O
- Increases cerebral circulation
  - Increases ICP
  - Increases intraocular pressure

Compartment syndrome
Ureter: key facts

- Crosses bifurcation of CIA at pelvic brim
- Gonadals are antero-lateral
- Covered by Toldt's fascia
- IMV medial
- Lateral pelvic side-wall to ischial spine

Stent all ureters?!
Medial to lateral approach

Mesenteric window

Gonadals
Ureter
External iliac artery
Blood vessels

IMA: key facts
- Supplies hindgut
- Crosses left CIA
- Becomes superior rectal artery
- Left colic – ascending & descending
- Sigmoid branches
IMV: key facts

- Begins as superior rectal vein
- Lies on posterior abdominal wall
- On left side of IMA and D-J junction
- Joins splenic v. behind pancreas
**IMV - inferior edge of pancreas, ligament of Treitz**

**Pelvic nerves: key facts**
- Autonomic fibres - Inferior mesenteric plexus
- Superior hypogastric plexus
- L & R hypogastric nerves ('erigant pillars')
- Joined by pelvic splanchnic nerves
- Outside of mesorectal plane
Hypogastric plexus

Pelvic LN

Splenic flexure

- Higher than hepatic flexure
- More posterior plane, less accessible
- Peritoneum in front
- Middle of left kidney behind
- Phrenicocolic ligament
Lateral dissection along white line

Approaching spleen

Lesser sac entered

divided gastrocolic omentum
pancreas
Left branch of middle colic

Fully mobilised splenic flexure

Mechanism - undue traction
Splenectomy

- 1-8% of left hemicolectomies
- Poor exposure, inadequate visualization
- Obesity
- Capsular tears, avulsions, lacerations
- Lower pole usually
Laparoscopic Colorectal Surgery
Anaesthetic Implications

Dr Moayed Aziz
Consultant Anaesthetist
Prince Charles Hospital

Challenges

↑ Intra-abdominal Pressure
Pneumoperitoneum
Position
↑ Cardiovascular
Effect

Peri-operative Management
- Fluid Management
- Pain Relief
Fluid Management

- Preoperative or operative hypovolaemia should be diagnosed by flow-based measurements wherever possible.
  - Doppler
  - LiDCO (Lithium Dilution Cardiac Output)

British Consensus Guidelines on Intravenous Fluid Therapy for Adult Surgical Patients

Fluid management

Intraoperative oesophageal Doppler guided fluid management shortens postoperative hospital stay after major bowel surgery

**Fluid Summary**

- Normal saline is not normal!
- Colloids are more efficient at resuscitating the intravascular space
- Colloids increase COP and may reduce oedema
- Colloids improve microcirculatory flow and are more anti- than pro-coagulant
- Balanced Colloids may be the way forward

---

**Pain Relief**

- All patients:
  - Paracetamol 6 hourly starting peri-operatively.
  - NSAID if not contraindicated.
- Options
  - Epidural Analgesia
  - PCA + TAP Block
  - Intrathecal Opioid + TAP Block

---

**Epidural Analgesia**

- Epidural analgesia is considered by many as the gold standard analgesic technique for major surgery.
- Epidural analgesia with a combination of local anaesthetic and opioid can provide complete dynamic analgesia.
- Epidural analgesia obtunds the stress response to major surgery.
Epidural Analgesia

Respiratory effects:
- Epidural opioids and local anaesthetic infusions have been shown to:
  - Reduce the incidence of postoperative atelectasis
  - Reduce pulmonary infection
  - Improve postoperative oxygenation.

Cardiovascular effects:
- Reduce postop. MI, improve demand/supply ratio through:
  - Reduction of sympathetic activity;
  - Improved postoperative pulmonary function;
  - Reduced thrombotic tendency.

GIT effects:
- Limiting systemic opioid use and improving intestinal motility by blocking nociceptive and sympathetic reflexes,
- Reduces the duration of postoperative ileus, permitting earlier enteral feeding.
- This in turn has a beneficial effect on postoperative catabolism.
Epidural Analgesia

- **MASTER study**
- No difference in overall mortality between the groups. However, they did show:
  - Reduced incidence of pulmonary complications
  - Reduced thromboembolic events
  - Significantly better analgesia in the epidural group.

---

Epidural Analgesia

- **Why?**
  - Firstly, as a result of current surgical, anaesthetic and intensive care practice, mortality rates from major surgery, even in high-risk patients, are small. Therefore, the use of mortality as an end-point may not be appropriate.

---

Epidural Analgesia

- **Why?**
  - Secondly, to provide the beneficial effects, epidurals have to work.
  - Technical problems (e.g. leaks, catheters falling out)
  - Lack of facilities to care for patients with epidurals.
  - Lack of acute pain management team
Complications of Epidural Analgesia

- Related to catheter insertion
  - Dural puncture 0.32–1.23
  - Neurological damage (usually transient) 0.016–0.36
- Related to catheter in situ
  - Epidural haematoma 0.0004–0.03
  - Epidural abscess 0.03–0.06
  - Catheter migration 0.15–0.18
- Related to epidural drugs
  - Drug errors Not known
  - Respiratory depression 0.13–0.4
  - Hypotension 3–30
  - CNS toxicity 0.01–0.12
  - Motor block 5

Intrathecal Opioid

- The physicochemical properties of intrathecal opioids determine their
  - onset time,
  - duration of action,
  - and potency.

Intrathecal Opioid

- In 1968, Melzack and Wall put forward their 'gate control theory' proposing that the spinal cord was a potential target site for modulation of pain signals.
- This led to the discovery of opioid receptors by Pert and Snyder in 1973
- Wang was the first to describe the intrathecal administration of morphine
Intrathecal Opioid

Site of action:

- Intrathecal opioids bind to a family of G-protein-linked pre- and postsynaptic opioid receptors in Laminae I and II of the dorsal horn.

