

Endoscopy Division

Introduction

The Endoscopy Division is comprised of the gastrointestinal, respiratory, and otolaryngology teams. The gastrointestinal team has 6 staff physicians, 5 chief residents, 5 residents, and several rotating residents, the respiratory team has 3 staff physicians and several trainees, and the otolaryngology team has a staff physician.

Every week, we examine about 200 patients with gastroscopy, 80 with colonoscopy, 10 with endoscopic ultrasound, 10 with bronchoscopy and 2 with otolaryngoscopy. Recent dramatic developments of devices have changed the operational mechanism and design of endoscopes, and accordingly, their clinical applications. In the gastrointestinal division, endoscopic interventions such as endoscopic mucosal resection (EMR), percutaneous endoscopic gastrostomy (PEG), and stent placement are increasingly applied. Bronchoscopy is used in combination with computerized tomography (CT) for the treatment of airway stenosis, minute peripheral lung cancer, etc.

Routine Activities

All diagnostic knowledge and techniques including chromoendoscopy, magnifying endoscopy and endoscopic ultrasonography are used to detect and evaluate small early malignant lesions. With increase in the number of patients with gastrointestinal mucosal cancer, EMR is performed more frequently. In 2004 we performed 1050 EMRs (esophagus 92, stomach 450, colon 538). Endoscopic submucosal dissection (ESD) is a new EMR technique developed to obtain an *en-bloc* resection even for large and ulcerative lesions. In gastric cancer treatment, 98% (417/427) of EMR were performed using an insulating-tipped (IT) diathermic knife. Recently developed other devices such as Hook-knife, Flex-knife or Attachment were also used in some cases. Major complications included 24 perforations and 4 delayed bleedings, and an emergency operation was needed in a perforation case. The number of EMRs for esophageal and colon cancers is also increasing year by year. Regarding the palliative treatment for patients at the terminal stage, placement of self-expandable metallic stent for malignant obstruction was performed

in 4 cases, and PEG for malignant dysphagia in 17 cases.

For respiratory diseases, we have focused on accurate and less invasive diagnosis of minute peripheral malignancies detected by CT, which leads to earlier surgical treatments, and less invasive treatments including bronchoscopic therapies. This is facilitated by the multi-purpose bronchoscopy system consisting of by-plane fluoroscopes and a spiral CT with CT-fluoroscopy, as well as patients' cooperation with appropriate support by medical personnel. Endobronchial malignancies are diagnosed by videobronchoscopes, together with an endobronchial ultrasound and high resolution CT, and are treated by high power diode laser vaporization, photodynamic therapy, brachytherapy, and tracheobronchial prosthesis.

Research Activities

To achieve more accurate endoscopic diagnosis for gastrointestinal disease, especially esophageal and colorectal neoplasms, we are using the recently developed narrow band imaging (NBI) system that enables us to narrow the bandwidth of the spectral transmittance of the optical filters used in the light source of an electronic endoscope system. A randomized control trial (RCT) is going to start to evaluate the detection rate of early pharyngeal and esophageal cancers by using the NBI system.

A close association between microbial infection and gastric malignancies has been considered. After *H. pylori* eradication, 10 out of 16 dysplasia (62%) disappeared endoscopically and histologically and the response (CR+PR) rate of low-grade MALT (mucosa-associated lymphoid tissue) lymphoma was 75% (64/85, CR:58, PR:6).

Recently, magnetic guiding systems such as the magnetic anchor for EMR of gastric cancer and robotic surgery systems are being investigated. During EMR, a magnetic anchor which is clipped to the target mucosal lesion and controlled by the external electromagnets, which produces counter-traction to make the submucosal cutting easy. From December 2004, the clinical trial has been just started. Furthermore, in the field of colon, we developed a non-invasive method, so-called sinker-assisted ESD,

that facilitates direct visualization of the submucosal layer in order to perform ESD.

Clinical Trials

The Japanese Intervention Trial of *H. pylori* (JITHP) was designed to clarify the reversibility of gastric precancerous conditions by *H. pylori* eradication. Finally, a total of 692 subjects, including 379 in the *H. pylori* eradicated group and 313 in the uneradicated group were enrolled. Endoscopically, no difference in atrophy regression was observed between the groups. Further histopathological evaluation is necessary to fulfill the main targets of the study and is ongoing.

A comparative study of atrophic gastritis in Japan and the United Kingdom was performed. Age and symptom (dyspeptic epigastric pain) matched patients without history of *H. pylori* eradication, GERD or malignancy from each decennial age 20-80 were enrolled from both countries. Atrophy and intestinal metaplasia, and corpus-predominant gastritis were marked in Japanese patients. *H. pylori* cultured from Japanese was different from that of UK patients,

although the incidence of *H. pylori* infection was almost the same.

The ESD has been widely challenged as new treatment of large superficial GI cancers. Sodium hyaluronate is known to make ESD easier and safer than normal saline solution. To evaluate the safety and availability of sodium hyaluronate, a multi-center randomized trial was finished for patients with early gastric or colon cancers to be treated by ESD or conventional EMR.

Two randomized control trials (RCT) concerning colorectal neoplasm are ongoing. One is to evaluate the inhibitory effect of lactoferrin on colorectal carcinogenesis. At present, more than 100 cases have been enrolled. The outcome will be obtained in 2005. The other one is the Japan Polyp Study (JPS). This multi-center trial has been started from 2003 to establish a reasonable surveillance program by total colonoscopy. At present, more than 1400 patients have been enrolled in this study.

● D.Saito ●

Number of Endoscopic Examinations in 2004

	GIE			FBS	LS	ERCP	Total
	Esophagus	Stomach	Colon				
No. of examinations	10,602		3,885	591	143	0	15,221
EUS	224	136	10	-	-	-	370
Polypectomy*	0	12	917	-	-	-	929
EMR*	92	450	553	-	-	-	1,095
Laser	3	0	0	-	-	-	3
PEG	-	17	-	-	-	-	17
Stent	3	-	2	5	-	-	10

GIE: gastrointestinal endoscopy EUS: endoscopic ultrasonography FBS: flexible bronchoscopy
 EMR: endoscopic mucosal resection LS: laryngoscopy ERCP: cholangiopancreatography
 *: number of lesions PEG: percutaneous endoscopic gastrostomy