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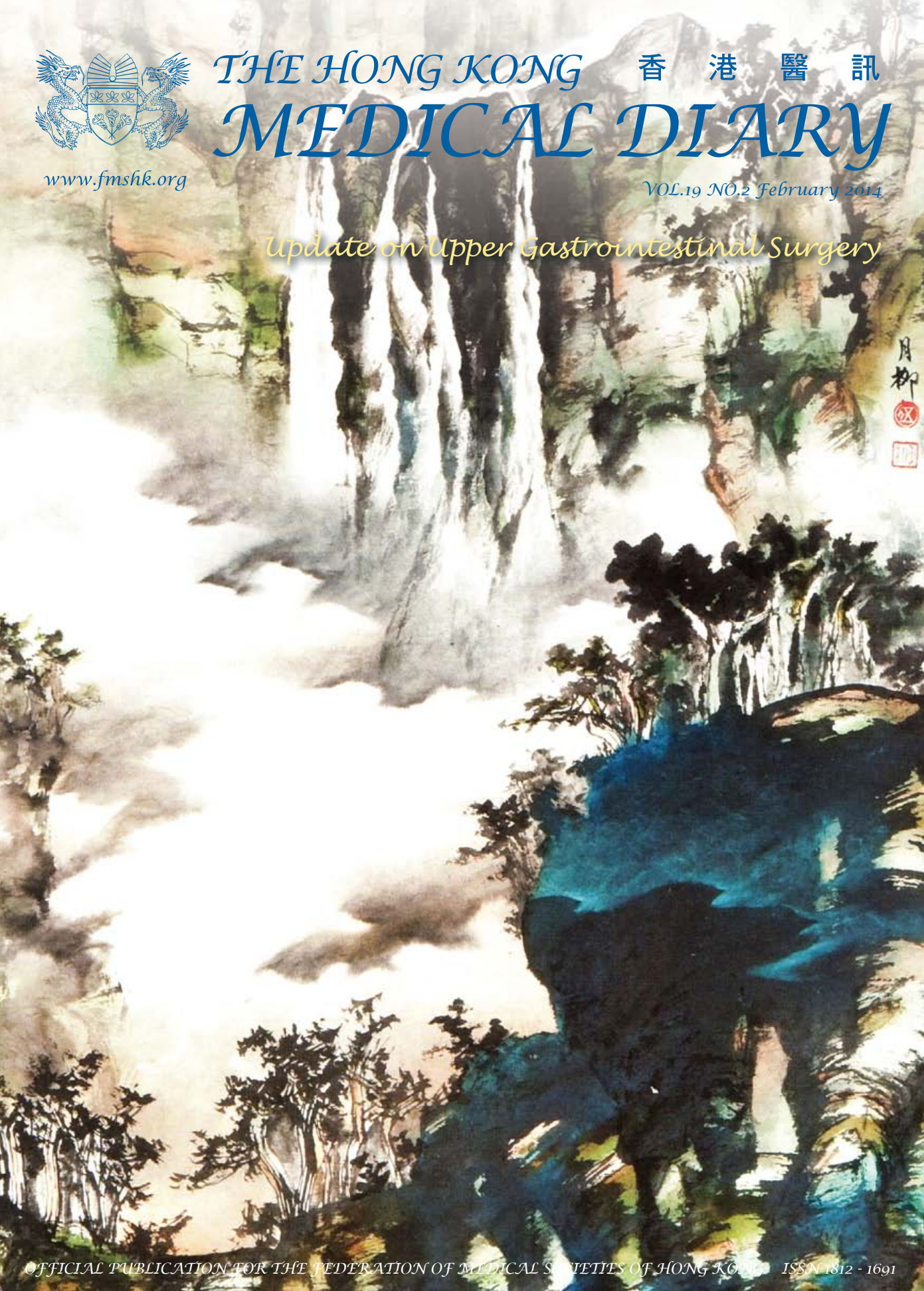
Update on Upper Gastrointestinal Surgery



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The Cover Shot

Author: Prof Enders KW NG

The lines, dots, strokes, silhouettes and harmony of Chinese Fine Art, such as painting and calligraphy, are in many ways very similar to the duteous and meticulous work that a surgeon would perform on his/her patients. More importantly, like surgery, fine art is never a stagnant subject. it evolves generation by generation to become better and better. The Ling Nam school of art has advocated new style and innovations in their approach to Chinese painting since a century ago. During that epoch, China and Hong Kong underwent major changes in all strata of the society, both politically and economically. These advancements evoked also reforms in the cultural art world, amidst the outcries from the old-fashioned.

This is a piece of painting entitled "Flying Waterfall" by Mrs Yuet-lau CHIU NG. Having studied under Prof Sao-an CHAO and Prof Chun-pi HUANG, she now represents the 3rd generation of the Ling Nam genre in Hong Kong. Over the past 30 years she nurtured many students to fruition admixing tradition and creativity, whom include also her son, Philip Wai-yan CHIU.

