

Tumour burden correlates with the risk of recurrence after piecemeal endoscopic resection of early-stage adenocarcinoma in Barrett's oesophagus

Grace Hattersley, Andreas Hadjinicolaou, Andrea Sorge, Daniel Conceicao, Sally Pan, Vijay Sujendran, Massimiliano di Pietro

Introduction

Endoscopic resection (ER) is curative for Barrett's oesophagus-related early-stage oesophageal adenocarcinoma (EAC) without high-risk features, such as lymphovascular invasion (LVI), positive margins (R1), and deep submucosal invasion (T1bsm2-3). Piecemeal endoscopic mucosal resection (pEMR), often used for lesions larger than 15mm, prevents assessment of lateral margins, and hence complicates the risk estimation for residual EAC at the first post-ER endoscopy. Thus, we investigated alternative risk factors for residual and recurrent EAC post-ER.

Methods

We performed a longitudinal cohort study of patients who underwent ER between 2006 and 2023. Inclusion criteria were: EAC stage T1a or low-risk T1b (at most sm1, well or moderate differentiation), LVI-, and R0 resection margins. Cases of high-grade dysplasia (HGD) only were excluded. The primary outcome was residual EAC at first post-ER endoscopy. Secondary outcomes were residual HGD at first post-ER endoscopy, EAC and HGD recurrence at any post-ER endoscopy, and complete remission of EAC, HGD and intestinal metaplasia (IM) at most recent endoscopy. Logistic regression, receiver operating characteristics, chi-squared, and Kaplan Meier analyses were used to identify risk factors associated with these outcomes.

Results

We included 106 patients treated with pEMR and 31 patients treated with en-bloc ER, including en-bloc EMR (n=22) and endoscopic submucosal dissection (ESD, n=9). The cumulative incidence of EAC or HGD recurrence was higher in patients treated with pEMR compared to en-bloc ER ($p=0.019$). Residual EAC at first post-ER endoscopy accounted for 34% of this recurrence post-pEMR; hence, we investigated possible risk factors that could be associated with residual EAC. We identified that the percentage of pEMR specimens with EAC (OR for a 10% increase = 1.32, CI=1.05-1.69, $p=0.022$) and T1bsm1 staging (OR=22.52, CI=1.77-283.94, $p=0.013$) were independent risk factors for residual EAC at the first post-pEMR endoscopy. Furthermore, we determined that a 53.5% cut-off of involved pEMR specimens is optimal to predict residual EAC (specificity=0.68, sensitivity=0.67). Indeed, rates of residual ($p=0.012$) and recurrent ($p=0.00077$) EAC were higher when more than 53.5% of pEMR specimens were involved by EAC. However, the rates of remission of EAC ($p=0.13$), HGD ($p=0.19$) and IM ($p=0.76$) were not affected by this 53.5% cut-off.

Conclusions

High burden of EAC on pEMR specimens correlates with the risk of residual and recurrent EAC. Post-pEMR site check is recommended prior to endoscopic ablation, particularly in patients where more than 50% of pEMR specimens show EAC.