Message from the President, Professor Joseph Sung

Merry Christmas and a Happy 2003 to all our Members and Fellows!

The year 2002 has been another successful year for the Hong Kong Society of Gastroenterology in promoting high standard of Gastroenterology practice in Hong Kong.

Two major meetings were held this year: the Annual General Meeting and get-together 20th Anniversary Dinner in March, 2002 and the Joint Annual Scientific Meeting in September, 2002. Both meetings were well received by fellows and members.

This year, our J joint Scientific Meeting is unprecedented co-sponsored by 4 sister societies, namely The Hong Kong Society of Digestive Endoscopy, The Hong Kong Association for the Study of Liver Diseases, Hong Kong Society for Coloproctology and The Hong Kong Society of Gastrointestinal Motility. Our friends and colleagues not only filled the Grand Ballroom with their presence but their enthusiasm and active participation. A number of thought-provoking questions were raised and discussed during the plenary sessions. The oral sessions were remarkable and the stimulating presentations by our distinguished speakers were particularly inspiring.

Our Society continues to promote research in Gastroenterology. Two GERD projects funded by our Society are presently in good progress and are expected to be completed by the end of 2003. I am looking forward to sharing their findings with our members.

Last but not the least, I am most thankful to Dr. W M Hui for his continuous effort in editing this newsletter. My heartfelt appreciation also goes to Dr. Michael Li and Dr. Nelson Kung for contributing scientific updates on Wireless Capsule Endoscopy and Chromoendoscopy and Magnification Endoscopy respectively. As this is the Society’s only official publication, I call upon all members and fellows to embrace this project by your contributions and suggestions.

Scientific Updates

Chromoendoscopy and Magnification Endoscopy

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Introduction

Chromoendoscopy, (chrom-, chromo- [Gk. Chroma] meaning color or pigment), synonymous with chromoscopy, is an ‘old’ endoscopic tissue-staining technique that has been practised in Japan since early days of fibre-endoscopy. Earlier reports in the seventies discussed on endoscopic diagnosis of gastric cancer (1) or characterisation of colonoscopic lesions (2). In essence, dye spraying allows improved visualisation of a subtle mucosal lesion that is not possible with conventional examination. The image is further enhanced by magnification technology. Since its inception, endoscopists from the rest of the world have embraced the technique with some skepticism. This review examines the resurgence interest, and the advantages and pitfalls on the use of chromoendoscopy.

Methodology and Instruments

Applications of various stains are listed in Table 1. Vital stains such as methylene blue, lugol’s iodine or toluidine blue, are fixed in the cell by means of diffusion or absorption through the cell membrane. On the other hand, a contrast stain is not absorbed by the epithelium, but disperses into mucosal elevations and crevices, thus defining the topography of the area better. Indigocarmine is a common example of a contrast stain, and in addition, it is inexpensive, non-toxic, and does not require prior therapy with mucolytic. Applications with indigocarmine are not exclusive to the lower GI tract, but extends to detection of subtle villous atrophy, dysplasia within Barrett’s oesophagus, intestinal metaplasia of the stomach, and delineating the margins of gastric cancer (3). A zoom or high-resolution endoscope is helpful. Generally, a gentle irrigation of the area of interest with water is followed by a 0.1-0.4% strength of indigocarmine sprayed through the biopsy channel (4), or via a spray catheter (PW-1L; Olympus) (5). In 1992, Mitooka et al reported an novel attempt to stain the whole colon uniformly blue using a capsule loaded with 100mg indigocarmine prior to bowel preparation. Despite increasing the yield of non-polypoid lesions by four-fold, the distal colon is usually insufficiently stained (6). Crystal violet is a vital stain that is preferentially taken up by the crypts of the Liebhkuhn glands, and helps to highlight the disrupted pit patterns overlying early cancers, especially over erosive or depressed areas of a lesion. A few drops of 0.5% are sufficient, applied through a catheter, with prior irrigation, and the lesion viewed with magnification. Lugol’s iodine has an affinity for glycogen containing squamous epithelium which is stained green-brown. Severe dysplasia and neoplasia disturbs the glycogen content and causes the lesion to be unstained in contrast to the surrounding mucosa. Its specificity is limited by the fact that decreased staining also occurs with severe inflammation, oedema and atrophy. Toluindine blue, a stain from the thiazine group, has an affinity for RNA and DNA which are richer in nuclei than normal mucosa. It reveals pre-invasive and malignant lesions, and locates satellite centres and carcinoma-in-situ. The best example of reactive stain is Congo Red (biphenylene naphthalene sulfonic acid), which decomposes at a pH less than 3, causing a distinctive colour change from red to blue-black and can define the acid producing mucosa.