Mrs Yuet-lau CHIU NG

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Changing role of Upper Gastrointestinal Surgeons in Hong Kong

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Editor

Prof Enders KW NG

It was not long ago that peptic ulcer disease and cancers of the stomach as well as oesophagus still prevailed in Hong Kong. In those days, many trainees were keen to be an upper gastrointestinal (UGI) surgeon when they finished their surgical training. One obvious reason was that peptic ulcer operations then were highly rewarding. By resecting part of the stomach or performing a vagotomy, an intractable ulcer with or without complications could easily be cured just like snapping the fingers. On any average on-call night, there would be at least one emergency operation for ulcer bleeding and a patch repair for perforated peptic ulcer. Around the same period of time, radical gastrectomy for stomach cancer was also rapidly evolving. Different types of nodal dissection (R1/R2/R3 or later D1/D2/D3) and a variety of reconstructive methods were published and mystified by different authorities. These procedures were extremely attractive to young surgeons then.

However, three major developments that took place in the past two to three decades have led to a drastic change in the role of UGI surgeons.

First, it is the rediscovery of *Helicobacter pylori* that has opened up a new horizon for the management of peptic ulcer diseases. It led to the development of inexpensive and yet very effective curative remedy for peptic ulcers. By eradicating *H. pylori* with antibiotics, the 1-year ulcer relapse rates had dropped significantly from over 50% in the pre-*H. pylori* era down to less than 10% in modern days. More importantly, ulcer remission after *H. pylori* eradication is highly sustainable. Elective ulcer surgery has become virtually extinct nowadays. In addition, chronic gastritis associated with *H. pylori* infection is now considered a definite risk factor for differentiated (intestinal type) gastric cancer. This enhances physicians' eagerness in treating *H. pylori* infection, regardless of whether there is any associated gastroduodenal pathology. Together with a rapid decline in the infection rate among the younger populations, the incidence of stomach cancer has gradually decreased in many parts of the world including Hong Kong.

While gastric cancer remains the 6th most common malignancy in Hong Kong, and gastrectomy continues to be an important first line therapy for locally advanced tumours, earlier lesions (confined to mucosa and superficial submucosa) can now be managed by endoscopic mucosectomy (EMR) or submucosal dissection (ESD). The second pivotal factor that changes the role of UGI surgeons is indeed the innovative development of endoscopic technology in the recent years. Narrow-band imaging, magnifying endoscopy, high-definition image system and a variety of endoscopic accessories have now made diagnosis and treatment of early gastrointestinal tract neoplasia easier and possible. EMR and ESD provide a less invasive treatment of early GI cancers while preserving organ function for the patients, who can then enjoy a better quality of life. By the same token, the highly effective endoscopic haemostatic protocols now adopted by many hospitals today have also tremendously reduced the need for emergency surgery for bleeding peptic ulcers. According to the SOMIP (Surgical Outcomes Monitoring and Improvement Programme) reports

published by the Hospital Authority (HA), the annual number of operations for UGI bleeding within the entire HA system was only 45 in 2011/2012. Noteworthy is that it was even less than the 63 cases recorded in 2009/2010. On average, each major hospital operated on less than a handful of ulcer bleeding cases per year.

The third factor that instrumented the change is the availability of new medications. Very potent acid suppressive medications such as H2 receptor antagonists (H2RA) and proton pump inhibitors (PPI) have made healing of peptic ulcers much easier and faster. They are also essential components for *H. pylori* eradication. For high risk cases, long-term maintenance using a H2RA or PPI is highly cost-effective in preventing patients from ulcer relapse or ulcer-related complications. Moreover, the development of selective anti-platelet agents replacing aspirin, as well as the use of selective COX-2 inhibitors have led to a significantly lower rate of peptic ulcers and their sinister complications among the chronic users, and thus reduce the demand for emergency surgical interventions.

So, what is being left for the UGI surgeons? Surgeries for UGI cancers remains one of the most important and unyielding frontline for us because the standard of surgery and perioperative adjuvant therapy have a direct bearing on patient's survival and quality of life. However, as the absolute number of cases is relatively small, it will be ideal if these patients can be concentrated to high volume centres where facilities and expertise could be guaranteed. The UGI surgeons now are also moving towards surgical intervention for functional UGI diseases, such as anti-reflux operation for GERD, cardiomyotomy for achalasia, and bariatric surgery for obesity or metabolic syndrome. UGI surgeons in Hong Kong are somewhat following the path of what happened to surgeons in the West about 20-30 years ago. One thing for sure, however, is that UGI surgeons will continue to be decent and vigilant, and we shall sustain as a subspecialty within General Surgery.

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From Bariatric to Metabolic Surgery: Is There a Need in Hong Kong

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This article has been selected by the Editorial Board of the Hong Kong Medical Diary for participants in the CME programme of the Medical Council of Hong Kong (MCHK) to complete the following self-assessment questions in order to be awarded 1 CME credit under the programme upon returning the completed answer sheet to the Federation Secretariat on or before 28 February 2014.