Intrathecal Opioid

- Diamorphine is a lipid soluble prodrug with an octanol:water coefficient of 280 (Fentanyl 860, Morphine 1.4)
  - Slower to act than Fentanyl but longer duration of action
  - Shorter duration of action than Morphine

Intrathecal Opioid

- The side-effects of intrathecal opioids are:
  - Sedation,
  - Sweating,
  - Delayed gastric emptying,
  - Urinary retention,
  - Pruritus,
  - Nausea and vomiting,
  - And respiratory depression.
Patient Controlled Analgesia
PCA
- Opioid analgesia, Morphine most commonly used
- Provide a steady state plasma level of opioid used
- Self-administration of IV opioid
- Safety features integrated in the PCA pump

PCA
Side effects:
- nausea and vomiting,
- pruritus, sedation,
- respiratory depression,
- confusion.

The Transversus Abdominis Plane Block
- TAP Block:
  - Pett Triangle
  - Needle inserted perpendicular to skin
  - 2 pokes
  - Local anaesthetics injected in TAP between Internal Oblique and Transversus Abdominis muscle
  - High volume, low concentration LA for eg. Chlorocaine 0.25% 30 ml each side
**TAP Block**

- In a small cadaveric study, T11, T12 and L1 were most consistently present in the transversus abdominis plane, while T10 was present in 50% of the cases.
- It is reasonable to expect a good analgesic effect in the region between T10 and L1 following a single posterior injection.

**Intrathecal opioid vs Epidural analgesia**

- Short-term outcomes with intrathecal versus epidural analgesia in laparoscopic colorectal surgery.
  - Patients who had intrathecal analgesia had:
    - a reduced median postoperative pain score.
    - and a shorter hospital stay (4 versus 5 days; P < 0.001).
    - Return to normal gut function and postoperative nausea and vomiting were similar in the two groups.
Post-operative Pain Relief

- Regular simple analgesics
- Multimodal
- Local anaesthetics techniques for all patients (infiltration, TAP block) excluding Epidural analgesia (toxicity) or contraindications
- The choice of post-operative plan tailored to patients need
- Spinal opioid provide superior analgesia compared with PCA and Epidural

Post-operative Pain Relief

- Pain management team
- Regular audit
- Patient education

THANK YOU

Any Questions?
Anaesthetic implications of laparoscopic colorectal surgery

Laparoscopic surgery offers major benefits for the patient. Minimised incision size and trauma with reduced postoperative pain shortens recovery period and associated with lower wound infection rate. These factors lead to shorter hospital stay and reduced morbidity. Many surgical procedures that once required long hospital stay such as Anterior Resection of Rectum are now performed as laparoscopic approach with significantly reduced morbidity and hospital stay.

Laparoscopic surgery is not without risks. These risks (in addition to the risks associated with the individual procedure) associated with the physiological change caused by pneumoperitoneum and positioning of the patient.

A report by the National Patient Safety Agency (NPSA) has identified 48 serious incidents associated with laparoscopic surgery in 7 years period, including 11 deaths.

Table 1: Benefits and Risks of Laparoscopic Surgery.

<table>
<thead>
<tr>
<th>Benefits</th>
<th>Risks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reduced wound infection</td>
<td>Vascular and visceral injury</td>
</tr>
<tr>
<td>Shorter recovery time</td>
<td>Positioning</td>
</tr>
<tr>
<td>Decreased morbidity</td>
<td>Cardiovascular instability</td>
</tr>
<tr>
<td>Less postoperative pain</td>
<td>Respiratory insufficiency (atelectasis)</td>
</tr>
<tr>
<td>Shorter hospital stay</td>
<td>Gas embolism</td>
</tr>
<tr>
<td></td>
<td>Lower limb compartment syndrome</td>
</tr>
</tbody>
</table>

Challenges

The main challenges that are associated with colorectal laparoscopic surgery are:
1/ Pneumoperitoneum
2/ Positioning

Figure 1: challenges.

Pneumoperitoneum

\[\uparrow \text{Intra-abdominal Pressure}\]

Position

Cardiovascular
Respiratory
Cerebral Effect

Figure 1: challenges.
Positioning

Patient positioning represent an important part of laparoscopic procedure, as it facilitate and optimise surgical access. It often involves the extremes of Trendelenburg or reverse Trendelenburg position with significant physiological effects. Meticulous attention should be paid to securing the patient on the table, as peri-operative changes can put the patient at risk of movement on the table. Pressure points should be protected meticulously, to prevent pressure points during a prolong surgery.

Prolonged steep Trendelenburg position increase the risk of cerebral oedema, in addition to risk of pneumoperitoneum, and upper airway oedema which may cause stridor and difficulty in breathing postoperatively

Functional residual capacity and ventilation perfusion (V/Q) mismatch are worsened, and with cephalad movement of the lungs, the tracheal tube may migrate endobronchially.

Another rare but devastating complication of Trendelenburg position is the onset of “well leg compartment syndrome” induced by the combination of impaired arterial perfusion to raised lower limb, compression of venous vessels by lower limb supports, and reduced femoral drainage due to the pneumoperitoneum. The compartment syndrome presents after the operation with severe lower limb pain, rhabdomyolysis, and potentially myoglobin-associated acute renal failure leading to significantly increased morbidity and mortality.

Risk factors include surgery more than 4 hours duration, musculat lower limb, obesity, peripheral vascular disease, and steep Trendelenburg positioning.

Risks can be mitigated by avoiding intermittent compression stockings, moving patient’s legs at regular intervals, and the use of heel/ankle support instead of calf/ankle supports (Lloyd-Davies stirrups). For prolong operations, the risks can be reduced by returning the patient to horizontal position every 2 hours with lower limbs massage for 10 minutes. The placement of pulse oximetry on the big toe through the surgery can be used to assess the perfusion and pulsatile flow of distal areas of the lower limb.

In the reverse Trendelenburg position, the extreme head up position results in reduced venous return, leading to hypotension and potentially myocardial ischemia and cerebral ischemia. Particularly vulnerable are the elderly, hypovolaemic patients, and those with pre-existing ischemic heart disease and cerebrovascular disease.
Table 2: Cardiovascular and respiratory changes associated with positioning.