In 1975, Tada et al. described the first fibre-colonoscopy with magnification up to 10 times. Recent magnifying endoscopes generally employ a zoom mechanism rather than a fixed focal point system. The zoom endoscopes have overcome previous shortcomings, notably, able to attain distant images during normal examination; a brighter field of view at magnification; lighter weight and an elevator-like control lever for easy operation (Olympus CF-Q240Z, 150x magnification on a 20 inch monitor; Pentax EC-3430 upper GI series, EC-3830 lower GI series, up to 150x magnification). High resolution endoscopes have a 410,000-pixel color chip (Fujinon SUM 400 series), wide focus, and high speed electronic shutters that provide high-resolution video images of clarity despite a modest areo Ratio magnification. The latest developments include 850,000-pixel resolution as well as high-magnification functions up to 200x, but requires two separate switches for controlling optical and optical systems.
electrical zoom (Fujinon, EG-485ZH upper G1 magnifying endoscope, EG-485Z W magnifying colonoscope). It is noteworthy that a magnifying video-endoscopy with a large and more diffuse biopsy handle, resulting in a lower-than-average success rate for reaching the caecum (7).

**Diagnosis of colorectal polyps and non-polyloid lesions**

Two different dye staining protocols, which chromo-colonoscopy confers significant advances include a) discrimination between benign and malignant polyps or non-polyloid lesions, and b) correlating the extent of invasion in malignant flat adenomas or depressed dysplasia with indigocarmine. In addition to magnification or a high resolution system, the orderly arranged circular pits (cysts of Lieberkühn) as seen in hyperplastic polyps versus the "groove" and "sulcus" appearance of adenomatous hyperplastic polyps versus the "groove" and "sulcus" appearance of adenomatous hyperplastic polyps can be readily differentiated. In a German study, new lesions that are not initially apparent at conventional colonoscopy were revealed with dye spraying in 27 of 48 subjects (56%). 93% of these small lesions were hyperplastic, a minor proportion were adenomatous. Among the adenomatous lesions, one had high-grade intraepithelial neoplasia (5). A study performed at Georgetown University, USA, using Fujinon 400 series high-resolution colonovideoscope, showed that the sensitivities of detection were 93% and 95% respectively (7). Other similar studies from Taiwan and America confirmed an overall diagnostic accuracy of 80.1% and 82% respectively (8, 9). Because adenomatous polyps tend to bleed in reaction to a spray-jet, a technique known as pressure dye spray using dilute 0.035% indigocarmine ejected via a spray-type cannula (PW-5V-1, Olympus) by a water pump system can also be used to achieve the differentiation (10). Ideally, the negative predictive value (percentage predicting the polyp is not an adenomatous polyp) should be 100% so that adenomas are not overlooked. Although some investigators propose that diminutive (<5 mm) polyps which are chromoendoscopically "hyperplastic" may be left un-biopsied or unrected (5), others consider the current level of diagnostic accuracy suboptimal to replace mucosal biopsy as the gold standard (8, 11). Furthermore, a subset of hyperplastic polyps may not be innocuous. Large, multiple and proximally located ones have a potential for neoplastic progression (12), and a proportion may exhibit microsatellite instability, which is present in some sporadic colorectal cancers (13). With a "normal" video-colonoscopic finding, the unmasking of new adenomatous lesions using routine dye spraying to the distal colon (5) generates some debate, whether this approach should be adopted routinely currently lacks consensus.