Burden of Obesity & Diabetes

Obesity and type 2 diabetes mellitus (T2DM) are an ongoing health-care problem worldwide[1,2]. Both diseases are closely related and difficult to be controlled by current medical treatments like dieting, drug therapy and behavioural modifications[3-5]. In Asia, T2DM is a more important epidemic health problem than obesity. The global prevalence of T2DM is escalating - estimated at 366 million in 2011, and predicted to rise to 522 million by 2030[6] and more than half will be coming from Asia. Obesity is thought to account for about 60% of the risk of developing diabetes[7] and more than 60% of patients with T2DM are obese[8]. A recent cohort study has reported that the prevalence of T2DM is 11.6% in the China Mainland and the estimated pre-diabetes prevalence is 50.1%[9]. Moreover, less than 40% of those treated in Hong Kong and the Mainland had adequate glycaemic control with Hba1c <7%[9-10]. While weight reduction is one of the fundamental elements in the management of T2DM, few of the current diabetic treatments facilitate weight loss and some oral anti-diabetes drugs (OAD) like sulphonylureas, thiazolidinedione and insulin indeed cause weight gain due to anabolic effects, restricting their benefits in obese patients. Therefore excess adiposity presents a considerable hurdle to the control of hyperglycaemia[11]. The use of intensive life-style modifications can provide additional benefits in weight and glycaemic control[12-13]. However, it is labour intensive and cannot achieve the ultimate goal to decrease T2DM-related morbidity[14].

Bariatric Surgery & Diabetes Remission – Metabolic Surgery

Bariatric surgery is the most powerful ammunition for obesity treatment. Various types of bariatric operations have been developed over the past 50 years. Purely restrictive operations lead to a reduction of food intake by a small gastric pouch (adjustable gastric banding and sleeve gastrectomy). Other interventions combine this effect with a malabsorption of micronutrients (gastric bypass) and/or macronutrients (biliopancreatic diversion). Several large scale longitudinal outcome studies had shown that bariatric surgery can achieve substantial and maintainable weight loss[15-16] and significant improvement of health and metabolic risk factors[16] in the long-term. In Hong Kong, bariatric surgery was first started in the Prince of Wales Hospital in 2002[17]. Currently, more than 300 laparoscopic bariatric procedures have been performed which include laparoscopic adjustable gastric band (LAGB), laparoscopic sleeve gastrectomy (LSG), laparoscopic gastric bypass and some other research procedures like gastric contraction modulator (Tantalus®) implantation, laparoscopic greater curve plication and banded plication (Figure 1).

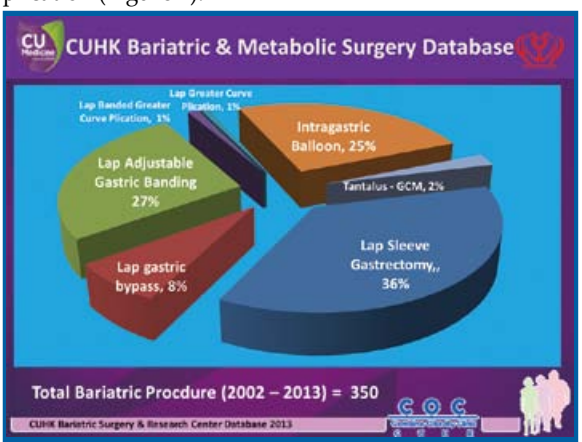

Figure 1. Summary of metabolic and bariatric surgery performed in Prince of Wales Hospital

Apart from the mechanical effect, these operations can also lead to humoral changes that influence appetite, eating behaviour, glucose homeostasis, and lipid metabolism. The profound metabolic effects of bariatric surgery with dramatic improvement in glycaemic control is best documented in subjects with T2DM following gastric bypass[18-20]. In the past, type 2 diabetes was considered as an "incurable" chronic disease and the treatment aim of diabetes was to achieve "Glycaemic Control" (HbA1c <7%) by life-style modifications and diabetes medication. However, for those diabetic patients after gastric bypass, we can observe that up to 85% of them have resolution of diabetes[18,19]. In this new era of bariatric and metabolic surgery, diabetes remission (normal glycaemic profile without use of anti-diabetes medication) becomes possible and it now becomes the new treatment goal for obese T2DM patients. In 2009, a consensus statement[24] had been made on defining "Cure" of T2DM by the American Diabetes Association (ADA) in view of this new concept of treatment of T2DM (Table 1). Of course, gastric bypass is not the only surgery that can achieve diabetes

remission in obesity T2DM patients. Laparoscopic gastric banding[21], laparoscopic sleeve gastrectomy[22] and biliopancreatic diversion (BPD)[18] are surgical procedures that could also achieve a T2DM remission. In Hong Kong, we have shown that LSG and LAGB can attain 76% and 27% diabetes remission rates respectively. Bariatric surgery, therefore, is not only a weight-loss surgery but also a metabolic surgery.