<table>
<thead>
<tr>
<th></th>
<th>Trendelenburg</th>
<th>Reverse Trendelenburg</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Cardiovascular</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• VR</td>
<td>↑</td>
<td>↓</td>
</tr>
<tr>
<td>• CO</td>
<td>↑</td>
<td>↓</td>
</tr>
<tr>
<td>• BP</td>
<td>⇔</td>
<td>↓</td>
</tr>
<tr>
<td><strong>Respiratory</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Lung volumes</td>
<td>↓</td>
<td>⇔</td>
</tr>
<tr>
<td>• V/Q mismatch</td>
<td>↑</td>
<td>⇔</td>
</tr>
<tr>
<td>• Atelectasis</td>
<td>↑</td>
<td>⇔</td>
</tr>
</tbody>
</table>

**Pneumoperitoneum**

Pneumoperitoneum is created using insufflated carbon dioxide to enable sufficient visualisation for the procedure to be performed. As the volume of the abdomen increases, abdominal wall compliance decreases and intra-abdominal pressure (IAP) climbs. When IAP exceeds physiological thresholds, individual organ systems become compromised, potentially increasing patient morbidity and mortality, particularly in Patients with relevant co-morbidities.

**Cardiovascular effects:**

As IAP increases, systemic vascular resistance (SVR) is increased due to both mechanical compression of the abdominal aorta and production of neurohumoral factors such as vasopressin and activation of the renin–angiotensin–aldosterone axis. Compression of the inferior vena cava reduces preload and may lead to a decrease in cardiac output and subsequent decrease in arterial pressure, particularly if the patient is hypovolaemic. This may be exacerbated by the cephalad displacement of the diaphragm which raises intra-thoracic pressure with further reduction in blood flow through the inferior vena cava, and compression of pulmonary parenchyma which increases pulmonary vascular resistance, further reducing cardiac output.

Reverse Trendelenburg positioning may also result in hypotension due to the reduction in preload by venous pooling in the lower limbs and pelvis which in turn is exacerbated by reduced femoral venous flow secondary to raised IAP.
Respiratory effects

Respiratory changes occur due to raised IAP and Trendelenburg positioning. As the abdomen is distended by CO2, diaphragmatic excursion is limited resulting in raised intra-thoracic pressure, reduced pulmonary compliance, and reduced functional residual capacity which in turn leads to pulmonary atelectasis, altered V/Q relationships, and hypoxaemia. During surgery, insufflated CO2 is absorbed, causing an increase in PCO2 which is further exacerbated by V/Q mismatch.

Splanchnic effects

Blood flow to the kidney and liver is significantly compromised with increasing IAP and this should be an important consideration in patients with existing disease when determining suitability for laparoscopic surgery.

Persistent IAPs over 20 mm Hg will cause a reduction in mesenteric and gastrointestinal mucosal blood flow by up to 40% with progressive tissue acidosis developing as pressure increases. The renal effects of pneumoperitoneum are significant and raised IAP is recognized as an independent cause of acute kidney injury. An IAP of 20 mm Hg will reduce GFR by 25%. The mechanism for this is postulated to be an impaired renal perfusion gradient secondary to the combined effect of reduced renal afferent flow due to impaired cardiac output and reduced efferent flow due to raised renal venous pressure.

Neurological effects

An elevated IAP causes an increase in intra-cerebral pressure (ICP) by limiting cerebral venous drainage as a consequence of raised intra-thoracic pressure. While clinical studies have suggested that cerebral perfusion pressure is maintained by the increase in mean arterial pressure that occurs with elevated IAP, the increase in ICP may lead to cerebral oedema. This contributes to the temporary neurological dysfunction that patients often experience on emergence from prolonged laparoscopic procedures, particularly those requiring extended periods of steep Trendelenburg positioning.
Table 3: Physiological changes associated with pneumoperitoneum.

**Cardiovascular:**
- IAP < 10 mm Hg → \( \uparrow \text{VR} \rightarrow \uparrow \text{CO} \)
- IAP 10–20 mm Hg → \( \uparrow \text{IAP} \rightarrow \downarrow \text{VR} \rightarrow \downarrow \text{CO} \)
  \( \uparrow \text{IAP} \rightarrow \uparrow \text{SVR} \)
  \( \text{BP} = \downarrow \text{CO} \times \uparrow \uparrow \text{SVR} \leftrightarrow \uparrow \text{BP} \)
- IAP > 20 mm Hg

**Respiratory:**
- Lung volumes esp FRC \( \downarrow \)
- Airway resistance \( \uparrow \)
- Pulmonary compliance \( \downarrow \)
- Airway pressure \( \uparrow \)
- Risk of barotrauma \( \uparrow \)
- V/Q mismatch \( \uparrow \)

**Renal:**
- Renal function \( \downarrow \)

**Gastrointestinal:**
- Risk of regurgitation \( \uparrow \)

**Neurological:**
- ICP \( \leftrightarrow \uparrow \)
- CPP \( \leftrightarrow \downarrow \)
Enhanced Recovery After Colon, Rectal And Pelvic Surgery

Mr CR Selvasekar MD, FRCS
Consultant Colorectal & Laparoscopic Surgeon, The Christie NHS Foundation Trust, Manchester

ERP?

- What exactly is ERP?
- Key components
- ERP in pelvic surgery
- Implementing ERP

What is ERP?

- Reduction of surgical stress
- Promotion of recovery of normal functions
How?

- Significant evidence on the optimisation of perioperative care
- Synthesized, integrated and applied in a comprehensive programme

Reasons to invest in ERP protocol

- ↓ postoperative morbidity
- ↓ time to recovery
- ↓ health provider costs

ERP significantly reduces postoperative morbidity

ERAS significantly reduces postoperative hospital stay

Day 0 5 10
Postoperative length of stay
ERAS (n = 230)
Traditional (n = 230)