Flat adenomas, or superficially elevated mucosal neoplasia of the colon, characteristically demonstrate high-grade dysplasia despite their small size. This crucial finding is not confined to Japanese studies, but also observed in the North American population (15), and asymptomatic British population (16). Saitoh et al used 0.1% indigocarmine in identifying four features which correlate with invasive submucosal cancer (sm2-3 depressed-type lesions), namely a) expansion appearance b) deep depression surface of irregular shape and presence c) converging folds (17). Utilising high magnification, Kudo et al. had pioneered the concept of "pit patterns" which correlates well with histology, and has led to improved differentiation of endoscopic appearance: a) "flat" or "depressed" lesions (18). A classification of pit pattern has been described (Table 2). Types I and II are characteristic of non-cancerous lesions, most lesions with types III, I, IV, V patterns represent extramucosal cancer or "depressed" patterns. V \( V \) represents deep invasive carcinomas. Small depressed lesions have important connotations in colorectal cancer screening, since fifty percent of these show severe dysplasia or carcinoma despite a small size (<10 mm) (19). Other applications of indigocarmine dye and magnification include confirmation of residues of neoplastic lesions after EMR (Endoscopic Mucosal Resection), and endoscopic surveillance of longstanding ulcerative colitis. In contrast to magnification, the resolution of positron emission tomography with indigocarmine serves a lesser role in large polyps and advanced cancers. For optimal results of the above techniques, adequate bowel preparation is a prerequisite.

**Chromoendoscopy for Barrett's oesophagus**

Barrett's oesophagus, defined by the histological presence of specialised intestinal-type metaplasia (SIM) within an endoscopically visible columnar-lined oesophagus, confers a significant risk in dysplastic changes and oesophageal adenocarcinoma. Beyond the naked eye, the columnar lined oesophagus can be a mosaic of different types of epithelium including junctional, cardiac, or SIM. Methylene blue is a vital stain which is selectively taken-up by the cytoplasm of actively absorptive cells in normal intestine, including junctional, cardiac, or SIM. Variability of results may be accounted by the subjective nature of strain interpretation, differences in study design and data expression, as well as staining techniques such as variations in strength of methylene blue, dwell time, staining techniques amongst different studies. The procedure is generally safe with low morbidity. The main theoretical risk is aspiration especially with endoscope in the lower oesophagus. Iodine staining is an alternative stain which has demonstrated higher sensitivity. A recent study revealed significant side effects with vomiting and patient discomfort related to MB staining (30).

**Early detection of oesophageo-gastric cancer**

Two major applications of Lugol staining are i) surveillance of squamous cell carcinoma (SCC) of oesophagus in alcohol / tobacco users and ii) evaluation of tumour-extent in oesophageal SCC. In one report, the use of 3% Lugol's iodine solution demonstrated a well demarcated iodine-stained lesion in 12% of high-risk asymptomatic subjects. Biopsy yielded dysplastic lesions in 26% of unstained areas, eight times higher than that from random biopsies of uniformly stained mid-oesophagus (31). The major drawback, however, was a low sensitivity (46%), because random biopsies also detected similar percentage of dysplastic lesions overall. Side effects of Lugol staining include retrosternal burning, oesophageal spasm, or laryngeal oedema. Adverse effects are not contraindicated for its use. The maximum volume used should be limited to 20mL and spraying close to the larynx should be avoided (32). Iodine-induced irritation can be neutralised by spraying of 20mL 5% sodium thiosulfate solution immediately after Lugol's procedure (33). Toluidine blue can also be used for detecting squamous cell oesophageal cancer in isolated reports.
though the technique is not commonly adopted (34). For early detection of gastric cancer, Congo-red-methylene blue dye has been used, but recent reports are few in number. The gastric chromoendoscopy is often hampered by the mucus layer. Mucolytic pre-treatment with pronase (proteolytic enzyme from the culture filtrate of Streptomyces griseus) has been recommended (35).

