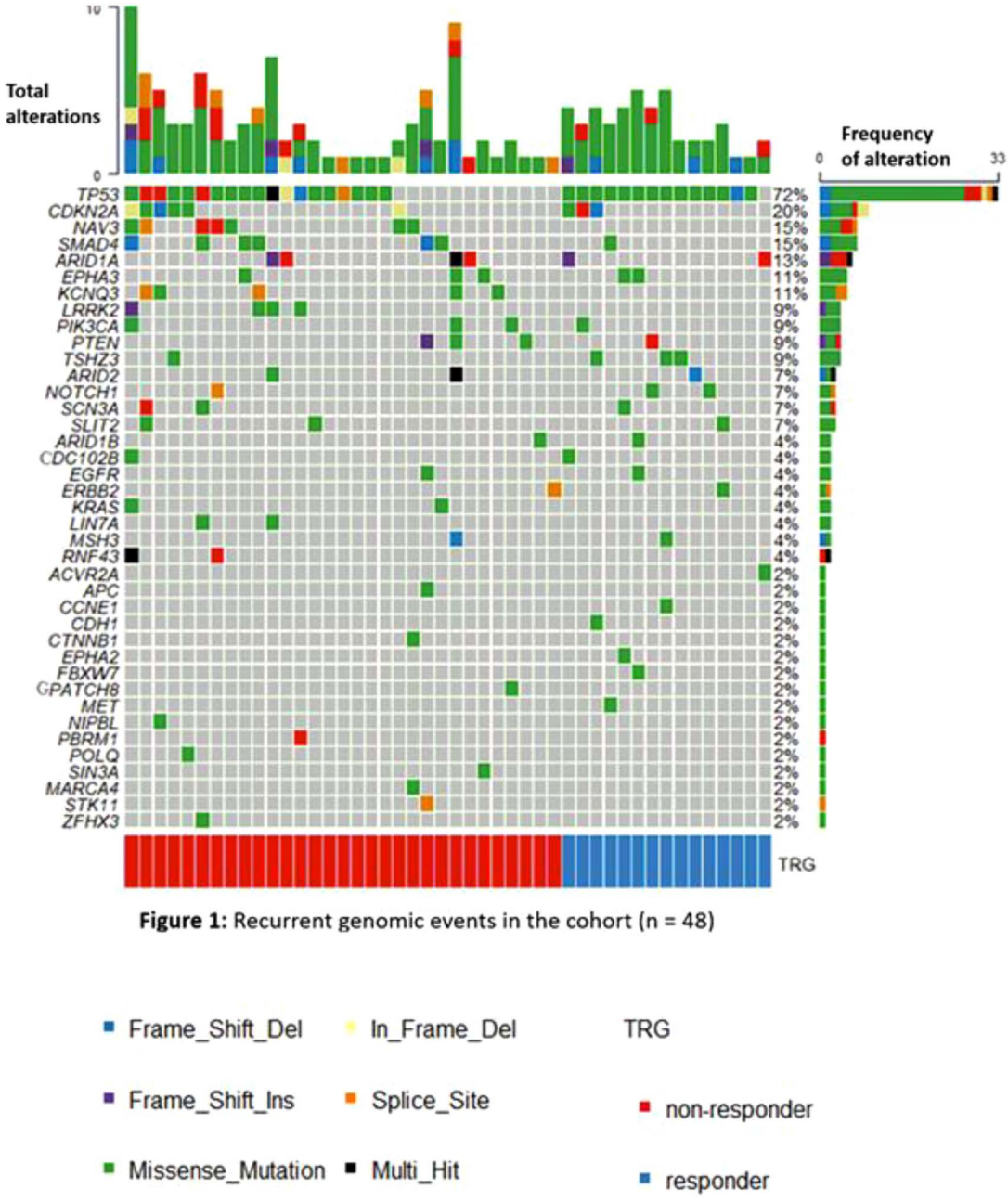

Figure 1: Recurrent genomic events in the cohort (n = 48)

Scoring criteria:

AR nuclear staining of ≥5% of the lesional cells were considered positive. Cells showing weak to strong complete/basolateral/lateral membrane staining in ≥5 cell groups were scored positive for HER 2/neu.

Results: The study included 24 individuals, 16 males and 8 females with esophageal SCC. The tumor cells showed AR positivity in 12.5% and HER 2/neu positivity in 16.67% of the tissue samples by IHC. There was no significant gender difference in the expression of AR and HER 2/neu in this study. In addition AR expression was seen in 41.67% (N = 10) of adjacent stromal cells (in 66.67% (2 of 3) of the AR positive and 38.09% (8 of 21) of the AR negative specimens) with a p value of 0.028 ($p < 0.05$). There was no significant variation by gender.