ERAS significantly reduces health provider costs

<table>
<thead>
<tr>
<th></th>
<th>ERAS (n=50) (NZD)</th>
<th>Trad (n=50) (NZD)</th>
<th>Difference (NZD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ERAS course &amp; materials</td>
<td>10,561</td>
<td>0</td>
<td>10,561</td>
</tr>
<tr>
<td>Research Fellow/ERAS nurse</td>
<td>84,144</td>
<td>0</td>
<td>84,144</td>
</tr>
<tr>
<td>ERAS patient booklet</td>
<td>210</td>
<td>0</td>
<td>210</td>
</tr>
<tr>
<td>Nutritional supplements</td>
<td>1,476</td>
<td>0</td>
<td>1,476</td>
</tr>
<tr>
<td>Tetanus vaccine</td>
<td>71</td>
<td>0</td>
<td>71</td>
</tr>
<tr>
<td>Outpatient clinic slots</td>
<td>7,788</td>
<td>0</td>
<td>7,788</td>
</tr>
<tr>
<td>Fluids</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Epidurals</td>
<td>6,921</td>
<td>7,831</td>
<td>-910</td>
</tr>
<tr>
<td>Complication costs</td>
<td>470,357</td>
<td>746,126</td>
<td>-275,769</td>
</tr>
<tr>
<td>Ward stay</td>
<td>214,531</td>
<td>375,571</td>
<td>-161,220</td>
</tr>
<tr>
<td>TOTAL</td>
<td>802,618</td>
<td>1,166,487</td>
<td>-364,219</td>
</tr>
</tbody>
</table>

ERAS course Denmark
Research Fellow/ERAS nurse
ERAS patient booklet
Nutritional supplements
Complication costs
Ward stay
TOTAL PER PATIENT

1,476 71 5,788 8,738 6,921 470,357
-8,020 -910 -275,969 -161,220 -343,869

Nutritional supplements
Tenoxicam
Outpatient clinic slots
Fluids
Complication costs
TOTAL PER PATIENT

16,758 7,831 746,326 375,571 1,146,487

A brief history of ERAS

Bardram 1995:
Laparoscopy!
Surgery diet!
Early mobilisation!
Preadmission education!

Kehlet 1998:
Early diet!
Early mobilisation!
Preadmission education!

Delaney 2003:
Early diet!
Early mobilisation!
Preadmission education!

Anderson 2005:
Early diet!
Early mobilisation!
Preadmission education!
No oral bowel prep!
Preop carbohydrate!
3o% oxygen therapy!
ERAS Study Group protocol for elective colonic surgery

**Preoperative elements!**
- Preadmission patient education with discharge planning
- No oral bowel prep
- Preop carbohydrates
- No sedating premedication

**Intraoperative elements!**
- Short incisions or laparoscopy
- No fluid overloading
- Active warming
- No wound drainage
- No nasogastric drainage

**Postoperative elements!**
- Mid-thoracic epidural 48 h
- Oral diet 4 h postop
- Mobilization 4-6 h postop
- Removal of urinary drainage at 24 h


---

ERAS Study Group protocol for elective rectal surgery

**Preoperative elements!**
- Preadmission patient education with discharge planning
- Oral bowel prep given
- Preop carbohydrates
- No sedating premedication

**Intraoperative elements!**
- Short incisions or laparoscopy
- No fluid overloading
- Active warming
- No wound drainage
- No nasogastric drainage

**Postoperative elements!**
- Mid-thoracic epidural 96 h
- Oral diet 4 h postop
- Mobilization 6-8 h postop
- Removal of urinary drainage at 96 h

Preoperative patient education with discharge planning

Several RCTs of standard reassurance vs education and instruction:

- 50% reduction in analgesics requirements!
- 38% reduction in time to first status!
- 20% reduction in length of hospital stay


Preoperative patient education with discharge planning

ERAS nurse meets patient and one relative in clinic!
Structured education about their operation and perioperative care!

Preoperative overnight fasting: A history lesson

- Originated in 1848 after aspiration during ether anaesthesia!
- ≥200 ml/s needed for passive regurgitation!
- Is overnight fasting needed?

Preoperative fasting: Current guidelines

<table>
<thead>
<tr>
<th></th>
<th>Clear Fluids</th>
<th>Solids</th>
<th>Exceptions</th>
</tr>
</thead>
<tbody>
<tr>
<td>NZ</td>
<td>2h</td>
<td>6h</td>
<td>Emergencies</td>
</tr>
<tr>
<td>UK</td>
<td>3h</td>
<td>6h</td>
<td>Slow gastric emptying</td>
</tr>
<tr>
<td>US</td>
<td>2h</td>
<td>6h</td>
<td></td>
</tr>
</tbody>
</table>

Preoperative oral carbohydrate treatment: Concept

- 12.5% complex carbohydrate solution!
- 285 mosmol/kg!
- 400 ml (50 g) a metabolic breakfast

Early (<24 h) feeding after gastrointestinal surgery prevents infections

- Anastomotic leak
- Infection complications
- Intraabdominal abscess

Combined relative risk

Favours early diet
Favours postop fasting

Early (<24 h) feeding above a colorectal anastomosis is safe

Anastomotic leak

Vomiting

Combined relative risk

Early vs no early diet

Favours early diet Favours postop fasting

n=13 RCTs (1173 pts)

Anderson et al, Cochrane Database Syst Rev 2006;CD004080.

Mid-thoracic epidural analgesia attenuates postoperative ileus

n=7 RCTs

Lost bowel movement difference (hours)

Favours IDA Favours PCA


Mid-thoracic epidural analgesia provides superior analgesia

n=124 RCTs

VAS score

Block et al, JAMA 2003;290:2455.

Low-thoracic epidural analgesia does not attenuate ileus

- RCT in lap colon resection!
- EDA vs spinal vs PCA!
- T9-T12 insertion


NSAIDs and anastomotic dehiscence - observational data


NSAIDs and anastomotic dehiscence - meta-analysis

Avoidance of Fluid Overloading

- Major:
  - Restricted group (n=69)
  - Standard group (n=72)

- Minor:
  - Restricted group (n=69)
  - Standard group (n=72)

- Tissue Healing:
  - Restricted group (n=69)
  - Standard group (n=72)

- Cardiovascular:
  - Restricted group (n=69)
  - Standard group (n=72)

Brandstrup et al., Ann of Surg, 2003;238:5

Avoidance of Fluid Overloading

- Flatus:
  - Restricted group (n=77)
  - Liberal group (n=77)

- Feces:
  - Restricted group (n=77)
  - Liberal group (n=77)

- Length of Stay:
  - Restricted group (n=75)
  - Liberal group (n=77)

Nisanevich et al., Anesthiology, 2005;103:25-32

Avoidance of Fluid Overloading

- Restricted group (n=9):
  - IO 4ml/kg/hr, POD0-1 2000ml
  - Total: 10

- Standard group (n=11):
  - IO 12ml/kg/hr, POD0-1 3000ml
  - Total: 24

McArdle et al., Ann Surg, 2009;25-1
Doppler within ERAS?