Conclusion

Dye spraying is invaluable in displaying the topography of small and non-polyoid mucosal lesions of the lower GI tract. ‘Pit pattern’ observation by magnification endoscopy allows analysis of microstructures of small, flat lesions. By distinguishing hyperplastic from adenomatous polyps, ‘endoscopic forecast’ with indigocarmine may have a role in reducing histopathologic evaluation for diminutive colonic polyps, but larger polyps should be resected irrespective of visual characteristics. Histological confirmation should continue to play an important role in lesions of doubt and in exclusion of malignant invasion. Since the dye is normally applied onto faintly suspicious areas, it follows that chromo-magnified endoscopy is a substitute for an unhurried, careful routine examination. Although a potential reduction in the number of histologic evaluation may lead to cost-savings, procedure is lengthened using dye spraying and additional cost of video-magnification equipment needs to be considered. Hence, the cost-effectiveness of the technique remains to be firmly evaluated with rigorous prospective randomized studies. Methylene blue staining enhances the accuracy in diagnosing specialised intestinal metaplasia in Barrett’s oesophagus, however, its applicability in detecting Barrett’s related dysplasia and early cancer remains controversial because of the inconsistent and variable results. More data on the optimal staining techniques and interpretation of methylene blue or other dyes is needed to achieve a consensus. The use of Lugol’s iodine stain assists surveillance of early squamous cell carcinoma of the oesophagus, but areas close to the larynx should be avoided. Endoscopy units should emphasize on training and the need to derive a protocol for the application and indications of various stains. An element of inter-observer and intra-observer variability in interpretation of findings is inevitable. Regular audits will be essential to evaluate if the accuracy of the adopted technique is close to that reported in the literature. An expansion of technology to detect early gastrointestinal mucosal cancers is currently being evaluated. These include endoscopic optical coherence tomography, laser induced fluorescence endoscopy, and fluorescein electronic endoscopy. Comparative results of the sensitivity and specificity of each modality would be made available in the future.

References

2. Okabayashi T, Gotoda T, Kondo H, Ono H, Kawai K. Endoscopic diagnosis of gastric cancer, Congo-red-methylene blue dye has been used, but recent reports are few in number. The gastric chromoendoscopy is often hampered by the mucus layer. Mucolytic pre-treatment with pronase (proteolytic enzyme from the culture filtrate of Streptomyces griseus) has been recommended (35).

Table 1 Characteristics of various types of stains used in chromoendoscopy

<table>
<thead>
<tr>
<th>Stain</th>
<th>Strength / dose</th>
<th>Mucolysis</th>
<th>Mechanism</th>
<th>Main clinical use</th>
</tr>
</thead>
<tbody>
<tr>
<td>Indigocarmine</td>
<td>0.1 - 0.3% 3 - 5mL</td>
<td>not required</td>
<td>contrast stain</td>
<td>colorectal lesions</td>
</tr>
<tr>
<td>Crystal violet</td>
<td>0.05% drops</td>
<td>required</td>
<td>vital stain, taken up by crypts of gland</td>
<td>colorectal lesions</td>
</tr>
<tr>
<td>Methylene blue</td>
<td>0.5%</td>
<td>required</td>
<td>vital stain, taken up by crypts of gland</td>
<td>colorectal lesions</td>
</tr>
<tr>
<td>Lugol’s solution</td>
<td>1 - 3% 20 - 30mL</td>
<td>not required</td>
<td>vital stain, taken up by crypts of gland</td>
<td>colorectal lesions</td>
</tr>
<tr>
<td>Toulidine blue</td>
<td>1% 10mL</td>
<td>required</td>
<td>vital stain, taken up by crypts of gland</td>
<td>colorectal lesions</td>
</tr>
<tr>
<td>Congo Red</td>
<td>0.3 - 0.5%</td>
<td>required</td>
<td>vital stain, taken up by crypts of gland</td>
<td>colorectal lesions</td>
</tr>
</tbody>
</table>

Table 2 Classification of ‘Pit pattern’ under magnification videodendoscopy (Kudo et al, Ref.36)

<table>
<thead>
<tr>
<th>Pit Pattern Type</th>
<th>Morphological description</th>
<th>Histological Types</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type I</td>
<td>Round pits, regular in size and spacing</td>
<td>Normal colonic mucosa</td>
</tr>
<tr>
<td>Type II</td>
<td>Larger than normal, regular spaced pits, Star or onion - like shapes</td>
<td>Hyperplastic (69.4%) Adenomatous (30.5%)</td>
</tr>
<tr>
<td>Type III</td>
<td>Long or large, elongated pits</td>
<td>Adenomatous (92.7%) Carcinomas (4.2%)</td>
</tr>
<tr>
<td>Type IV</td>
<td>Short, compactly arranged pits</td>
<td>Adenomatous (86.3%) Carcinomas (12.7%)</td>
</tr>
<tr>
<td>Type V</td>
<td>Branched, elongated, ceribiform pits</td>
<td>Adenomatous (74.9%) Carcinomas (22.4%)</td>
</tr>
<tr>
<td>Type V</td>
<td>irregular pit pattern; or non - structural, with a rough often ulcerated surface</td>
<td>early gastric carcinoma diagnosis of H. Pylori</td>
</tr>
</tbody>
</table>
A New Frontier in Endoscopy: Wireless Capsule Endoscopy