Table 1. Summary of consensus definitions of diabetes remission by American Diabetes Association [24].

DEFINITIONS OF T2DM REMISSION
Partial remission
Hyperglycemia below diagnostic thresholds for diabetes *(A1C not diagnostic of diabetes [<6.5%], fasting glucose [5.6–6.9 mmol/l])* At least 1 year's duration No active pharmacologic therapy or ongoing procedures
Complete remission
Normal glycemic measures *(A1C in the normal range, fasting glucose < 5.6 mmol/l)* At least 1 year's duration No active pharmacologic therapy or ongoing procedures
Prolonged remission (Cure)
Complete remission of at least 5 years' duration

Many observational studies have suggested that bariatric or metabolic surgery can rapidly improve glycaemic control and cardiovascular risk factors in severely obese patients with type 2 diabetes. Moreover, a number of level-one evidence are emerging from recent literature and have proved that surgical treatments like LAGB[24], sleeve gastrectomy, gastric bypass and BPD[25-27] are effective and superior alternatives to medical treatment in T2DM. Although the follow up duration of these studies is relatively short, the magnitude of DM improvements are gigantic and remissions occur in the majority of patients after surgery.

Mechanism behind Surgery – weight loss, incretins & foregut theory

Development of T2DM in obese individuals is the balance between insulin resistance, pancreatic beta-cell function, and gut-hormone response to alimentary glucose load. Although the mechanisms by which bariatric operations improve T2DM have yet to be fully determined, most human studies have reported favourable changes in insulin sensitivity after bariatric surgery. In a meta-analysis, it reports that the resolution of T2DM after bariatric surgery is weight dependent rather than procedure dependent[19]. Apart from an increase of insulin sensitivity after weight loss surgery, different anatomical changes of the various bariatric operations can also lead to different changes in gut hormone profiles. Historically, two different theories were developed to explain the effects of the various bariatric operations: the foregut and the hindgut hypotheses. The Hindgut Hypothesis proposed that the amelioration of glucose homeostasis is directly caused by changes in the levels of circulating hormones from the distal gut. The most fascination has been with glucagon-like peptide-1 (GLP-1) secreted into the bloodstream by the L-cells of the hindgut[29-30] which stimulate postprandial insulin secretion by the beta cells and to increase beta-cell mass[31]. Such expedited delivery of nutrient to the hindgut can be achieved either by intestinal diversion (gastric bypass, duodenojejunal bypass DJB or biliopancreatic diversion, BPD) or accelerated gastric emptying (sleeve gastrectomy)[32]. On the other hand, the Foregut Hypothesis posits that exclusion of a short segment of proximal small intestine (primarily the duodenum) from contact with ingested nutrients exerts direct antidiabetes effects[29,33]. Rubino et al could demonstrate in rat models that the exclusion of the duodenum and the proximal jejunum (duodeno-jejunal bypass, DJB) leads to an euglycaemic state[34]. This is further supported by the observation that a duodenojejunal bypass sleeve or an endoscopically placed, temporary soft plastic stent fixed at the pylorus with a length of 60 cm can improve insulin resistance and lead to weight loss[35-36].

Indications for Metabolic Surgery

In the past, there was no specific indication for surgery for obese type 2 diabetes and most surgeons used the same NIH criteria as for bariatric surgery (BMI >40kg/m2; or 35kg/m2 plus severe co-morbidity[37] in obese diabetic patients. Not until 2005, during the Asia Pacific Bariatric Surgery Group consensus meeting in Taipei, Type 2 DM was first appeared as a specific indication for surgery in Asia populations (BMI >37kg/m2; or >32kg/m2 with T2DM or two other obesity-related co-morbidities[38]). In 2011, the International Diabetes Federation Taskforce published the first position statement on "Bariatric Surgical and Procedural Intervention in the Treatment of Obese Patients with Type 2 Diabetes"[39]. In short, this statement includes surgery as part of the algorithm of treatment of diabetes (Figure 2). In patients with a BMI 30-35kg/m2 when diabetes cannot be adequately controlled by optimal medical regimen, surgery should be considered as an alternative treatment option, especially in the presence of other major cardiovascular disease risk factors. It also places an emphasis on the uniqueness of Asians who tend to have higher metabolic risks at a lower BMI, and a 2.5kg/m2 deduction of BMI action point was allowed. Moreover, it also states the importance of appropriate assessment of procedure and comprehensive and ongoing multidisciplinary care, patient education, follow up and clinical audit, as well as a safe and effective surgery. Such surgery should preferably be performed in a centre in which the mortality and morbidity of surgery should be as low as elective gallbladder surgery. Moreover, at the Consensus meeting of the Asia-pacific Chapter of International Federation of Surgery for Obesity and Metabolic disorders (IFSO) in 2011 at Rusutsu, it defined that procedures of choice in Asia for metabolic surgery are LAGB, LSG, gastric bypass & BPD/DS. For procedures other than the recommended list or patients with BMI 27.5-30 kg/m2, surgery may also be considered if it is conducted under an institute review board (IRB) / ethnic committee approval and informed consent from patients[40].