- Control group in all previous RCTs: traditional fluid therapy (fluid overloading)
- Recently completed Auckland RCT: Doppler-directed fluid therapy vs balanced fluid therapy

Srinivasan et al, Br J Surg 2012; accepted for publication

Doppler within ERAS?

- n=37
  - 1500 ml Plasma-Lyte + 0-500 ml Colloid if indicated
  - Intraop IVF: 1614 (420) mL

- n=37
  - 1500 ml Plasma-Lyte + 250 ml-boluses of Colloid until stroke volume by Doppler maximised
  - Intraop IVF: 1994 (590) mL! (P<0.01)

No differences in postop IVF, weight gain, urine output, recovery, detailed 30-day morbidity

Srinivasan et al, Br J Surg 2012; accepted for publication

Enhanced-recovery protocol ± laparoscopic surgery

Denmark

UK

Laparoscopic surgery ± enhanced-recovery protocol

Dutch multi-centre LAFATrial

Discharge

<table>
<thead>
<tr>
<th>Discharge criteria</th>
<th>Day</th>
</tr>
</thead>
<tbody>
<tr>
<td>Able to eat and drink (&gt;800 mls/d)</td>
<td>1</td>
</tr>
<tr>
<td>Good pain relief on oral analgesia (VAS ≤4)</td>
<td>2</td>
</tr>
<tr>
<td>Bowel function (repeated flatus OR stools)</td>
<td>2</td>
</tr>
<tr>
<td>Normal obs</td>
<td></td>
</tr>
</tbody>
</table>
Followup

Colorectal specialist nurse calls at 48 hours after discharge!
Patient calls ward directly with issues the first week!
Surgical followup at 4 weeks

23-hour stay colorectal resection: Guilford pilot study

Selection to 23-h protocol:
- ASA 1-2!
- Age <75!
- BMI <25!
- Incision <7 cm!
- Uncomplicated operation!
- Care giver at home for 24 h!
- Living <10 miles away

ERAS modifications:
- Spinal anaesthesia!
- Paracetamol+NSAID!
- Foley out at midnight!
- Discharge at 23 hours!
- Phone call PM POD 1


Demographics:
- Males:females 4:6!
- Age 60 (43-72)!
- ASA 1:ASA 2 1:9

Operations:
- 5 right hemicolectomy!
- 1 left hemicolectomy!
- 2 sigmoid colectomy!
- 2 high anterior resection!
- 2 low anterior resection

23-hour stay colorectal resection: Guilford pilot study

- Discharged at 23 h: 10/10
- Readmission: 0/10
- Breakthrough morphine: 1/10
- Would recommend pathway: 10/10

Ley BH et al, Dis Colon Rectum 2009;52:1229

---

Oral bowel preparation in low anterior resection

- Overall morbidity
  - Control (n=89): 27.8%
  - Oral bowel prep (n=89): 22.8%
- Infections
  - Control (n=89): 10.0%
  - Oral bowel prep (n=89): 8.0%
- Anastomotic leak
  - Control (n=89): 10.0%
  - Oral bowel prep (n=89): 8.0%
- Reoperations
  - Control (n=89): 4.0%
  - Oral bowel prep (n=89): 0.0%


---

Pelvic drainage

- Supported by data from the Dutch TME trial!
- Meta analysis in rectal surgery (French, 5 RCTs)!
- Drains do not improve leak rate or overall outcome

Proctectomy in ERAS

- ERAS is here!
- In colon surgery, ERAS halves overall complication rates!
- Reduces LOS by 2-3 days!
- Is cost effective!
- Adaptable to pelvic surgery and other subspecialties

Robotic Colorectal Surgery

Selvasekar MD, FRCS
Consultant Colorectal and Laparoscopic Surgeon
The Christie NHS Foundation Trust, Manchester

Advances in Surgery Can Be Measured By the Size of the Scars

Minimally Invasive Surgery
Open Surgery
Basic Laparoscopic Surgery
Robotics / NOTES / SILS
Advantages of MIS Colectomy
Systematic review – Lap vs. Open Colon Trials

- Smaller incisions
- Less blood loss
- Faster GI recovery
- Shorter length of stay
- Less postop narcotics
- Less pulmonary infections
- Less wound infections

Noel, Cima, Dozois, Senegore et al. JACS 2007* 11,910 pts - 22 RCT, 66 cohort series

Limitations of Laparoscopy
Current Perspective (*20 years later...)

- Fixed instrument tips with limited dexterity
- Exposure, retraction difficult
- Two-dimensional views
- Operator fatigue, long cases
- Steep learning curve, pelvis

Robotic Surgery

Cadiere, 1991 Cholecystectomy

Marescaux, 2001 Transatlantic robotic-assisted telesurgery
Robotic Platform

- Restores "feel" of open surgery in MIS setting
- Improved ergonomics
- Motion scaling
- 3D vision & magnification
- Filters tremor
- Increases range of motion

Robotic Surgery

Theoretical Advantages

- Shorter learning curve than lap?
- Larger number of surgeons will be able to make safe transition to MIS?
- More precise dissection will lead to better cancer outcomes and fewer complications (bleeding, nerves)?
Robotic Surgery
Theoretical Advantages

*Surgeon fatigue, spine/hand injury?
Education - telementoring?
Integration of technology – staples, ligasure, harmonic, SILS device?