Dr Li Kin Kong Michael MBBS MRCP FHKCP FHKAM (Med)

Dr Li Kin Kong obtained his medical degree from University of New South Wales in 1988. He received his postgraduate training in Prince of Wales Hospital, the Chinese University of Hong Kong. During his fellowship training, he was very active in clinical research in gastroenterology and hepatology. He also spent his elective term in experimental research in portal hypertension at UCLA. Currently he is the senior medical officer and GI specialist in North District Hospital and Pok Oi Hospital, Hong Kong.

Background

The advent of endoscopy has indisputably revolutionized our understanding and management of gastrointestinal disorders by identification of the luminal lesions. Although this method provides excellent visualization of the upper and lower gastrointestinal tracts, progress in small bowel imaging is slow-moving. Different endoscopic methods have been devised to achieve this goal (Table 1) in the last 2 decades. Yet their widespread uses are still hampered by incompleteness of small bowel visualization, patient intolerance, procedure related morbidity and mortality. Nevertheless, they play an important role in the algorithm for investigation of small bowel diseases.1-3

Wireless Capsule Endoscopy (WCE)

In May 2000, an innovative device, which was capable of small bowel imaging, was announced by a dedicated team represented by Dr Paul Swain at the ASGE plenary session and it was published in the same issue of Nature.1 It is a miniaturized radio-telemetry video-camera incorporated into a small swallowable capsule with a transparent optical dome. It consists of the following electronic components: 4 white light-emitting diodes (LED), one complimentary metal oxide silicon (CMOS) image sensors, one application-specific integrated circuit (ASIC) transmitter, and silver oxide batteries (Fig 1). An aerial system (Fig 2) is applied to the skin of the subject’s abdomen and is connected to a portable solid-state data recorder carried by the subject. The technology involves the capturing of video image by the CMOS, transmission of the image via telemetry to the data recorder, image processing in the computer workstation, and image display on the computer monitor with a software package which allows image manipulation at various speed either by manual control or in automated fashion (Fig 3).

Table 1

<table>
<thead>
<tr>
<th>Endoscopic methods</th>
<th>Advantage</th>
<th>Disadvantage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Push enteroscopy</td>
<td>Procedure time (10-45min)</td>
<td>Excellent visualization</td>
</tr>
<tr>
<td></td>
<td>Diagnostic yield (38-75%)</td>
<td>Therapeutic intervention possible</td>
</tr>
<tr>
<td></td>
<td>Length of insertion (15-160cm)</td>
<td>Complication</td>
</tr>
<tr>
<td></td>
<td>- Mucosal tear, perforation</td>
<td>- Limited insertion length</td>
</tr>
<tr>
<td>Sonde enteroscopy</td>
<td>- Prolonged procedure time (insertion 4hrs, withdrawal 45min)</td>
<td>- Longer insertion length</td>
</tr>
<tr>
<td></td>
<td>- Insertion length (ileal intubation in 60-75%)</td>
<td>- Complication (perforation)</td>
</tr>
<tr>
<td></td>
<td>- Diagnostic yield (26-54%)</td>
<td>- Patient intolerance</td>
</tr>
<tr>
<td>Intra-operative enteroscopy</td>
<td>- Diagnostic yield (70-100%)</td>
<td>- Limited visualization</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Therapeutic intervention impossible</td>
</tr>
</tbody>
</table>

