

Observation of Barrett's esophagus and early gastric cancer by magnifying Narrow Band Imaging (NBI) endoscopy

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By only changing the optical filters for sequential lighting from the conventional broadband type to the narrow band type, NBI system can be installed. Through our clinical evaluations as to Barrett's mucosa and early gastric cancers, we confirmed NBI has an advantage over a conventional system with the representation of the important observation and diagnosis such as the fine mucosal patterns and capillary structure. We believe NBI will be one of the tools supporting the endoscopic diagnosis of Barrett esophagus and tumor related neo angiogenesis of early gastric cancers.

In this workshop, Firstly I would like to report the diagnostic implication of fine mucosal patterns (pit diagnosis) obtained by NBI magnifying pictures in vivo compared with conventional and chromo-endoscopy with reference to the discrimination of SCE from the remaining epithelial types. The relationship between the endoscopic and histopathologic diagnosis was more accurate by NBI endoscopy than conventional magnifying endoscopy.

Secondly I would like to show the precise observation of the esophago-gastric junction as to the discrimination among epithelial types such as the squamous, cardiac and fundic mucosa using NBI system.

Finally depressed type early gastric cancers were observed by NBI. The fine mucosal vascular pattern was recorded and compared with the histological differentiation and features of vessels by staining anti-CD34 antibody. In some patients, c DNA array analysis was performed as to differences among histological types. Tumor vascular patterns were classified into two categories. Grid like network patterns not only characterized differentiated type but were also associated with high micro vascular density. Short twig-like patterns typified the undifferentiated type and a low vascular density. Differentiated types highly expressed some angiogenic factors, such as VEGF and Flt-4.

Can we make a diagnosis of *Helicobacter pylori* infection endoscopically?

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Since *Helicobacter pylori* (*H. pylori*) had been discovered in 1983, the diagnosis and treatment of upper gastrointestinal diseases have changed greatly.

Today, there have been many reports that *H. pylori* related to many diseases of gastrointestinal tract. As a result, the diseases that considerable cause was regarded as *H. pylori* infection were as follows: gastric ulcer, duodenal ulcer, MALT lymphoma of the stomach, acute gastric mucosal lesion (AGML), chronic gastritis (especially, chronic active gastritis, atrophic gastritis,

superficial gastritis, and follicular gastritis), gastric cancer, gastric adenoma, hyperplastic polyp of the stomach, giant rugae of the stomach, and so on. However, the explication of the detailed mechanism between contracting such diseases and *H. pylori* infection was not so clear even now.

On the other hand, most of fundic gland polyps of the stomach were found out in patients with *H. pylori* negative, and most of Kammroetung (Comb-like redness) of the stomach was also. And RAC (regular arrangement

of collecting venules) of the stomach was observed in patients with *H. pylori* negative using new versions of electronic endoscopy.

Moreover, it became clear that measurement of hemoglobin index (IHb) value on fundic mucosa under the proper condition could be applicable to the diagnosis on *H. pylori* infection endoscopically, because a device

of electronic endoscopy with system of measurement of IHb value was developed.

In this symposium, details of *H. pylori* related diseases will be explained presenting some typical cases. And we shall make reference to the possibility of making a diagnosis of *H. pylori* infection endoscopically, which was based on the reports mentioned above and on our retrospective and prospective data.

Capsule endoscopy

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Radiological examination had been the gold standard of the examination of small intestine. However, it was difficult to detect of flat lesion or bleeding point. Various endoscopic approaches for small intestine were investigated, though they were not spread. Late 90's double balloon endoscopy that enables constant deep insertion and entire examination of small intestine was developed. In 2000, capsule endoscopy (CE) was developed. This is a new examination tool for intestine. Small capsule is swallowed and takes pictures of small intestine. More than 300 thousand cases have been

examined all over the world until now. It has been reported the usefulness of diagnosis of bleeding disease.

Capsule endoscope takes two pictures per seconds for eight hours in a physiological manner. CE enables to observe villi, ulcers, erosions, and polyps of small intestine, therefore diagnosis of small intestine disease will be further developed. CE is less invasive compared with conventional enteroscopy.

There are still some problems. It takes more than fifty minutes to analysis the pictures. Further progress is necessary.



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