*Park et al. JACS 2010;210:306-313

---

Drawbacks of Robotic System

Lack of tactile & tensile feedback
Prompt open conversion impossible?
Time – setup, docking, takedown

Cost:
  - Initial ($1.8 million per da Vinci-S)
  - Maintenance ($100,000/year)
  - Disposables ($ 1500/case)

---

Robotic Technique
Evolution – Rectal Dissection

Hybrid Robotic
Laparoscopy flexure
Robotic TME

Totally Robotic*
Flexure, vessels
TME

Christie Experience

Total procedures: 8
Male: 4
Age: 71.5 (44-79)
Operation Types:
- Anterior Resection: 3
- Abdominoperineal Resection: 3
- Rectopexy: 1
- Posterior Clearance: 1
LOS: 9 (7-12)
Post operative complications: Nil

Robotic Right Hemicolecotomy

Surgical Technique – Robotic port placement

Robotic Right Hemicolecotomy

No difference in lymph node harvest, EBL, conversion, LOS, complication, wound infection.

Robotic procedure
- Longer operating time
- Higher cost
- No technical advantage
Robotic Right Hemicolecetomy

Conclusion

No Role

Robotic Left Colon & Rectal Cancer

Feasibility, Safety Outcomes

<table>
<thead>
<tr>
<th>No. Pts</th>
<th>LC (27), R (28)</th>
</tr>
</thead>
<tbody>
<tr>
<td>OR time (min)</td>
<td>290</td>
</tr>
<tr>
<td>EBL (ml)</td>
<td>68</td>
</tr>
<tr>
<td>Conversion</td>
<td>0</td>
</tr>
<tr>
<td>Leaks</td>
<td>7 (2C, 5R)</td>
</tr>
<tr>
<td>Reinterventions</td>
<td>0</td>
</tr>
</tbody>
</table>


Robotic Left Colon & Rectal Cancer

Oncologic Outcomes

| Nodes | 18.5 |
| Distal margin (cm) | 2.5 |
| Quality of TME | |
| Complete | 22 |
| Nearly complete | 6 |
| Incomplete | 0 |

Robotic Proctectomy - Rectal Cancer
Feasibility, Safety Outcomes

- No. pts: 50
- BMI: 23
- OR time (min): 304
- Conversion: 0
-Leaks: 4
-Complications: 18%

*Choi, Kim et al. DCR 2009;52:1824-1830

Robotic Proctectomy - Rectal Cancer
Oncologic Outcomes

- Nodes: 20.6
- Distal margin (cm): 1.9
- Circumferential Margin:
  - Complete: 49
  - Positive: 1

*Choi, Kim et al. DCR 2009;52:1824-1830

Drawbacks of Robotic System

- Lack of tactile & tensile feedback
- Prompt open conversion impossible?

Cost:
- Initial ($1.5 per da Vinci-S)
- Maintenance ($100,000/year)
- Equipment ($<2000/case) – drapes, endo
  wrist instruments, other disposables
Current Questions
Robotic Pelvic Surgery

Will robotic surgery lead to more accurate, and more precise anatomic resections?

Will this lead to better cancer outcomes?

Will this lead to safer (less bleeding) and less collateral damage (ureter, nerves) and better QOL postoperative outcomes?

ROLARR Trial

International RCT
Primary end point: rate of conversion to open surgery
Secondary end points:
- pathological CRM
- 3 yr LR
- Postoperative complications
- Sexual and bladder function
- Patient self-reported QOL
- QALY
- Health economics
- Direct resource utilization
- Cost effectiveness

Thank You
Laparoscopic Colorectal Surgery in Swansea
Experience of a UK National Fellowship Training Centre

Umesh Khot
Consultant Surgeon

History of Lap Colorectal Surgery

- Technique development slow - technically demanding, multi-quadrant, anatomical challenge and need for special instruments.
- Experience and technological advances – disadvantages overcome.


Evidence

- Conventional Vs. Laparoscopic-Assisted Surgery in patients with colorectal cancer CLASICC 2005
- Colon Cancer Laparoscopic or Open resection COLOR 2005
- Collaborative Review of Surgical Therapy COST 2004
- Cochrane review (25 RCTs)

Short term benefits LS vs. OS

- Reduced intra-operative blood loss (LS)
- Reduced postoperative pain (LS)
- Shorter duration of postoperative ileus (LS)
- Improved postoperative pulmonary function (LS)
- Shorter length of hospital stay (LS)
Evidence
Laparoscopic Surgery for colorectal cancer is safe and effective.
- Meta-analysis & Systematic review of 19 RCT's
- NICE guidance TA105, August 2006
- DOH

Advantages
Improved short-term outcomes
- Less pain (small incisions)
- Early mobility and gut function
- Reduced LOS
- Cosmesis
- Early return to daily activity/work - benefit to society

Oncological and long-term outcome similar to open surgery

Disadvantages
Not many!
Cost (offset by advantages)
- £1500 saving per patient – bed cost
- Less use of intensive care/blood products

Long learning curve!
- Well trained surgeon - Open before Laparoscopy!!!
Focus Today

- High Quality Surgery-DOH
- ERP-National Programmes
- Anaesthetic modifications
- Team work

This operation is too difficult “open”.........
let's convert to laparoscopic!!!

When we started-2007

- No modern equipment for 9 months
- General instruments
Now

- SHD Stacks-4
- LCS trays
- Harmonic scalpel & Oesophageal Doppler
- Special Table

What is Ideal

- OR1

The Team

- Surgeon
- Anaesthetist
- Nurses
- Pain team
- Physiotherapy / Occupational therapy
- Dietician
- Specialist Nurses
- And the PATIENT!
The Package

- Enhanced Recovery Programme
- Pre-operative optimisation
- Replenished Bowel Preparation
- Laparoscopic Surgery
- Epidural vs. Intrathecal
- Minimised use of OPIATES!
- Early mobilisation
- Fluids Day 1 / Solids Day 2

Anaesthetic Consortium-Pivotal!

Implementation

Laparoscopic Surgery-Consultant Training
- National Programme - LAPCO
- Preceptorship
- Fellowships
- ERP-National Programme
Preop Surgeon
- Pre-assessment and ERAS pathway
- Consent pro vs. cons (previous open op)
- Counselling (opioids) Information booklet
- EDD suitability to go home early
- Stoma training
- Meeting CNS
- MDT

Preop Anaesthetist
- Managing patients’ expectations
- Informed choice of anaesthetic technique
- DOSA
- Fluid optimisation?
- Pre-medication
- Bowel preparation

Intraoperative Methods
- Dexa/ondensetron
- Antibiotics
- Intrathecal Analgesia-DOSE
- Gel pad protector
- Maquet Alpha Max operating table
- Doppler guided fluid management
2007 Swansea - a new start

- Gold standard - Epidural!
- Problems!!
- Hampered Enhanced Recovery!!
- Alternative????