*Beyond ligament of Treitz

Experimental studies

The device was first tested in 10 normal

The study subject generally requires an overnight fast prior to the procedure. The capsule is then swallowed with water in the morning. Beverage is allowed after 1 hour and a light meal is permitted after 4 hours. In one study, if the bowel is prepared with a 24-hour fluid diet followed by an oral purge with PEG solution the day before the procedure, a better quality small bowel image results. The aerial system can be disconnected from the patient after about 7 hours of recording.
human volunteers who were asked to swallow the capsules. High-quality images were obtained for up to 6 hrs. The capsules were all evacuated after 24 hrs (10-48 hrs). No discomfort was reported. Later, WCE was compared to push enteroscopy (PE) in 9 dogs with 9-13 surgically placed radiopaque, colored beads (3-6 mm diameter) inside their small bowels. The overall sensitivity of bead detection by WCE was 64% compared with 37% by PE (p < 0.01) whereas the specificities were similar (92% vs. 97%). Besides, WCE detected more unexpected pathology at the bowel segment beyond the reach of PE. Interestingly, if the sensitivity of WCE within the range of PE was compared, PE showed higher sensitivity (53% vs. 94%).

Clinical studies

Although most of the clinical studies of WCE were available in case reports or abstract forms, its application had been quite diverse. In the DDW 2002, VCE had been reported in different conditions such as iron deficiency anemia, obscure GI bleeding, inflammatory bowel disease, small bowel transplantation, coeliac disease, GI polyposis syndromes, and pediatric GI disorders.

Obstructive GI bleeding (OGIB)

Many studies examine the usefulness of WCE in OGIB, either after extensive conventional investigations or by comparison to PE. Non-comparative trials

In most studies, the diagnostic yield by WCE is over 70%, ranging from 38-82% (Table 2). Small bowel lesions identified include angiodysplasias, AV malformation, Dieulafoy’s lesions, Crohn’s lesions, tumors, varices, ulcers, M E eck’s diverticulum and polyps. These findings frequently result in change of management plan. Similar to reported experience with enteroscopy, WCE detected a substantial proportion of lesions within the reach of OG D or colonoscopy such as reflux esophagitis, Cameron’s lesions, upper GI ulcers, esophageal varices, caecal tumor or angiodysplasia. It further emphasizes the necessity to repeat the “bidirectional” endoscopies in OGIB.

Comparative trials

In identification of lesions in OGIB, the sensitivity of WCE is clearly superior to that of PE (Table 3). Delvaux et al. demonstrated that WCE identified lesions in 43 of 57 patients with OGIB compared to 32 by PE. While the lesions were identical with both techniques in 27 patients, WCE detected lesions not seen at PE in 26 patients and conversely PE detected lesions missed by WCE in only 6 patients. Demedts et al. found that WCE was superior to PE only in identification of small intestinal and not gastric lesions as WCE missed 3 gastric lesions (Cameron’s ulcer, small esophageal varix and cardiac lesions) in 2 of 10 patients.

WCE is also showed to be superior to small bowel barium radiography (100% vs 15%) in 20 patients. However, the exact site of the abnormal findings in small bowel identified by WCE could not be located in 9 patients. The author concluded that localization of the lesion by WCE is a major limitation.

Cost-effectiveness

An interesting study by Lo et al. looks at the issue of potential savings by WCE. 37 OGIB patients with a minimum of 97 admissions, 429 units of RC transfusion, 133 units of RC within preceding 3 months, 112 OGDs, 106 colonoscopies, 20 PEs, 48 small bowel barium studies, 32 RC scintigraphy, and 14 mesenteric angiograms underwent WCE. The WCE images were revealed by 3 endoscopists. 23 patients were identified to have findings likely to be definite source of bleeding. Hence, it was concluded that if the definite diagnosis led to a curative therapy, about 2/3 of the patients would avoid subsequent hospitalization, transfusions and procedures. This study indicates a potential impact of WCE in health care resource utilization.

Inflammatory bowel disease

Small bowel involvement in inflammatory bowel disease may sometimes pose diagnostic difficulties. Fireman et al. applied this technology in 17 patients with suspected Crohn’s disease of the small bowel that could not be confirmed by radiological or endoscopic methods. WCE was able to detect evidence of small bowel Crohn’s disease in 12 (71%) patients.

Voderholzer et al. confirmed Crohn’s disease of the small bowel in 3 similar patients. One of these patients was treated as coeliac disease for 3 years and subsequently responded to steroid therapy.

Transit time

As the battery life of WCE is a major limiting factor in the completeness of small bowel visualization, realizing the gastrointestinal transit time of the capsule is crucial. The result is shown in Table 4. Fisher et al. found that the progress of the capsule was particularly slow in the pylorus, ileocaecal valve and caecum. Besides, only 27 (47%) capsules entered the colon during the study.