Like bariatric surgery, contraindications of metabolic surgery exist and surgical candidates should be carefully selected. Apart from the contraindications stated previously in the NIH consensus[37] (co-existing endocrine cause of obesity, unstable psychiatric disorder or substance abuse, or patient unlikely complies postoperative behavioural and dietary changes), metabolic surgery should not be considered in patients with type 1 diabetes mellitus or latent autoimmune

diabetes in the adult (LADA) and it is important to check fasting C-peptide level before surgery, especially when considering surgery for normal or mild obesity DM patients.

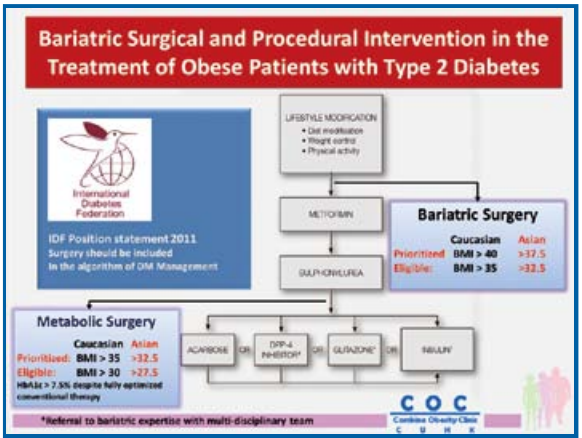

Figure 2. Diagrammatic summary of International Federation of Diabetes position statement on Bariatric Surgical and Procedural Intervention in the Treatment of Obese Patients with Type 2 Diabetes 2011[44]

Prediction of success after metabolic surgery – The ABCD score

The aim of metabolic surgery is to achieve satisfactory glycaemic control in those obese diabetics who failed anti-diabetes medication. It is not easy to define success but complete remission (HbA1c< 6% and FBG <5.6mmol/l) is the ultimate end-point that one would like to achieve. There is no consensus on how to select T2DM patients for the appropriate metabolic surgery. It is suggested that metabolic surgery should be offered to diabetic patients early in the course of their disease when there is still a substantial beta cell mass to permit a lasting remission and avoid its complications. Nonetheless, remission rates vary widely between studies and various metabolic surgical procedures[41]. It is uncertain if these anti-diabetic effects are related to patient characteristics or the efficacy of various surgeries through unknown mechanisms. To address these issues, a multi-dimensional (ABCD) score has been devised, based on a prospectively collected, multi-institutional Asian Diabetes Surgery Study (ADSS) group database to stratify patients with T2DM with regard to their metabolic status and help predict the outcome of metabolic surgery[42] (Table 2).

Table 2. The ABCD staging score

Variables	ABCD score			
	0	1	2	3
Age	<40	≥40		
BMI (kg/m2)	<27	27-34.9	35-41.9	≥42
C-peptide (ng/ml)	<2	2-2.9	3-4.9	≥5
Duration of DM (yrs)	>8	4-8	1-3.9	<1

The ABCD score is the first multi-dimensional score used to 'stage' metabolic diseases, based on prospectively collected data from a large Asian cohort of patients. This scoring system is based on the patients' age, BMI, C-peptide level and the duration of disease, which reflect the combined effect of insulin resistance and islet cell reserve in individual patients. Regardless of the surgery of choice, an one-point absolute increase in the score translates to a 9.2% increase in the chance of remission and it provides an estimate of benefits, based on the 'stage' of the metabolic disease, to frame the risk-benefit ratio of patients undergoing surgery. A high score predicts the likelihood to attain a complete remission after metabolic surgery but a low score should not be used to exclude patients for this alternative treatment. Although a complete biochemical remission is desired, a partial remission or even an improvement of T2DM control alone can be clinically meaningful to patients, to help prevent further end organ damage from diabetes.

Minimise risk & Maximise benefit – need of a Multi-disciplinary Team (MDT) approach.

There are various comprehensive guidelines for the use of bariatric procedures for obesity from different countries like UK, USA and Europe[43-45]. All these guidelines recommend that a successful weight reduction programme require a multidisciplinary team approach. It is important to acknowledge that surgery is only a component of the ongoing process of chronic disease management of type 2 diabetes, and management of T2DM and other metabolic risk factors (e.g. hypertension, hyperlipidaemia) should be managed in conjoint with the endocrinologist and physicians. Surgery should be performed in high volume centres with multi-disciplinary teams that understand and are experienced in the management of obesity and diabetes. Members of the team should have mutual-understanding across disciplines, and work together with common expectations and goals. The team needs to integrate with primary care, diabetes management, nutritional and lifestyle support, and surgeon's teams with consistent messages and agreed policies. Pre-surgical assessment needs to be comprehensive involving MDTs and include assessment of metabolic, physical, psychological and nutritional health. Patients should have realistic expectations of the risks and benefits of surgery along with their lifelong role in lifestyle changes. The multidisciplinary team needs to understand and recognise early and long term complications in a timely manner, and know when to refer back to the surgeon, or others for specific care. Life-long follow-up on at least an annual basis is needed for ongoing lifestyle support, and post-surgical and diabetes monitoring.

