

**TABLE:** Occurrence of intestinal after Ivor Lewis Esophagectomy (n = 12).

Patient ID	Prior History of IM	Duration of Preoperative IM (months)	Local Adenocarcinoma Recurrence	Time to Occurrence of Postoperative IM (months)
1	Yes	9.1	No	2.7
2	Yes	6.9	No	60.0
3	Yes	7.8	No	25.9
4	Yes	2.8	Yes	3.0
5	Yes	0.5	Yes	20.5
6	Yes	6.9	No	26.8
7	No (identified on operative pathology only)	0	No	31.9
8	No	N/A	No	86.4
9	No	N/A	No	107.6
10	No	N/A	No	48.9
11	No	N/A	No	55.0
12	No	N/A	Yes	3.5

institution from 2006–2018 were identified. Pathology records were reviewed for the presence of IM on pretreatment biopsies, surgical specimen, or post-resection biopsies. Categorical variables were compared using Pearson's chi-square test or Fisher's exact test, where appropriate, and continuous variables were compared using Kruskal-Wallis test. Time-to-event outcomes were assessed using the Kaplan–Meier method.

**Results.** 621 patients were included, and 242 (39%) were known to have had IM prior to esophagectomy. An additional 26 (4%) patients without a preexisting diagnosis of IM were found to have IM in the surgical specimen. During a median follow-up of 62 months, development of new IM was rare, occurring only in 12 (2%) patients, 7 of whom had a prior history of IM(Table); incidence was 0.6 cases per patient-years. Of these 12, 3 (25%) developed local adenocarcinoma recurrence. Overall, local recurrence of adenocarcinoma was uncommon, and occurred at similar rates in patients with and without a history of IM(p = 0.774).

Conclusion. Despite several factors predisposing to mucosal damage following esophagectomy, occurrence of new IM after trimodality therapy in our patient population appears to be rare, even among patient with a previous history of metaplasia.

### 79 PREOPERATIVE TOBACCO CESSATION AND MAJOR POSTOP-ERATIVE MORBIDITY IN PATIENTS UNDERGOING ESOPHAGEC-TOMY

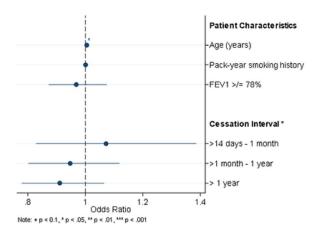
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While preoperative tobacco cessation has been associated with decreased pulmonary complications in lung cancer patients in the postoperative period, this relationship has not been explored among patients undergoing esophagectomy in this era of increasingly prevalent tobacco cessation campaigns and enhanced recovery after surgery.

Methods. We reviewed ever-smokers who underwent esophagectomy at a single institution from January 2004 through June 2019 for esophageal cancer. Occurrence of Clavien-Dindo classification ≥3 major postoperative morbidity (MPM), including anastomotic leak, chylothorax, reoperation, organ dysfunction, respiratory failure, and ICU readmission was calculated. In an effort to evaluate an effect of smoking cessation on outcome, neversmokers were excluded from analyses. Multivariable logistic regression with backwards stepwise elimination was completed to determine the optimal cessation interval associated with reduction in MPM. Robust standard errors were used to account for clustering among surgeons.

**Results.** 725 patients met inclusion criteria, including 666 (92%) with adenocarcinoma and a smaller proportion with squamous cell carcinoma. Most patients were male (650, 90%), and the median age was 63 years (IQR



57–69). Records showed that 505 patients (60%) had quit >5 years prior to esophagectomy, and 82 (11%) were current smokers or had quit within the month preceding esophagectomy. MPM occurred in 213 (29%). After univariate regression, age, gender, pack-year history, operative duration, and FEV1 were included in a multivariable model. While age remained associated with MPM, preoperative tobacco cessation of any interval was not associated with outcomes.

Conclusion. Our previous publication showed increased complication risk for smokers undergoing esophagectomy compared to non-smokers. However, among ever-smokers, no specific interval of preoperative cessation demonstrated decreased MPM. In a setting of active tobacco cessation programs, patients who have not completely achieved abstinence may still be offered surgery with equivalent perioperative outcomes.

# 82 POSSIBLE NOVEL BIOMARKER OF ESOPHAGEAL SQUAMOUS CELL CARCINOMA

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Recently, patients with esophageal squamous cell carcinoma (ESCC) have been treated with combination therapy, including surgical resection, chemotherapy, and/or radiation therapy. Therefore, the development of novel and useful biomarkers is expected because the malignant behavior of tumors and the treatment effect vary in each case. In this study, we examined the clinical significance of microRNA-X (miR-X) as a biomarker because it has been reported in studies that examined ESCC cell-lines in vitro.

Methods. In all, 81 consecutive patients who underwent radical esophagectomy without preoperative treatment for ESCC were examined. Total RNA was extracted from formalin-fixed paraffin-embedded samples and miR-X expression levels were evaluated. In this process, the miR-X levels were standardized against the RNU6B expression levels and were analyzed using the  $\Delta\Delta$ Cq method. Clinicopathological features between high and low expression groups of miR-X were compared using the median expression level as the cutoff value. Prognostic analyses were performed using several factors, including miR-X expression levels, to gage the cancer-specific (CSS) and recurrence-free survival (RFS) of these patients.

Results. High miR-X expression was found to be significantly related to deep invasion (p < 0.001) and high vascular invasion (p < 0.001). Prognostic analyses demonstrated the suitability of miR-X expression as a significant adverse prognostic factor both in cancer-specific and recurrence-free survival (p = 0.006 & p = 0.004, respectively) of patients. Multivariate analysis using factors such as T- and N-factors, tumor size and miR-X expression levels indicated that the miR-X level was an independent prognostic factor as well as T-factor (CSS, hazard ratio: 2.263, p = 0.034), and T- and N-factors (RFS, hazard ratio: 2.22, p = 0.033).

