

Follow up was by imaging only in 15 patients, endoscopy only in 9 patients and a combination of imaging and endoscopy in 11 patients. 6 patients had no follow up.

Conclusion This study illustrates the varied management of malignant colorectal polyps. It is clear that resection margins adversely affect outcome. A strategy is needed for managing patients with clear resection margins, including nature and timing of follow up.

Disclosure of interest None Declared.

REFERENCES

- Williams J. G, et al. Management of the Malignant colorectal polyp: ACPGBI position statement. *Colorectal Dis.* 2013;**15**:1–38
- Naqvi S, et al. Management of colorectal polyp cancers. *Ann R Coll Surg Engl.* 2012;**94**:574–578

PTH-317 THE EFFECT OF TREDELENBURG POSITIONING DURING LAPAROSCOPIC COLORECTAL SURGERY ON INTRA-OCULAR PRESSURE (IOP)

¹P Vitish-Sharma*, ²AG Acheson, ¹C Maxwell-Armstrong, ¹K Mohiuddin, ¹B Bharathan, ¹K Thomas, ³R Stead, ³JA Sharp, ³A King. ¹Division of Surgery; ²Nottingham University NHS Trust, Nottingham, UK; ³Ophthalmology, Nottingham University NHS Trust, Nottingham, UK

10.1136/gutjnl-2015-309861.1203

Introduction Laparoscopic colorectal surgery is the preferred approach for colorectal resections. It often requires extreme positioning for many hours, including extreme head-down tilts. The incidence of perioperative visual loss after colorectal surgery is quoted as 1.24 per 10,000 in USA¹ and is thought to be due to raised IOP leading to reduced optic nerve head perfusion.^{1,2}

Aim This study assesses the effect of head-down tilt on IOP during laparoscopic colorectal surgery.

Method Patients undergoing laparoscopic colorectal resections are included in this study. It is hypothesised that right-sided resections generally spend less time in the head-down position compared to left-sided and sub-total resections. Therefore, Group 1 included those undergoing right-sided resections and Group 2 included left-sided and sub-total resections. Baseline eye examination and IOP measurements using a Tonopen® XL applanation tonometer were carried out every hour during surgery and each time when the operating table was tilted.

Results There were 30 patients (16 males, 14 females) in the study with an average age of 63 years (Range 25–78); with Group 1's mean age 63.5 years (SD 14.35) and Group 2 had a mean age of 62.3 years (SD 17.68), ($p > 0.05$). Group 1 had 14 patients and Group 2 had 16 patients. The mean length of surgery (LOS) for Group 1 was 2 hrs. 27 mins (SD 0.73) and for Group 2 mean LOS was 4 hrs. 7 mins (SD 1.63) with $P = 0.001$. The baseline IOP was similar in both groups with the mean baseline IOP in Group 1 being 16.69mmHg, and in Groups 2 it was 16.87 mmHg ($p > 0.05$). The median IOP rise from baseline during surgery was 10.5 mmHg (IQR = 4.5) in Group 1 and 18 mmHg (IQR = 4.4) in Group 2 ($p < 0.05$). The median maximum degree of head down tilt during surgery in Group 1 was 9.3° (IQR = 7.2) and Group 2 was 18.3° (IQR = 8.4), ($p < 0.05$).

Conclusion A rise in IOP occurs during laparoscopic colorectal surgery and it appears to be more pronounced in those with a greater degree of head down tilt for a prolonged time. This may have important implications for those patients undergoing prolonged surgery and for those with a history of glaucoma.

Disclosure of interest None Declared.

REFERENCES

- Molloy BL. Implications for postoperative visual loss: steep Trendelenburg position and effects on intraocular pressure. *AANA J.* 2011;**79**(2):115–121
- Awad H, Santilli S, Ohr M, Roth A, Yan W, Fernandez S, Roth S, Patel V. The effects of steep trendelenburg positioning on intraocular pressure during robotic radical prostatectomy. *Anesth Analg.* 2009;**109**(2):473–8

PTH-318 FIVE-YEAR TRENDS IN URGENT REFERRALS FOR SUSPECTED COLORECTAL CANCER – AN INCREASE IN QUANTITY BUT NOT IN QUALITY

¹P Vulliamy*, ¹S McCluney, ²S Raouf, ¹S Banerjee. ¹General Surgery; ²Oncology, Queen's Hospital, London, UK

10.1136/gutjnl-2015-309861.1204

Introduction Understanding the volume of incoming referrals to a colorectal cancer (CRC) service is essential for adequate service delivery. We aimed to determine the number of two-week wait (2WW) referrals and resulting cancer diagnoses at our centre, and to characterise trends over time.