Conclusion

The goal of bariatric surgery is not simply weight loss but reductions in comorbidities, overall obesity associated mortality, as well as an increase of quality of life. The term "metabolic surgery" describes the effects on glucose and lipid homeostasis. Hong Kong, as part of Asian countries, has a much higher burden of diabetes than severe obesity. Dramatic improvement of diabetes can be seen after bariatric surgery. The exact mechanisms by which glycaemic control is achieved are not fully understood but favourable changes in insulin secretion and insulin sensitivity, gut hormones and

appetite place important roles. Whether these principles can be transferred to normal-weight patients with T2DM is still under investigation. With proper patient selection and safe surgery under MDT management, the application of metabolic surgery provides hopes and future ground of better treatment strategy of poorly controlled T2DM.

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MCHK CME Programme Self-assessment Questions

Please read the article entitled "From Bariatric to Metabolic Surgery: Is There a Need in Hong Kong" by Dr Simon KH WONG and complete the following self-assessment questions. Participants in the MCHK CME Programme will be awarded CME credit under the Programme for returning completed answer sheets via fax (2865 0345) or by mail to the Federation Secretariat on or before 28 February 2014. Answers to questions will be provided in the next issue of The Hong Kong Medical Diary.

Questions 1-10: Please answer T (true) or F (false)

1. **The estimate global burden of Type II diabetes mellitus reached 5 million in 2011.**
2. **The pre-diabetes prevalence in the China Mainland exceeds 50%.**
3. **The new treatment goal (partial remission) for obese Type II diabetes mellitus is to achieve a HbA1c<7% without active medication.**
4. **The foregut hypothesis of bariatric surgery for improvement in diabetic control is based on increased GLP-1 secretion.**
5. **Early postoperative improvement in glycaemic control after sleeve gastrectomy is due to restriction of intake and change of gut hormone profile.**
6. **A high body mass index (BMI) is associated with a lower chance of achieving diabetic remission from bariatric surgery.**
7. **According to the position statement published by the International Diabetes Federation in 2011, surgery should be considered as an alternative treatment if an Asian patient with a BMI > 27.5 kg/m2 has poorly controlled type II diabetes mellitus by optimal regimen.**
8. **In Hong Kong, laparoscopic adjustable gastric banding was shown to induce a diabetic remission up to 76%.**
9. **Biliopancreatic diversion affects absorption of both macronutrients and micronutrients.**
10. **Metabolic surgery such as gastric bypass or sleeve gastrectomy are also helpful adjuncts to the glycaemic control of Type I diabetic mellitus, though the effect is not as marked as that for the Type II patients.**

ANSWER SHEET FOR FEBRUARY 2014

Please return the completed answer sheet to the Federation Secretariat on or before 28 February 2014 for documentation. 1 CME point will be awarded for answering the MCHK CME programme (for non-specialists) self-assessment questions.

From Bariatric to Metabolic Surgery: Is There a Need in Hong Kong

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Answers to January 2014 Issue

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Current Applications and Future Developments in Endosopic Ultrasonography

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Introduction

Tremendous developments have occurred in the field of endoscopic ultrasonography (EUS) over the past twenty years. The procedure has evolved from a primarily diagnostic tool with tissue acquisition capabilities, to one with increasing possibilities for advanced endosonographic imaging and interventional capabilities. The use of ultrasonic "contrast" allows for better delineation and characterisation of lesions. Indications for interventional EUS are expanding, ranging from drainage of peripancreatic collections, pancreatico-biliary tract and gallbladder to injection therapy and coeliac plexus neurolysis. Hence, the aim of the current paper is to review the current applications and to provide insights to future developments in interventional and advanced imaging in endosopic ultrasonography.

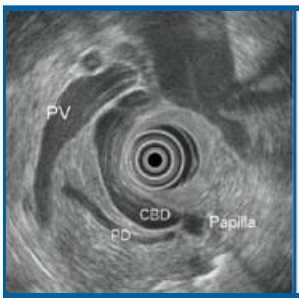

Figure 1. Radial echoendoscope image of the common bile duct, portal vein and the pancreatic duct.

Figure 2. Linear echoendoscope and the fine needle aspiration cytology needle. Courtesy of Olympus Co. Ltd, Hong Kong.

What is EUS?