Conclusion: There was a statistically significant expression of AR in the stromal cells of both AR positive and negative tumors. AR expression has been reported in the stroma of esophageal adenocarcinoma which was attributed to paracrine effects following androgen stimulation. To our knowledge, this is the first report of AR expression in the tumor microenvironment of esophageal SCCs. This study is limited by the small sample size and warrants further research.

485 MINIMALLY INVASIVE EN-BLOC OESOPHAGECTOMY: ANALYSIS OF THE OUTCOMES ALONG A LEARNING CURVE

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Minimally invasive oesophagectomy is technically demanding but benefits perioperative morbidity and intra-hospital mortality. We previously described open total adventitial resection of the cardia (TARC) as an optimal anatomical resection technique for lower oesophageal and gastro-esophageal junction cancers. We wanted to investigate whether the peri-operative benefits of minimally invasive techniques, along with en-bloc resection of the primary tumour, translate into long term survival benefit in a specialized high volume center along a surgeon learning curve.

Methods: Data from 198 consecutive patients undergoing oesophagectomy by a single surgeon was collected prospectively. Patient stratification was

made to chronologically reflect four main stages of our learning curve: open surgery, Laparoscopic Ivor Lewis, laparoscopy/thoracoscopy with mini-thoracotomy and laparoscopic TARC. Primary outcomes included five-year survival rate, operating time, hospital stay, specimen lymphnodes. Peri-operative complications and mortality are also described. 45 patients had open surgery; laparoscopy (n = 50) was initiated after two years, and thoracoscopy (n = 56) introduced after case 94. MIO was performed for the last 47 patients.

Patients in all groups had similar demographics, histological diagnosis, pre-operative and pathological staging.

Results: 158 patients were male (79.8%); age was 63 +/− 10 years. Overall five-year survival rate was 45%; perioperative mortality rate was 1.5% (n = 3); 13 patients were returned to theatre. Hospital stay was 22+/−23 days. Specimen lymph nodes were 21+/− 8. Resection margins were negative (ACP) in 193 cases (97.4%).

Five-year survival rates during the 4 phases were 38.6%, 44.9%, 42.8% and 59% respectively, showing a benefit trend towards the end of the learning curve (p = 0.03).

Specimen lymph nodes were: open = 20.5+/−9.5; Lap = 19.5+/− 7; mini-tho = 19.9+/− 7; MIO = 25+/− 10 (p = 0.027). Resection margins were > 1 mm in 68.1%(open), 67.3%(lap), 64.2%(mini-tho) and 79.5(MIO).

Conclusion: Laparoscopic en-bloc resection of cancers of the OGJ requires a long learning curve. Proficiency gains along this learning curve affects oncological quality of oesophageal resectional surgery and benefits patients survival after minimally invasive oesophagectomy.

489 A COMPREHENSIVE ANALYSIS OF ANASTOMOTIC COMPLICATIONS FOLLOWING ESOPHAGECTOMY

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Post-esophagectomy anastomotic complications can result in high morbidity/mortality. Those with necrosis and sepsis have traditionally resulted in conduit loss and cervical esophagostomy. We sought to examine our management and outcomes of anastomotic complications, with a focus on an approach that stresses conduit salvage.

Methods: Conduit complications were identified from a prospectively collected esophagectomy database (2006–17) at a high-volume referral center. Patient/tumor/treatment details and surgical outcomes were collected. Conduit complications were defined as Leak/Conduit Necrosis/Tracheoesophageal Fistula (TEF) and graded according to the Clavien-Dindo classification. Successful treatment was defined when sepsis/leak control was achieved and no further intervention was required. Statistical analysis was done using Cox regression, logistic regression, ANOVA or Chi-square tests, $*p < 0.05$.

