(163.91 mg/l) compared to the leak group (267.13 mg/l), p=0.00021. There was no significant difference in mean albumin between groups.

Abstract PWE-017 Table 1

Day	Mean WCC (cells×10^9/l) control	Mean WCC (cells×10^9/l) leaks	p Value
1	11.290	12.067	0.291
2	12.080	13.092	0.188
3	11.355	12.112	0.270
4	8.987	10.752	0.071
5	9.336	10.870	0.066
6	10.470	13.350	0.011
7	10.841	16.317	0.0007
8	11.758	18.905	0.0004
9	13.633	18.275	0.018

Conclusion Routine contrast swallows are of limited value following oesophageal cancer resection. If there is suspicion of anastomotic leakage, radiology and endoscopy can be utilised. The finding of raised inflammatory markers in the absence of other causes is associated with anastomotic leakage and should be further investigated. In the clinically well patient with normal blood results, ERAS can be safely implemented after oesophageal cancer resection.

Competing interests None declared.

PWE-018 SUPERIORITY OF ACTUAL COMPARED WITH CLOSE (<1 MM) CIRCUMFERENTIAL RESECTION MARGIN INVOLVEMENT IN THE PATHOLOGICAL STAGING OF OESOPHAGEAL AND JUNCTIONAL CANCER

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Introduction An involved circumferential resection margin (CRM), defined as tumour cells within 1 mm of the CRM, is of established prognostic significance in rectal cancer. In the oesophagus, which unlike rectum lacks a defined mesentery, controversy exists, with the UK Royal College of Pathologists (RCP) recommending the 1 mm definition, while the College of American Pathologists (CAP) advise that only an involved margin defines an incomplete (R1) resection.

Methods CAP and RCP CRM status were recorded prospectively in a comprehensive prospective data-base from May 2003 to May 2011. Factors impacting on survival were assessed by univariate and multivariate analysis. Kaplan–Meier survival curves for CRM + compared with CRM- groups by RCP and CAP criteria were computed.

Results RCP and CAP CRM status was available for 316 patients. Overall, positive margins were recorded in 33% (n=103) and 10% (n=33) using the RCP and CAP criteria, respectively. Specific analysis focused on 143 patients with pT3 tumours. Mean follow-up was 19.8 months (range 1.6–79.5 months). RCP criteria diagnosed 60.8% (n=87) of pT3 tumours as positive; however, by CAP criteria, 18% (n=27) were positive. A significantly higher proportion of CAP positive CRMs were associated with lymph node metastases (p=0.05). Using RCP criteria there was no significant difference in survival in patients with positive and negative CRM margins (p=0.201). However, CRM involvement by CAP criteria was associated with poor survival (p=0.003). Multivariate analysis revealed nodal invasion and CAP CRM positive disease as independent prognostic variables (p=0.047 and p=0.028 respectively).

Conclusion Comparison of the RCP and CAP criteria indicates that CAP is superior, consistent with recent data.[1] It may be best to include both assessments in prospective data-bases, but this data suggests that actual rather than close CRM involvement significantly impacts outcome, and may be factored into prognostic calculation and possibly the design of future adjuvant trials.

Competing interests None declared.

REFERENCE

1 **Deeter M**, Dorer R, Kuppusamy MK, *et al*. Assessment of criteria and clinical significance of circumferential resection margins in esophageal cancer. *Arch Surg* 2009;**144**:618–24.

PWE-019 MITOCHONDRIAL INSTABILITY IS ELEVATED IN BARRETT'S OESOPHAGUS AND DIMETHYLOXALYLGLYCINE HAS A POTENTIAL ROLE IN REVERSING THIS DYSFUNCTION

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Introduction Deoxycholic acid (DCA), a component of bile, has been associated with the development and progression of Barrett's oesophagus (BO). In addition, the "mutator-phenotype hypothesis" states benign cells with high rates of random mutations have an inherent predisposition for malignant conversion. Mitochondria are highly susceptible to random mutations due to inefficient DNA repair mechanisms. The role of mitochondrial mutations and dysfunction in Barrett's progression is unknown. The aim of this study was to investigate the levels of random mitochondrial mutations (RMMs) and dysfunction in BO and determine if DCA drives progression. In parallel, determine if a hydroxylase inhibitor, dimethyloxalylglycine (DMOG), could rescue these effects.

Methods We assessed mitochondrial dysfunction and mutagenesis using different models in vitro, ex vivo and in vivo. RMMs in BO extending to oesophageal adenocarcinoma (OAC) were examined. Mitochondrial function (reactive oxygen species (ROS), mitochondrial membrane potential (MMP), mitochondrial mass and cytochrome c) +/− DCA +/− DMOG were measured. A large scale gene array assessing oxidative stress and antioxidant defence was used to determine potential genes DMOG therapy may target.

Results In vitro; RMMs were higher in Qh (intestinal metaplasia [IM] cells) compared with GO (high grade dysplasia [HGD] cells) (p=0.06) and OE33 (OAC cells) (p=0.01). DCA induced mitochondrial dysfunction at all stages of disease progression (p<0.04). DCA increased mutagensis in Qh cell lines only. Using ex vivo explants, cytochrome c release was significantly increased in Barrett's compared to matched normal controls (p=0.0006). DCA significantly decreased cytochrome c secretion in Barrett's patients (p=0.015). In vivo; two distinct Barrett's IM groups were evident; those with low RMMs and a small cohort with significantly higher levels of RMMs (p<0.005). DMOG caused a significant reduction in mitochondrial dysfunction in Go and OE33 cells (p<0.05). DMOG down-regulated 3 genes, CYGB, FOXM1 and GLRX2 (13, 6 and 4 fold respectively), validations of these are being performed.

Conclusion Mitochondrial instability appears to be an early event in BO. DCA significantly alters mitochondrial function. Two distinct Barrett's patient groups are evident. Applying the "mutator-phenotype hypothesis"; random mitochondrial mutation may act as a potential biomarker in differentiating IM patients into low and high risk groups for malignant conversion. DMOG may have the potential to reduce this mitochondrial instability in Barrett's oesophagus.

Competing interests None declared.