Endoscopic ultrasonography (EUS) is an endoscopic procedure that utilises a high frequency ultrasound probe, which is either introduced through the instrument channel (mini-probe) or attached to the tip of the endoscope. EUS can provide high-resolution images of the five histological layers of the gastrointestinal tract (superficial mucosa, deep mucosa, submucosal, muscularis propria and adventitia or serosa) and surrounding extraluminal structures (Figure 1) [1-4]. Hence, EUS has been applied for evaluation of benign and malignant lesions located in the mediastinum, gastrointestinal and biliary tracts. In addition to conventional radial scannings that provides images perpendicular to the axis of the endoscope (similar to computed tomography), linear echoendoscopes are also available and these scopes provide images that are in-line with the axis of the endoscope. This type of scannings allows visualisation of instruments passing out of the channel of the endoscopes and facilitates the introduction of needles to guide tissue acquisition via fine needle aspiration cytology (FNAC) (Figure 2) [5].

Tissue is the issue

A major milestone in EUS is the ability to obtain tissue from organs or cavities in the body that were previously impossible to access percutaneously without surgery. These include the mediastinum, para-aortic region and the pancreatico-biliary tract. Tissues obtained at EUS can be either FNAC or fine-needle biopsy (FNB). To establish a diagnosis, FNAC is usually sufficient in most patients. However, in instances where a histological core for architectural assessment is required for diagnosis or special staining (e.g. lymphoma), FNB may be required (Figure 3).

Figure 3. Tissue core obtained during fine-needle biopsy.

Significant advances have been made in the past 20 years regarding the methods of obtaining tissue during EUS and diagnostic accuracy have significantly improved. In a recent study performed in a tertiary referral centre, the sensitivity and specificity for cancer diagnosis has improved from 55% and 78% to 88% and 96% respectively after implementation of an EUS-FNA programme. Furthermore, because EUS-FNA brought about a significant improvement in diagnostic accuracy, the procedure has led to a change in the trend of practice of tissue acquisition in pancreatic diseases in the United States. The use of EUS-FNA has increased by 69.3%, surgical biopsy declines by 41.7%, and the use of percutaneous biopsy has remained stable [6].

The role of EUS in diagnosing benign and malignant lesions

The role of EUS in diagnosis of benign lesions covers a wide spectrum of conditions. One of the most common applications is for evaluation of submucosal tumours (SMT). SMT's are frequently encountered during upper endoscopy and the estimated frequency is 1 in 100-300 examinations[7]. Delineation of the nature of the lesion is crucial for subsequent management. Gastrointestinal tumours (GIST) are hypoechoic lesions that arise from the 4th layer of the wall, while lipomas are hyperchoic lesions arising from the 3rd layer (Figure 4). By determining the origin of the layer in the wall and the sonographic echogenicity of the lesion, the endosonographer can provide a list of differential diagnoses to guide therapy. Furthermore, FNAC can be performed at the same instance in patients with inconclusive examinations[8].

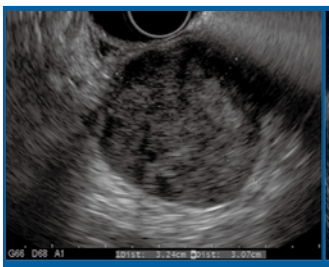

Figure 4. Endosonographic appearance of a gastrointestinal stromal tumour.

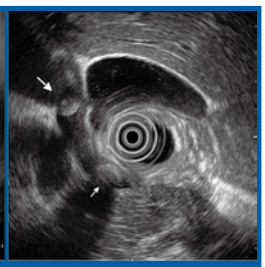

Figure 5. Endosonographic appearance of common bile duct stones. Arrows indicate stones.

On the other hand, EUS is also a means of assessing the cause of obstructive jaundice. Common bile duct stones are common in our locality, and EUS has been shown to be comparable to MRCP in the detection of choledocholithiasis (Figure 5). The sensitivity and specificity of EUS and MRCP in detecting bile duct stones were 93% vs 85% and 96% vs 93% respectively. In patients with intermediate probability of stones, EUS can be used to as a triage tool for assessing the need of ERCP and stone removal at the same session, and avoids the risk associated with performing a diagnostic ERCP[9]. Conversely, when the cause of obstructive jaundice is due to a neoplastic lesion arising from the pancreatico-biliary tract, EUS can identify the presence of a mass lesion and perform FNA. In patients suffering from pancreatic malignancies, the sensitivity and specificity of EUS-FNA in obtaining diagnosis is 85% and 98% respectively and the rate can be improved further in the presence of an on-site cytopathologist[10,11].

The proximity of the EUS probe to the lumen also makes it an ideal tool for staging of luminal and pancreatico-biliary malignancies. In early upper gastrointestinal cancers, EUS is the most sensitive and specific modality in determining the depth of invasion and also presence of nodal metastasis[12,13]. EUS can also help determine which patients are suitable for endoscopic resection. For pancreatic carcinomas, EUS can help to assess resectability by assessing the presence of metastatic disease, invasion to major arteries and the portal vein and the modality has similar accuracy to computed tomography and magnetic resonance imaging[14,15](Figure 6). Furthermore, the presence of portal invasion can be better visualised with EUS, attaining an accuracy of 40-100%[16].