Method A retrospective review of all referrals from primary care with suspected malignancy to our institution over a five-year period (2009–2013) was performed. Annual numbers of colorectal cancer diagnoses were obtained from the trust database. Linear regression models were used to determine statistical significance of observed trends.

Results The annual number of 2WW referrals for all cancers increased steadily from 14,031 to 22,912 during the study period ($p = 0.02$). Referrals for suspected CRC also increased from 1,706 to 3,278 ($p = 0.03$). The proportion of patients seen within 7 days of referral decreased from 23% in 2009 to 9% in 2013 ($p < 0.01$), while the proportion seen within 14 days decreased from 99.8% to 92.3% ($p = 0.09$). The proportion of 2WW referrals diagnosed with CRC decreased from 7.9% in 2009 to 4.7% in 2013 ($p = 0.02$).

Conclusion The number of referrals for suspected cancer from primary care to our institution is steadily increasing, which has significant implications for service provision. The rate of cancer diagnoses from these referrals is decreasing. Further investigation is required to determine the reasons underlying these trends.

Disclosure of interest None Declared.

PTH-319 IS THERE A USEFUL RELATIONSHIP BETWEEN PELVIMETRY AND OPERATIVE OR ONCOLOGICAL OUTCOME AFTER LOW RECTAL CANCER SURGERY?

¹P Waterland*, ²G Lafaurie, ²D Macarthur, ²S Karandikar. ¹Colorectal Surgery, Worcester Royal Hospital; ²Colorectal Surgery, Birmingham Heartlands Hospital, Birmingham, UK

10.1136/gutjnl-2015-309861.1205

Introduction Bony pelvimetry varies between the sexes and has been found to be a possible factor in predicting operating time, quality of histological total mesorectal excision (TME) grade and positivity of circumferential resection margin (CRM) after rectal cancer surgery. Low pelvic dissection is anecdotally more difficult in narrow and deep pelves.

This observational study aimed to identify any relationship between magnetic resonance (MR) bony pelvimetry measurements and operative or oncological outcome in patients undergoing rectal cancer surgery.

Method A prospective database of patients undergoing anterior resection was maintained including demographics, operating time, tumour characteristics and oncological outcomes. MR

pelvimetry recordings were performed by a surgeon 'blinded' to outcome. Chosen endpoints were local recurrence (LR), disease free survival (DFS), overall survival (OS) and operating time (OT). Binary logistic regression and Pearson's correlation coefficient were performed for statistical analysis.

Results A total of 171 patients underwent surgery (58 abdomino-perineal resection, 113 anterior resection) between 01/2009 and 05/2014. Median operating time was 318 min (range 91–421). Median follow-up was 25 months. There were 10(5.8%) patients with positive CRM, 10(5.8%) patients with LR, and 28 (16.3%) deaths during follow-up period. There was no significant correlation between individual MR pelvimetry measurements and LR, DFS, OS or OT. However, the distance between the tip of the coccyx to the sacral promontory, and the tip of the coccyx to the body of S3 were strongly correlated with operating time, with the former also being closest to significance in correlation with LR.

Abstract PTH-319 Table 1

MR pelvimetry measurement	LR p	DFS r	DFS p	OS p	OT r	OT p
Mid-sagittal						
Lower border symphysis pubis – upper border (a)	0.24	-0.12	0.14	0.91	-0.32	0.01
Upper border symphysis pubis – sacral promontory (b)	0.5	0.13	0.11	0.17	0.18	0.18
Lower border symphysis pubis – sacral promontory	0.92	-0.03	0.73	0.75	0.59	0.67
Lower border symphysis pubis – tip of coccyx (c)	0.42	0.13	0.1	0.17	0.29	0.03
Tip of coccyx – sacral promontory	0.14	0.51	0.52	0.33	0.82	0.54
Tip of coccyx – body of S3 (d)	0.3	0.06	0.44	0.44	-0.84	0.54
Body of S3 – sacral promontory (e)	0.53	0.03	0.74	0.39	-0.49	0.72
Sagittal angles						
Angle between a and c	0.87	0.06	0.44	0.29	0.15	0.28
Angle between d and e	0.97	0.06	0.48	0.89	0.18	0.17
Axial						
Interacetabular distance (f)	0.85	-0.05	0.53	0.74	-0.05	0.7
Interschial distance	0.73	-0.05	0.5	0.94	0.3	0.14
Mesorectum						
AP maximal diameter of mesorectum (g)	0.25	-0.07	0.4	0.77	0.47	0.73
Transverse maximal diameter of mesorectum (h)	0.94	-0.01	0.9	0.81	0.15	0.28
Mesorectal-pelvimetry ratios						
Ratio of h to f	0.93	0.02	0.85	0.67	0.08	0.52
Ratio of g to b	0.3	-0.11	0.16	0.96	-0.4	0.77

Conclusion Our study does not demonstrate any statistically significant relationship between bony pelvimetry and outcome after low rectal cancer surgery. A deep pelvis is correlated non-significantly with local recurrence and prolonged operating time. Further follow-up is required for complete five year oncological data.