Swansea Lead

Intrathecal Analgesia
in
Colorectal Surgery

Intrathecal Analgesia at Singleton

Short-term outcomes with intrathecal versus epidural analgesia in laparoscopic colorectal surgery.

Virlos I, Clements D, Beynon J, Bottrell B, Khot U.

British Journal of Surgery 2010;97:1401-1406
Oesophageal Doppler

Postoperative Surgical Care
- Carbohydrate/Protein drinks @2hrs
- Min IV usually no more than 1 litre
- Mobilisation next day (pedometer)
- 2 doses antibiotics
- Free fluids/Breakfast next day/Full diet
- Catheter,PCA removed next day
- PCA/data collected by patient

Post Discharge
- Aim – Safe early discharge
- Intensive stoma care training
- Community support
  - Information leaflets provided
  - Telephone contact
  - Home visit
- Consultant/Nurse clinic led follow up
CNS Role

- Key worker role
  - Team approach
- Provide patient support and counselling
- Patient education – Specialised leaflets
- Relatives/carers involved

National Outcomes-NBOCAP 2007
(Benchmark when I started)

- LOS 11 days in the UK
- LCS offered in <5% cases
- Conversion 7-21% (5.5% in 2007)

Our Results

<table>
<thead>
<tr>
<th>Procedure</th>
<th>Cases</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>Right Hemicolectomy</td>
<td>295</td>
<td>47%</td>
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<tr>
<td>Sigmoid Colectomy</td>
<td>75</td>
<td>12%</td>
</tr>
<tr>
<td>Anterior Resection</td>
<td>78</td>
<td>13%</td>
</tr>
<tr>
<td>Low Anterior Resection</td>
<td>62</td>
<td>10%</td>
</tr>
<tr>
<td>Rectosigmoidectomy/Midcolonic colectomy</td>
<td>58</td>
<td>9%</td>
</tr>
<tr>
<td>Non-slabouch proctectomy</td>
<td>25</td>
<td>4%</td>
</tr>
<tr>
<td>Revisions</td>
<td>12</td>
<td>2%</td>
</tr>
<tr>
<td>Hartmann’s reversal</td>
<td>24</td>
<td>4%</td>
</tr>
</tbody>
</table>

617 cases
Our Results

- Conversion 10.2% (63/617)
  - bleeding, vascular problem, equipment failure
- Major complication 9.3% (57/617)
  - sepsis, respiratory, cardiac, renal
- Mortality 1.0% (6), day 28 cardiac
- Readmission 37% (6)
- LOS 2-4 days (Open surgery 10 days)
- Operating time Similar (45min-3hrs)

Cost Audit

<table>
<thead>
<tr>
<th>Operation</th>
<th>Open</th>
<th>Laparoscopic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sigmoid Colectomy</td>
<td>£4025</td>
<td>£3081</td>
</tr>
<tr>
<td>Right Hemicolectomy</td>
<td>£3166</td>
<td>£2242</td>
</tr>
</tbody>
</table>

Cost saving of around £900 with laparoscopic approach!

**Recovery times cut by three weeks**

- The sixth in a series of Colorectal Masterclasses, doctors and surgeons attended a recent Colorectal Course at the Prince Charles Hospital, Merthyr Tydfil.
- Many patients who have undergone open surgery are now opting for laparoscopic surgery, which is less invasive and has shorter recovery times.
- A recent study conducted by Dr. John Smith at the Prince Charles Hospital, Merthyr Tydfil, found that patients undergoing laparoscopic surgery had a shorter hospital stay and quicker recovery compared to those undergoing open surgery.
- The study also highlighted that patients undergoing laparoscopic surgery had a lower risk of complications and a higher satisfaction rate.
- In conclusion, laparoscopic surgery is a safe and effective alternative to open surgery, offering quicker recovery times and a lower risk of complications.

Laparoscopic Colorectal Surgery Course & Master Class
26th and 27th September 2012, Prince Charles Hospital, Merthyr Tydfil, Wales

www.doctorsacademy.org
Hospital stay and return to full activity following laparoscopic colorectal surgery.
Raymond T. Dastur, Khot UP, Parker MC.

Following laparoscopic colorectal surgery, patients can be expected to return to their usual activities within a week after discharge from the hospital and less than 2 weeks from surgery.

Oncological outcome after Laparoscopic Abdominoperineal Excision of Rectum (APER)

Colorectal Disease 2012 Aug;14(8):967-71

Which would you prefer?
Elderly and ERAS

- Mean age 67 years
- Colorectal Population
  - 70% patients > 65 yrs
  - 2.5x Cancer risk (Age > 80 yrs)
- More to Gain?

Laparoscopic Right Hemicolecotomy

Ethicon-Fellowship

- 7 Fellows so far
- All practising Consultants
- 40 cases over six months
- Complete Consultant level training
- Highly recommended near CCT…but
  Swansea has withdrawn from 2013!!
Thank You Ethicon EndoSurgery!

- Special Thanks to Anna & Malith for their hard work and support in bringing the Fellowship to Wales.
- Thanks to Colleagues and ABM management for supporting the Fellowship.

Thank you!

Questions?
Accommodation

Ty Newydd Country offers tranquillity, comfort and excellent food - and some of the most beautiful scenery in Wales! It provides every modern convenience, while retaining the character and style of a fine Georgian country house. With 28 beautifully appointed bedrooms to unwind in, hot bath, free broadband connection in every room, a fantastic restaurant, log fires, a nice ambience, a welcoming bar and lovely gardens with magnificent views of the Beacons and Neath Valley, the hotel is an excellent place for a nice and relaxing stay.