Results: Of 647 esophagectomies, conduit complications occurred in 103 (16%) [Leak:73 (11%); Necrosis:24 (4%), (TEF):6(1%)]. Antibiotics (C-D = 2) was successful in 28 (38%) of Leaks. Endoscopic stent alone (C-D = 3A) was successful in 20 (27%) Leak, 7(29%) Necrosis, and 1(17%) TEF cases. Early conduit revision+re-anastomosis (C-D = 3B/4) was successfully performed in 22 (30%) Leak, 13 (54%) Necrosis, and 5(83%) TEF cases. Only 6 patients [2(3%) Leak, 4(16%) Necrosis] had conduit loss+cervical esophagostomy. 90-day mortality was: Minor (C-D = 2-3A) Leak = 3%, Major (C-D = 3B-4) Leak = 8%, and Necrosis = 21%*. Necrosis, but not Leak or TEF, was associated with lower 3-year survival compared to patients who did not have conduit complication (30% vs 55%, p < 0.008).

Conclusion: The vast majority of conduit complications, including conduit necrosis, can be managed successfully with conduit salvage with endoscopic treatment or early surgical re-anastomosis. Cervical esophagostomy is rarely required.

494 LONG-TERM SYMPTOM CONTROL FOLLOWING LAPAROSCOPIC HELLER MYOTOMY AND DOR FUNDOPLICATION FOR ACHALASIA

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Achalasia is a primary esophageal motility disorder in which there is incomplete relaxation of the lower esophageal sphincter and absence of peristalsis in the lower two-thirds of the esophagus. A favored treatment is with laparoscopic modified Heller myotomy with Dor fundoplication (LHMDor) with over 90% beneficial effect. The short-term outcomes of LHMDor are well documented, but stability and durability of post-operative symptom control over time is less understood.

Methods: Between 2004–2016, 54 patients with achalasia underwent LHMDor (single center). Using validated questionnaires, patients rated their symptoms in five domains: pain, gastroesophageal reflux disease (GERD), dysphagia, regurgitation and quality of life (QOL), rating their symptoms preoperatively, 4-weeks post-operatively, 6-months post-operatively and yearly following the operation.

Results: As expected, patients reported marked improvement in dysphagia, odynophagia, regurgitation, GERD and quality of life after the operation (p < 0.001). From then on, the symptom control remained durable with respect to absence of pain, regurgitation and odynophagia; however, we observed a recurrence of GERD symptoms beginning 3–5 years postoperatively (p = 0.001, p = 0.04, respectively), with associated increased antacid use. Following initial LHMDor, 5 patients required endoscopic dilatation an average of 1.5 years post-operatively and no patient required reoperation. Patients reported preserved improved quality of life up to 11 years following the operation (p = 0.001).

Conclusion: These results demonstrate the durability of LHMDor in the definitive management of achalasia offering consistent symptomatic relief and significant improvement to QOL over the decade following surgery, despite some increase in GERD symptoms and antacid use.

496 THE INFLAMMATORY-METAPLASIA-DYSPLASIA-OESOPHAGEAL ADENOCARCINOMA SEQUENCE: THE ROLE OF THE MICROBIOME

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The human microbiota, the collection of microbes that inhabit the human body, is increasingly recognized as playing a role in human health. A seminal example of this relationship is Helicobacter pylori and gastric cancer oncogenesis. The decline in H.pylori prevalence and non-cardia gastric cancer incidence have coincided with the rise in oesophageal adenocarcinoma (OAC) incidence. We sought to explore the relationship between the gastric and oesophageal microbiome and OAC oncogenesis.

Methods: This study aimed to explore changes in the microbiome associated with oesophageal adenocarcinoma and its precancerous and inflammatory states by performing 16S rRNA gene amplicon sequencing on DNA extracted from oesophago-gastric biopsies from patients with normal oesophageal mucosa, reflux oesophagitis, Barrett's oesophagus with and without dysplasia, locally advanced but resectable oesophageal adenocarcinoma, and incurable metatstatic oesophageal adenocarcinoma (See Table 1).

We dissected ecological differences between sample site and clinical classification using a variety of approaches including examining differentially abundant taxa and inferred metabolic pathways, alpha diversity and beta-diversity.

Results: There was no statistically significant difference in beta diversity with respect to biopsy location. Alpha diversity was reduced in gastric biopsies compare to oesophageal biopsies. A small but significant shift was noted in beta diversity (Bray–Curtis Dissimilarity) with respect to clinical classification in biopsies derived from the gastroesophageal junction (GEJ) and stomach.

Fusobacterium nucleatum was found to overrepresented in oesophageal biopsies derived from diseased groups relative to the healthy controls. Several taxa assigned to the genus Prevotella were depleted in biopsies of individuals with metastatic OAC compared to all other groups.

Conclusion: Community structure was shifted in samples derived from the GEJ, the epicentre of OAC oncogenesis. Fusobacterium plays a role in cancer