Do we still need EUS in the workup of patients with early esophageal neoplasia? A retrospective analysis of 131 cases CME

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Background: EUS is often used for locoregional staging of early esophageal neoplasia. However, its value compared with that of endoscopic examination and diagnostic endoscopic resection (ER) may be questioned because diagnostic ER allows histological assessment of submucosal invasion and other risk factors for lymph node metastasis, eg, poor differentiation/lymphovascular invasion.

Objective: To evaluate how often patients were excluded from endoscopic treatment of esophageal neoplasia based on EUS findings.

Design: Retrospective cohort study.

Setting: Tertiary care institution.

Patients: Patients with early esophageal neoplasia.

Interventions: EUS, diagnostic ER.

Main Outcome Measurements: Number of patients excluded from endoscopic treatment based on EUS results.

Results: A total of 131 patients were included (98 men, 33 women; age 66 ± 13 years). In 105 of 131 patients (80%), EUS findings were unremarkable. In 25 of 105 patients (24%), diagnostic ER showed submucosal invasion (n = 17), deep resection margins positive for cancer (n = 2, confirmed at surgery), or poor differentiation/lymphovascular invasion (n = 6). In 26 of 131 patients (20%), EUS findings raised the suspicion of submucosal invasion and/or lymph node metastasis. In the 14 of 26 patients (54%) with abnormal EUS findings, endoscopy results were unremarkable. Diagnostic ER showed submucosal invasion in 7 of 14 (50%) patients, whereas no lymph node metastasis risk factors were found in 7 of 14 patients (50%), who subsequently underwent curative endoscopic treatment. In 12 of 26 patients (46%) with abnormal EUS, endoscopy also raised doubts on whether curative endoscopic treatment could be achieved. After diagnostic ER, no risk factors for lymph node metastasis were found in 3 of 12 patients (25%).

Limitation: Retrospective study.

Conclusions: This study shows that EUS has virtually no clinical impact on the workup of early esophageal neoplasia and strengthens the role of diagnostic ER as a final diagnostic step. (Gastrointest Endosc 2011;73:662-8.)

Abbreviations: ER, endoscopic resection; EUS-FNA, EUS-guided FNA; HGIN, high-grade intraepithelial neoplasia; IQR, interquartile range.

DISCLOSURE: *All authors disclosed no financial relationships relevant to this publication. Because this study was performed as a retrospective chart review, this trial was not registered with a Human Clinical Trial Registration.*

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In the past 2 decades, endoscopic therapy has proved its role in the management of early neoplasia (ie, high-grade intraepithelial neoplasia [HGIN] or intramucosal cancer) of the esophagus and cardia. Endoscopic therapy offers a safe, effective, and significantly less-invasive alternative to surgical resection.[1-4] Only neoplasia limited to the mucosal layer, which is associated with a minimal risk of lymph node metastasis, is indicated for endoscopic management.[5-8] In the case of submucosal infiltration, the risk of lymphatic involvement increases significantly, and patients need to be referred for surgical resection.[7,8] The workup of patients who are considered for endoscopic treatment should therefore be aimed at identifying patients with neoplasia confined to the mucosa and thus with a low risk of lymphatic spread.[9,10]

In addition to endoscopic examination, EUS is often used to evaluate the infiltration depth of a lesion and the presence or absence of suspicious lymph nodes. Although EUS is the most accurate technique for locoregional staging of esophageal and cardia cancer, several studies have demonstrated that EUS is a suboptimal technique to distinguish mucosal from submucosal lesions and to assess for positive lymph nodes in the case of early neoplasia.[11-16]

Diagnostic endoscopic resection (ER) may be used as a final step in the workup for endoscopic treatment of early neoplasia. ER of a neoplastic lesion provides a relatively large tissue specimen that allows accurate histological staging of the infiltration depth as well as other prognostic factors such as tumor differentiation grade and lymphatic and vascular involvement (Fig. 1).[17]

In our center, ER is used in the workup of virtually all patients with early neoplasia of the upper GI tract, and because it provides more accurate information on infiltration depth than EUS, we questioned the value of EUS in this setting.

Most studies have evaluated the accuracy of EUS for T and N staging. However, this does not allow assessment if EUS affects making appropriate decisions on whom to treat endoscopically. The aim of this retrospective study was therefore not to study the accuracy of EUS for T and N staging, but to evaluate how often the outcome of EUS changed the management approach of our patients with early esophageal neoplasia.

Take-home Message

- Along with endoscopic examination and diagnostic endoscopic resection (ER), EUS only has a limited value in the selection of patients for endoscopic treatment.
- The results of this study strengthen the role of diagnostic ER as a final diagnostic step because it allows accurate histological assessment of risk factors for lymph node metastasis.

METHODS

Patient selection and data collection

For this study, 2 reviewers independently performed a retrospective evaluation of all patients undergoing upper GI EUS between May 2001 and June 2007, at the Academic Medical Center, Amsterdam, the Netherlands. Only patients undergoing EUS for staging of early esophageal or cardia neoplasia who were considered for endoscopic treatment were included. Exclusion criteria were (1) all other indications than staging of neoplasia, (2) previous treatment of esophageal or cardia cancer, or (3) no confirmation of HGIN/intramucosal cancer in the ER specimen or surgical resection specimen.

For all included patients, relevant information was retrospectively retrieved from endoscopy, radiology, histology, and surgery reports and recorded on standardized case report forms.

Endoscopic workup

Endoscopic workup was performed by endoscopists with experience in the field of early esophageal neoplasia, using high-quality endoscopes (Olympus GIF-H180, GIFQ240Z, GIFQ260Z, or GIF-H260Z; Olympus Endoscopy, Tokyo, Japan), often supplemented with advanced imaging techniques such as chromoendoscopy, autofluorescence endoscopy, and/or narrow-band imaging. The type of lesion was reported, distinguishing squamous cell lesions, Barrett's lesions, and cardia neoplasia. The lesion size and type according to the Paris classification were recorded: type 0-Ip, polypoid; 0-Is, sessile; type 0-IIa, elevated; type 0-IIb, flat; type 0-IIc, depressed; and type 0-III, excavated.[18,19] In addition, it was reported whether a lesion appeared to be suspicious for deep submucosal infiltration and whether it seemed to be accessible with ER, based on criteria such as lesion size, type, location, and movement of the lesion with peristalsis.

For EUS examination, a standard radial EUS endoscope (GIF-UM130, GIF-UM160, XGF-UE140-AL5, GF-UE160-AL5; Olympus Europe, Hamburg, Germany), a high-frequency EUS 20-MHz catheter probe (UM-3-R; Olympus Europe), or both were used. If a lesion could be visualized with EUS, the infiltration depth was recorded as being mucosal, submucosal, doubtful, or not assessable. Furthermore, the presence of suspicious lymph nodes was assessed, and in the case of EUS-guided FNA (EUS-FNA), the number of punctured nodes and cytological results were recorded.

For each of these examinations, whether the results changed the management strategy by excluding patients from further workup for endoscopic treatment was recorded, ie, excluding patients from diagnostic ER and directly referring the patient for surgery.