P7. Intra-operative margin detection using Cerenkov Luminescence Imaging during radical prostatectomy − Initial results from the PRIME study

Constance Michel[1], Alex Freeman[1], Charles Jameson[1], Wendy Waddington[1], David Tuch[3], Morten Harboe[3], Paul Cathcart[1,2]
[1] University College of London Hospital, London, UK
[2] Guy's and Saint Thomas' Hospital, London, UK
[3] Lightpoint Medical Ltd, London, UK

Objectives: Cerenkov Luminescence Imaging (CLI) is an optical imaging of PET radiopharmaceuticals. The PRIME (PRostate Imaging for Margin Evaluation) study is evaluating the feasibility and safety of 18F-choline CLI to intra-operatively assess margin status in prostate cancer and lymph node specimens, during radical robotic prostatectomy.

Methods: Initial data from 3 patients are reported. After intravenous injection of 18F-choline, the specimens were imaged intra-operatively with an investigational CLI specimen analyser (Lightpoint Medical Ltd, UK), just after the excision. The normalised decay-corrected radiance (ph/s/cm2/str/MBq) was calculated for each region of interest and the apparent tumour-to-background ratio (TBR) was reported. Radiation doses to staff were measured using badge dosimeters.

Results: Intra-operative CLI of 3 prostatectomies showed an elevated radiance with TBR 3.45, 4.90 and 2.49 respectively for each patient. For 2 prostates with high-grade disease, CLI analyses agreed with histological reports but not for the third one, which was a low-grade. Lymph nodes were negatives both on CLI and pathology reports. No surgical complication occurred due to the CLI protocol. Staff radiation doses are reported in table 1. Additional environmental precautions were taken to allow for radioactive decay.

Table 1
Average staff radiation doses during the 3 CLI procedures

	Radiation dose in μSv
Assisting surgeon	145
Scrub nurse	60
Anaesthetic staff	<20
All other staff	<10

Conclusions: Intra-operative 18 F-choline CLI is a promising, feasible and low risk procedure. Further development is required to restrict the CLI signal to the surgical margin depths used in pathology.

P8. Different CRP values can predict anastomotic leak for open versus laparoscopic rectal cancer resection patients

Graham Broadley[1], Peter Waterland[2], Steve Pandey[2], Sharad Karandikar[1]
[1] Heart of England NHS Trust, Birmingham, UK
[2] Worcestershire Acute Hospitals NHS Trust, Worcester, UK

Introduction: Anastomosis leak is a common source of morbidity in colorectal cancer resections and has been associated to a negative impact upon survival, independent of tumour staging. C-Reactive Protein (CRP; 125−190 mg/L) has been applied as a negative predictive tool for anastomotic leak, but majority of cases are either open, emergency or non-malignant resections.

Hypothesis: CRP can be used as a predictive tool for anastomotic leak in both laparoscopic and open rectal resections, with laparoscopic resections showing a lesser predictive CRP value.

Methods: Consecutive rectal cancer resection patients with an anastomosis performed between 2010 and 2014. Basic anonymous patient data was collected including CRP results for day 1−7 and complications. Anastomotic leak was confirmed via CT imaging. Outcomes were statistically assessed with receiver operating curves (ROC) analysis.

Results: There were a total of 379 (131 Open; 248 laparoscopic) patients, with a total of 49 (12.9%) anastomotic leaks: 26 in the open group and 23 in laparoscopic group. In laparoscopic resections, ROC analysis suggests day 3 CRP of 157 (ROC area: 0.713, sensitivity: 0.700, specificity: 0.753) is predictive of anastomotic leak. Comparatively in open resections, ROC analysis suggests day 3 CRP of 207 (ROC area: 0.765, sensitivity: 0.765, specificity: 0.700) is predictive.

Conclusion: CRP, in both laparoscopic and open rectal resections, is an excellent predictive test for an anastomotic leak; best seen at day 3. Furthermore, Laparoscopic resections have a much lower predictive threshold than open resections throughout all days reviewed, impacting upon clinical concern in these subgroups.

P9. Are we over treating axillae following positive axillary lymph node biopsy?

William Ball[1,2], Megha Tandon[1], Soni Soumian[1,2], Robert Kirby[1,2], Vallipuram Gopalan[1], Sankaran Narayanan[1,2]
[1] University of North Midlands NHS Trust, Stoke-on-Trent, UK
[2] Keele University Medical School, Keele, UK

Introduction: Axillary lymph node status is the most significant single prognostic factor in breast cancer. Due to the effectiveness of current adjuvant therapy there is debate regarding the benefit of axillary node clearance (ANC), which can carry significant morbidity.

Aim: To establish if our centre is over treating preoperatively staged axillae.

Methods: Retrospective data collection on ANC following histologically confirmed positive ultrasound (US) axillae July 2009 to November 2014. Including demographics, grade of cancer, size of cancer, total number of lymph nodes in clearance and number of positive nodes. Comparison was made to previously collected data on ANC following positive One Step Nucleic acid Amplification (OSNA). Two tailed Mann Whitney U statistical analysis was used.

Results: 100 US positive patients Vs 68 OSNA positive patients. ANC performed for positive US axillae yields significantly more positive lymph nodes than OSNA positive axillae (P = 0.00496). These patients also had larger primary tumours (median 33 mm vs 25 mm P = 0.01242) of a higher grade. In the OSNA group 43% patients had further positive nodes in their ANC, only 19% had >/=4 nodes; this was significantly less than in those with positive US (p = 0.00104).

Conclusion: US positive axillae have a greater disease burden than OSNA positive axillae; ANC is therefore indicated in these patients. Removal of sentinel nodes for US negative axillae, which are subsequently found to be positive on OSNA may be enough to treat metastatic disease when combined with adjuvant therapy. Further studies will need to be performed to establish this.

P10. The natural history of Anal Intraepithelial Neoplasia, patient demographics, risk factors and progression rates

Daniel Hughes[1], Frances Elizabeth[2], Rachel Hargest[1]
[1] Department of Colorectal Surgery, University Hospital of Wales, Cardiff, UK
[2] Northern General Hospital, Sheffield, UK