Table 2

<table>
<thead>
<tr>
<th>Author</th>
<th>Subject No</th>
<th>Indication</th>
<th>Positive Findings</th>
<th>References</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lewis, New York</td>
<td>75</td>
<td>66 OGIB</td>
<td>9 Suspected SI lesion</td>
<td>39 (59%) 0 (0%)</td>
</tr>
<tr>
<td>Schulman, Germany</td>
<td>12</td>
<td>OGIB</td>
<td>9 (75%)</td>
<td>8</td>
</tr>
<tr>
<td>Jensen, L.A.</td>
<td>21</td>
<td>OGIB</td>
<td>8 (38%)</td>
<td>9</td>
</tr>
<tr>
<td>Lo, L.A.</td>
<td>37</td>
<td>OGIB</td>
<td>22 (59%) likely 6 (16%) probable</td>
<td>10</td>
</tr>
<tr>
<td>Janowski, Boston</td>
<td>39</td>
<td>OGIB</td>
<td>29 (74%)</td>
<td>11</td>
</tr>
<tr>
<td>Chutkan, Washington</td>
<td>20</td>
<td>OGIB</td>
<td>14 (70%)</td>
<td>12</td>
</tr>
<tr>
<td>Hahne, Germany</td>
<td>11</td>
<td>OGIB</td>
<td>8 (73%)</td>
<td>13</td>
</tr>
<tr>
<td>Mascarenhas-Saraiva, Portugal</td>
<td>28</td>
<td>OGIB</td>
<td>22 (82%)</td>
<td>14</td>
</tr>
<tr>
<td>Soriano, Boston</td>
<td>46</td>
<td>OGIB</td>
<td>5 (8.7%) had gastric or SI Dieulafoy’s lesions</td>
<td>15</td>
</tr>
<tr>
<td>Firemen, Israel</td>
<td>17</td>
<td>Suspected SI Crohn’s</td>
<td>12 (71%)</td>
<td>16</td>
</tr>
<tr>
<td>Mow, L.A.</td>
<td>10</td>
<td>Suspected IBD</td>
<td>9 (90%)</td>
<td>17</td>
</tr>
<tr>
<td>Santanna, Canada</td>
<td>9</td>
<td>Pediatric patients (3 OGIB, 3 suspected Crohn’s, 3 suspected polyposis)</td>
<td>All confirmed Dx</td>
<td>18</td>
</tr>
</tbody>
</table>

OGIB = Obscure GI bleeding, SI = Small Intestinal, IBD = Inflammatory bowel disease

Text Figure 1 (a)  Figure 1 (b)  Figure 2  Figure 3
identification of ileocaecal valve in the study by Leighton et al.30

Safety issues
M ajor adverse events were seldom reported in most of the clinical studies. This may be related to the exclusion of patients with suspected/confirmed intestinal stricture or those underwent bowel surgery. Failure of exit of the capsule resulting in surgical removal was reported by some investigators.31,32 Bhinder et al. reported retention of the capsules in 4 of 46 patients investigated for OGIB.31 2 patients had a retention of the capsules in 4 of 46 patients associated ulcers. Cave et al. suggested that the pre-procedure consent should include a statement that the capsule may be retained by Leighton et al.30 The remaining 2 patients had the capsules passed after a mean of 5 (3-7) days. The resected specimen was confirmed to N SAID strictures with circumferential webs and few associated ulcers. Cave et al. suggested that the pre-procedure consent should include statement that the capsule may be retained and require surgical removal.32 Retention of the capsule in a jejunal diverticulum for 5 hr was also reported.1 Despite capsule retention, no obstructive symptom was experienced by these patients.

New developments
As mentioned above, localization of the lesions detected by the capsule is unsatisfactory, if not impossible. A new localization algorithm is developed by Jacob et al. with the cumulative percentage of better than 6 cm accuracy of 87%.33 This initial result is impressive and warrants further validation in more patients. Lack of maneuverability resulting in inadequate esophageal and prolonged gastric/smaller intestinal imaging time leads to incomplete small bowel visualization because of limited battery life. Swain et al. shed light on solving these problems by incorporating an electrostimulation device into the capsule.14 By stimulating the electrodes on the back of the front of the device, the wireless capsule could be propelled forwards or backwards remotely. In the pig models, remote controlled movement of wireless capsule endoscopes was feasible in the esophagus, small intestine and colon. This exciting modification is certainly intriguing and we await its use in human subjects in the near future.

