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High accuracy of imaging enhanced endoscopy (IEE) to detect premalignant or early malignant gastric lesion

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Introduction

Detection of premalignant or early malignant lesions in stomach are important because they can be removed endoscopically by advanced but less invasive endoscopic techniques e.g. endoscopic submucosal lesion (ESD) and avoid major surgery. However, they are usually subtle by traditional upper endoscopy and easily overlooked. Moreover, biopsy alone of these suspected gastric lesions usually produce undetermined result e.g. atypical cell and patients will usually need to have multiple repeated endoscopy and biopsy or wait till the lesion progress to a more advanced stage in order to get an accuracy diagnosis before interventions. These will cause unnecessary delay in diagnosis and will subject the patient to undergo a more invasive surgical treatment e.g. gastrectomy instead of a less invasive endoscopic treatment e.g. ESD. IEE by using optical magnifying upper endoscopy can easily differentiate between benign or malignant lesion and accurately diagnosed these lesion in early stage. However, it is not routine available at all endoscopy units in hospital authority.

Objectives

This is a review on the imaging enhanced endoscopy (IEE) to detect premalignant or early malignant gastric lesion

Methodology

From 1/1/2015 to 31/12/2016, all suspected gastric lesion(s) found by a single trained gastroenterologist using imaged enhanced endoscopy in form of optical magnifying endoscopy were reviewed. They would be classified as benign or (pre-malignant/malignant) according to the demarcation line, micro-surface pattern and micro-vascular pattern. All gastric lesions with a clear border or optically (pre-malignant/malignant) were biopsied and removed endoscopically by polypectomy, endoscopic mucosal resection (EMR) or ESD for complete histological examination or surgically in case more advanced malignancy is suspected. A gastric lesion without a

clear border and classified as benign lesion were subjected to multiple biopsies and follow-up endoscopy. The sensitivity, specificity, positive predictive value (PPV), negative predictive value (NPV) were calculated.

Result

Data from 44 patients with 52 gastric lesions were prospectively analyzed. IEE was highly accurate in differentiate benign vs premalignant/malignant lesion (The sensitivity, specificity, PPV and NPV using histology as gold standard were 92.9 %, 94.5%, 86.7% and 97.3%, respectively). All lesions without a clear border and classified as benign by IEE showed no evidence of malignancy on multiple biopsy or followup endoscopy. Nine lesions judged to be premalignant or malignant by IEE with final histology of high grade dysplasia or adenocarcinoma by ESD or surgery have initial biopsy either showing benign or atypical cell.

The IEE can accurately detect premalignant or early malignant gastric lesion. It can facilitate early less invasive removal of these lesions, avoid unnecessary invasive surgical treatment as a result of delay in diagnosis.