Details
Ty Newydd Country Hotel
Penderyn Road
Hirwaun
Aberdare
Mid Glamorgan
CF44 9SX

W: http://www.tynewyddcountryhotel.co.uk/
T: 01685 813 433
Contact: Ms Melanie Hillier - melanie@tynewyddcountryhotel.co.uk
DIRECTIONS TO PRINCE CHARLES HOSPITAL

Travelling to Prince Charles Hospital

By Rail: The nearest main line station is Merthyr Tydfil, which is only a 5 minute walk to the bus station or a 10 minute taxi journey to the Hospital, and has regular service connections to Cardiff. For details of local and national rail enquiries please call the Traveline on: 0870 608 2 608.

By Bus: From outlying areas you are advised to travel to the Merthyr Tydfil bus station and then take the number 27 bus which travels to the Hospital. The service runs on the hour and then every 15 minutes with a journey time of 10 minutes.

By Road: Merthyr Tydfil is situated north of Cardiff on the A470 and A465 making it easily accessible via the UK road network.

From Cardiff: Take the A470 heading north for Pontypridd and Merthyr Tydfil. Go straight ahead at the Abercynon roundabout. Go straight ahead at the next two roundabouts and at the third roundabout you will leave the A470 by taking the third exit from the left, (effectively turning right) which is also signposted to Cyfarthfa Castle. Go straight ahead until you reach a set of traffic lights. Turn left at the traffic lights and travel up a twisty road until you reach a T-junction. You will see Cyfarthfa Castle immediately ahead of you. Turn left at the T-junction, also signposted to Cefn Coed y Cymmer. Take the next right turn which is signposted to Prince Charles Hospital. Follow the signs for the hospital.

From Abergavenny: Take the A465 for Merthyr Tydfil. Approaching Merthyr Tydfil you come to a roundabout which exits to Cardiff, Merthyr Tydfil, Neath and Asda/ MFI/Allied Carpets. Take the Neath turnoff and continue along the A465 for about 1 kilometre where there is a slip road to the left marked H(A&E) in red and Merthyr Industrial Estate. Follow the slip road to a T-junction and turn right up a hill to a roundabout. Take the third exit off the roundabout. Follow this road past a School and housing estate. The road dips down a small gradient and at the bottom turn left for Prince Charles hospital. This is the fourth left turn after coming off the roundabout (approximately 1 kilometre). The entrance to the hospital is up a small hill and on the left.

From Neath: Take the A465 for Merthyr Tydfil. Approaching Merthyr Tydfil you pass the Baverstock Hotel on your left and, proceeding down a hill you come to a roundabout. Take the second left (effectively straight ahead for Abergavenny. Almost immediately (about 150 yards) turn left, signposted to Prince Charles Hospital, onto a steep and twisty road. You will come to a T-junction at which you will turn right into Cefn Coed y Cymmer. On leaving the village you will drive straight on at the mini roundabout. Take care here as the junction is slightly off-set and the road narrows into a left hand bend. As the bend straightens out, take the next turning left which is signposted to Prince Charles Hospital. The road almost doubles back on itself up a steep hill. As you turn into this road you will see a lake on your right which is set in the grounds of Cyfarthfa Castle. Continue up the hill, and follow signs for the hospital.

From Brecon: Travel south along the A470. Approaching Merthyr Tydfil you come to a roundabout which is the junction of the A470 and A465. Take the first left for Abergavenny and then proceed as if coming from Neath above.

On Arrival: Car parking is readily available around the hospital site. Visitors are then requested to report to the reception of the ward or department they are attending.
ABOUT THE HOSPITAL

Cwm Taf Health Board

Cwm Taf Health Board was established on 1 October 2009 and consists of two District General Hospitals; Prince Charles Hospital and the Royal Glamorgan Hospital. They are responsible for the provision of health care services to over 325,000 people principally covering the Merthyr Tydfil and Rhondda Cynon Taff Local Authority areas.

Prince Charles Hospital is based in the Gurnos Estate, Merthyr Tydfil CF47 9DT. To the north of the hospital lies the beautiful Brecon Beacons National Park whilst to the south-west is the Gower Peninsula with its outstanding coastline. The capital city of Wales, Cardiff, is only 25 miles away along the dual carriageway (A470) South to North Wales trunk road.

The Royal Glamorgan Hospital is based in Llantrisant, Rhondda Cynon Taff CF72 8XR. It is located in a semi-rural area, just 3 miles from the M4 and only 13 miles from the city of Cardiff. The hospital is within easy access to Bristol, Bridgend, Swansea and the whole of South Wales. The hospital is cushioned by areas of outstanding beauty: the Glamorgan Heritage Coast, the Gower, Rhondda Heritage Park and the Brecon Beacons National Park are all within short driving distance.

Cwm Taf Health Board is committed to the development of Medical Education programmes that are dynamic, interactive and adequately prepare our undergraduates, junior medical staff for their present/ future roles and personal career development. We not only ensure we offer the complete curriculum for undergraduate students, foundation, core and specialty trainees; we also ensure we offer a wide range of clinical skills and related topics combined with support and funding for other relevant courses for appropriate staff.

The recently refurbished Medical Education and Training Centres consist of classrooms and lecture theatres all fully equipped with a wide range of state of the art audio-visual facilities. A new Theatre-Video link has also been installed allowing for interesting operations to be shown ‘live’ to an audience in the Lecture Theatre which has greatly enhanced teaching sessions.

The Resuscitation & Clinical Skills department have developed a full range of clinical skills training programmes which have local, national, European and International accreditation. There are dedicated fully equipped high fidelity simulation suites at both sites, enabling the delivery of an extremely wide range of skills for the majority of undergraduate and postgraduate training requirements.
ACKNOWLEDGEMENTS

We are pleased to acknowledge the generous support of Ethicon Endo-Surgery, the co-organiser and principal sponsor of the event, who provided 10 scholarship places.

We gratefully acknowledge the help and support of Dukes’ Club and its members.

The Royal College of Surgeons of Edinburgh provides 12 CPD points for attendance at this event.
Laparoscopic Colorectal Surgery Course & Master Class

**Dates:** 26th and 27th September 2012

**Venue:** Prince Charles Hospital, Merthyr Tydfil, Wales