Future perspectives
WCE is definitely a fascinating technology at least in identification of small bowel lesions. With better understanding of the diagnostic capabilities of this device, certainly certain pathologies in the gut are the frontier of some GI conditions (OGIB, malabsorption, protein-losing enteropathy, diarrhea...etc) may need dramatic revision sooner or later. Besides, imagine if this device is affixed to the GI tract, it may allow the studies of the GI physiology and pathology just as we can see it with our naked eyes. This tremendous potential shall bring us to a new frontier in gastroenterology. Note: Excellent video images obtained from WCE can be viewed at www.givenimaging.com.

References
2. AGA technical review on the evaluation and management of occult and gross gastrointestinal bleeding. Gastroenterology 2000;118:201-221.
Welcome !!!

New Member
Dr. Wong Mon Ching
Department of Medicine, Caritas Medical Centre

March 1-9, 2003
Canadian Digestive Week Conference
Organizer: Canadian Association of Gastroenterology
Location: Banff, Canada
For further information, please contact -
Digestive Disease Week Administration
Tel: (301) 272 0022
Fax: (301) 654 3978
Website: www.cag-acg.org

March 4-6, 2003
5th International Congress of The African Association for Study of Liver Diseases (AFASLD)
Organizer: Alfa Medical
Location: Cairo, Marriott Hotel
For further information, please contact -
Tel: (20) 245 32916
Fax: (20) 245 33515
E-mail: alfa@alfamedical.com
Website: www.alfamedical.com

March 20, 2003
Annual General Meeting & Scientific Meeting 2003
Organizer: Hong Kong Society of Gastroenterology

Highlights from The Fourth Joint Annual Scientific Meeting
Dr. Chan Ka Leung Francis, Associate Professor, Department of Medicine & Therapeutics, Prince of Wales Hospital
Date: September 28, 2002
Venue: 3/F, Sheraton Hong Kong Hotel & Towers
Sponsor: AstraZeneca (H.K.) Ltd.
Co-organizers: Hong Kong Society of Gastroenterology
Hong Kong Society of Digestive Endoscopy
Hong Kong Society for Coloproctology
The Hong Kong Association for the Study of Liver Diseases
The Hong Kong Society of Gastrointestinal Motility

This Fourth Joint Annual Scientific Meeting was a tremendous success. Some 330 doctors attended the conference and took part actively in the 3 penal discussions. The Meeting started with the Oral Presentation. The ten abstracts on different subjects including colonoscopy, polypectomy and ulcer bleeding, esophageal carcinomas, EMR, and Helicobacter pylori eradication were all well-presented and, time restrained, 2 to 3 questions were raised at the end of each presentation. The judging panel was appointed a difficult task this time but in the end Dr. Lawrence Hung was announced to have won The Young Investigator's Award.

The five captive and enlightening lectures by distinguished local and overseas specialists embracing Advances in on GERD and Non-cardiac Chest pain, Cirrhosis & Portal Hypertension and Lower Gastrointestinal Hemorrhage marked another highlight of the day. Participants were stimulated by the scientific updates and responded enthusiastically. At the end of each session, the chairman presented to the speaker on behalf of the Organizing Committee, a plaque in appreciation of his attendance and valuable contributions. The Scientific Meeting was another important and remarkable event of the year.

Taking this opportunity, this Society wishes to express its thanks to the subspecialty co-organizers, the speakers, oral presenters, the participants, AstraZeneca (Hong Kong) and all who have contributed to the great success of the Joint Annual Scientific Meeting 2002 and look forward to similar co-operation next year.

Sponsor: AstraZeneca (H.K.) Ltd.
Time: 2:00 - 9:00 p.m.
Venue: 3/F, Sheraton Hong Kong Hotel & Towers
Sponsor: AstraZeneca (H.K.) Ltd.
Co-organizers: Hong Kong Society of Gastroenterology
Hong Kong Society of Digestive Endoscopy
Hong Kong Society for Coloproctology
The Hong Kong Association for the Study of Liver Diseases
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