Conclusion. The present study revealed that high miR-X expression was related to deep invasion and high vascular invasion in ESCC. It was also independent adverse prognostic factor for patients with ESCC. Detailed examination including in vitro re-verification is required because these results were inconsistent with previous reports and miR-X might play different roles in clinical settings. In any case, further detailed studies might establish the significance of miR-X as a novel and useful biomarker of ESCC.

## 83 10-YEAR CHANGES IN DIETARY HABITS AND MEDICAL KNOWLEDGE OF ESOPHAGEAL CANCER IN A HIGH-INCIDENCE AREA: A POPULATION-BASED STUDY

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Yanting was reported as a high-incidence area of EC with an unclear etiology. Many preventative measures and control policies have been performed during recent years in Yanting County, but no study has examined the changes in dietary habits and medical knowledge of EC during this decade. This study aimed to compare the differences in dietary habits, food group intake and medical knowledge of EC among residents of Yanting between 2007 and

Methods. Using a self-designed questionnaire, we investigated rural residents from Yanting county in the year 2007 and 2017. The 10-year changes of demographic features, personal dietary habits, food groups and medical knowledge of EC were compared. The results were then statistically analyzed. This study is based on a household survey of 570 and 898 rural residents aged 18+ years from Yanting County conducted in 2007 and 2017, respectively.

Results. Participants in the year 2007 were more likely to consume foods of lower toughness, have a slower speed of eating, have hotter temperature food, and have rice as a staple food less often (P < 0.05). Residents in the year 2007 ate more preserved foods but fewer fresh foods than those in the year 2017 (P < 0.05). Participants in the year 2017 improved their medical knowledge compared to those in the year 2007, which was conceptualized as a clear understanding of medical insurance for EC, common causes of EC, therapeutic measures for EC, preventive measures for EC, and government interventions (P < 0.05).

Conclusion. Although the medical knowledge of participants in year 2017 have changed a lot, most of them also never head of detail knowledge on EC. Residents in the year 2017 had healthier dietary habits and better medical knowledge of EC than those in the year 2007, while prevention and control measures in Yanting should be strengthened persistently.

### 91 SIMPLE, HIGHLY SENSITIVE CLINICAL PREDICTION SCORES FOR RULING OUT ESOPHAGEAL ADENOCARCINOMA IN PATIENTS WITH BARRETT'S ESOPHAGUS

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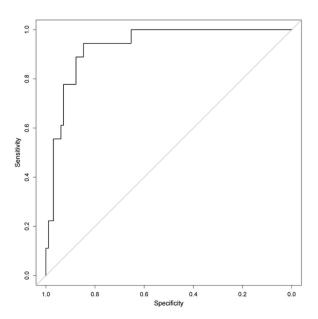
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Barrett's Esophagus (BE) is a risk factor for development of Esophageal Adenocarcinoma (EAC). Detection of EAC at an earlier stage is known to improve patient outcomes, but only a very small proportion of patients with BE will progress to EAC. Even in the context of established risk factors, it is difficult to rule out EAC in patients with BE prior to or during endoscopy.

Methods. We performed a retrospective chart review of all patients with nondysplastic BE, dysplastic BE and EAC diagnosed at St. Paul's Hospital from 2012-2016 to investigate patient characteristics that would establish a risk score to discriminate patients with EAC from those without EAC.

Results. 132 patients were identified. Patients with EAC had higher rate of smoking history (52.4% vs. 20.7%, p = 0.002), higher rate of prior malignancy (33.3% vs. 8.1%, p = 0.001), older mean age (71.0 + / - 8.3 vs. 61.3 + / -12.2, p = 0.001), greater frequency of carcinoid malignancy (9.5% vs 0.0%, p=0.024), greater incidence of family history of breast cancer (22.2% vs. 6.2%, p = 0.027) and lung cancer (23.5% vs. 4.1%, p = 0.004) and greater rate of endoscopic mucosal irregularity (85.7% vs. 28.8%, p < 0.001). A clinical risk score to discriminate between patients with EAC from those without EAC had an AUC of 0.90 and NPV of 0.97.

Conclusion. We have devised clinical risk scores that could be used Risk scores, in combination with established factors such as degree of dysplasia, may help triage patients with BE appropriately with regards to timing of endoscopy. By ruling out EAC and in low risk patients, high risk patients might be monitored more carefully which could lead to earlier detection of EAC and improved patient outcomes.



# 95 DIRECT ORAL FEEDING AFTER A MINIMALLY INVASIVE ESOPHAGECTOMY: A SINGLE-CENTER PROSPECTIVE COHORT STUDY

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A recent randomized controlled trial showed the safety and feasibility of direct oral feeding following a minimally invasive esophagectomy (MIE). However, significant differences were found regarding complication rate between hospitals, potentially influencing the effect of direct oral feeding. This study aimed to investigate the effect of direct oral feeding compared to the standard of care in a center with low anastomotic leakage and overall complication rates following a MIE.

Methods. Patients in this single-center prospective cohort study received either direct oral feeding (intervention group) after a MIE with intrathoracic anastomosis or nil-by-mouth for 5 days postoperative and tube feeding (standard of care). Primary outcome was time to functional recoverydefined as adequate pain control with oral analgesics, recovery of mobility, sufficient caloric intake, no intravenous fluid therapy and no signs of active infection—and length of hospital stay. Secondary outcomes included anastomotic leakage, pneumonia, cardiopulmonary complications and other (surgical) complications.