Disclosure of interest None Declared.

PTH-320 EXOSOMES: EXTRACELLULAR VESICLES WHICH CAN IMMORTALISE CANCER AND STROMAL CELLS IN THE COLORECTAL TUMOUR MICROENVIRONMENT

¹R Bhome*, ¹R Goh, ²J Primrose, ¹E Sayan, ¹A Mirnezami. ¹Cancer Sciences; ²Academic Department of Surgery, University of Southampton, Southampton, UK

10.1136/gutjnl-2015-309861.1206

Introduction Exosomes are nano-sized (40–100 nm) extracellular vesicles which are exchanged by cancer and stromal cells. They contain proteins and nucleotides (DNA, mRNA, microRNA) and are therefore capable of conveying genetic information. Exosome transfer affects cellular function but this is not well defined in the colorectal cancer (CRC) setting. We aimed to isolate, label and transfer exosomes from colorectal cancer cells to fibroblasts and vice versa. Moreover, we investigated the

effect of exosome transfer at the cellular level, focussing on two key pathways: ERK and AKT.

Method Exosomes were isolated from conditioned media from DLD-1 CRC cells or MRC5 fibroblasts by selective centrifugation and validated by transmission electron microscopy, western blotting and flow cytometry. The resulting exosome pellet was labelled with a lipophilic (green) fluorescent dye and co-cultured with the reciprocal target cell (MRC5 or DLD-1). The cells were then washed thoroughly to remove all extracellular particles and visualised by fluorescence microscopy. Cell lysate was analysed by western blotting for activation of key signalling pathways such as Ras (ERK) and AKT.

Results Microscopy revealed presence of fluorescent labelled exosomes within both DLD-1 and MRC5 cells following exosome co-culture. There was marked increase in AKT pathway activation in MRC5 fibroblasts after co-culture with DLD-1 CRC exosomes. As a result, significant changes to anti-apoptotic stimuli have been observed. There was a marked increase in ERK pathway activation and moderate increase in AKT activation in DLD-1 CRC cells after co-culture with MRC5 fibroblast exosomes. Again, significant changes to downstream anti-apoptotic signals were observed.

Conclusion We have shown that CRC exosomes can be transferred to fibroblasts and vice versa. This transfer induces selective phosphorylation of AKT and resistance to apoptosis in recipient fibroblasts and CRC cells. Stromal and tumour-derived exosomes promote resistance to apoptosis and can create an apoptosis resistant niche in the tumour microenvironment.

Disclosure of interest None Declared.

PTH-321 EXOSOMES AND MICROPARTICLES: DISTINCT EXTRACELLULAR COMPARTMENTS WHICH CONVEY GENETIC INFORMATION IN THE COLORECTAL TUMOUR MICROENVIRONMENT

¹R Bhome*, ¹R Goh, ²J Primrose, ¹AE Sayan, ¹A Mirnezami. ¹Cancer Sciences; ²Academic Department of Surgery, University of Southampton, Southampton, UK

10.1136/gutjnl-2015-309861.1207

Introduction Exosomes and microparticles (MPs) are extracellular vesicles secreted by tumour and stromal cells. Exosomes (40–100 nm) originate in the cytoplasm and are a product of the lysosome-endosome pathway. MPs (100–1000 nm) are larger vesicles which simply bud off from the cell membrane. Exosomes and MPs are known to contain oncogenic (e.g. microRNA-21) and tumour suppressing (e.g. microRNA-200b) microRNAs (miRs). We aim to: (i) screen for cancer-associated microRNAs which are upregulated in exosomes/ MPs from human colorectal cancer fibroblasts; (ii) ascertain the effect of myofibroblast trans-differentiation on cellular and vesicular miR-21 content; (iii) ascertain the effect of epithelial-mesenchymal transition (EMT) on cellular and vesicular miR-200b content; and (iv) compare cellular, exosomal and MP microRNA content for each model above.

Method Several models were used: (i) primary cancer-associated and normal human colorectal fibroblasts; (ii) HFFF2 fibroblasts – treated with TGF-beta (myofibroblasts) and untreated (fibroblasts); and (iii) SIP-1 induced (EMT positive) and uninduced (EMT negative) DLD-1 colorectal cancer cells. Exosomes and MPs were isolated by selective centrifugation and validated by transmission electron microscopy, western blotting and flow cytometry. A cancer microRNA array (Quantimir) was used to screen for 95 specific microRNAs. Quantitative PCR (TaqMan)