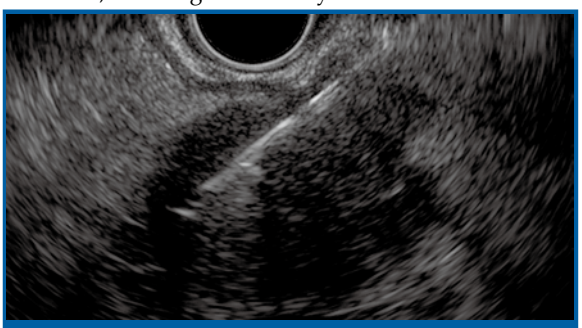

Figure 6. Endosonographic appearance of pancreatic carcinoma undergoing fine needle aspiration cytology.

Advanced EUS imaging techniques

Contrast-enhanced harmonic EUS (CEH-EUS)

Contrast agents used in EUS are gas-containing microbubbles that are encapsulated in a shell. These microbubbles will oscillate and generate acoustic signals in multiples of the resonating frequency when hit by an ultrasonic wave[17-19]. Contrast injection allows the detection of slow flowing vessels with enhancement of organ vascularity that changes with tissue characteristics of the target lesions. For example, in diagnosing pancreatic adenocarcinoma, the presence of a hypo-enhancing mass was associated with a sensitivity of 94% and specificity of 89% for differentiating from other lesions such as autoimmune pancreatitis or neuroendocrine tumours[20]. CEH-EUS also yielded a significantly higher diagnostic accuracy for lesions that were < 2cm in size when compared to computed tomography[21]. Furthermore, the use of contrast also allows for characterisation of mural nodules in intraductal papillary mucinous neoplasm (IPMN) and differentiation between benign and malignant IPMN (Figure 7)[22]. CEH-EUS was also found to be useful in differentiating benign from malignant lymphadenopathy[23].

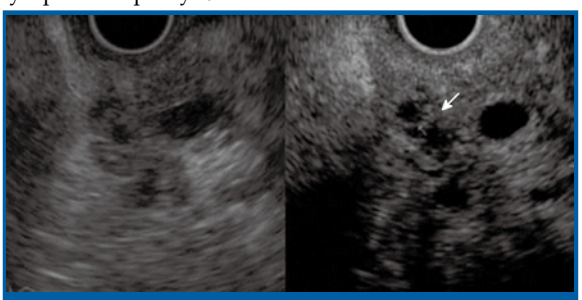

Figure 7. Contrast-enhanced harmonic EUS imaging of mural nodules in intraductal papillary mucinous neoplasm. Arrows indicated the mural nodules.

Interventional EUS

EUS-guided coeliac plexus neurolysis

The coeliac plexus is a group of ganglia located anterior to the aorta and EUS offers direct transgastric access to these structures that are located posterior to the stomach. Coeliac plexus neurolysis (CPN) has been

shown to be associated with superior pain relief as compared to analgesic therapy alone and reduces the need for opioids analgesics in patients with inoperable pancreatic cancer[24,25]. CPN was traditionally performed by the percutaneous approach, however, the EUS approach have gained popularity in recent years. In addition to allowing direct access to the coeliac plexus, EUS can also visualise the coeliac ganglia for direct injection and increases the accuracy of the procedure[26]. Furthermore, it can reduce complications associated with the percutaneous approach that includes lower extremity paresthesia and paralysis[27]. When performed early at the time of diagnosis of metastatic disease, EUS-CPN prevented pain progression and morphine consumption in patients who suffered from inoperable disease at 3 months[28].

EUS-guided drainage of peripancreatic collections

Peripancreatic collections most commonly occur after a severe attack of pancreatitis or as a complication after surgery. In patients who suffered from a severe attack of pancreatitis, peripancreatic collections can present as pseudocysts, walled-off pancreatic necrosis or pancreatic abscesses[29]. Since these collections are commonly located in proximity to the upper gastrointestinal tract, internal drainage with the use of EUS assistance appears to be a logical approach.

Traditional management of pseudocysts involved either surgical or percutaneous drainage. Drawbacks of the percutaneous approach is that, very often the patients will be suffering from a pancreatic ductal leak and draining of the pseudocyst externally will convert the leak into an external fistula. These fistulas are often difficult to manage and may take up to months to heal. On the other hand, internal drainage by cysto-gastrostomy or –jejunostomy with surgery entails the risks of morbidity and mortality associated with the procedure. Hence, EUS-guided internal drainage provides an attractive alternative for treatment. In a randomised controlled trial comparing EUS versus surgical drainage, the approaches were associated with a success rate of 95-100% and neither approach was associated with any complications[30]. However, the EUS approach resulted in a significant reduction in hospital stay (2 vs 6 days, $P < 0.001$) and cost savings ($7011 vs $15052 USD, $P = 0.003$). Thus, EUS-guided drainage is the preferred approach in treatment of pseudocysts.

Similarly, in patients suffering from walled-off pancreatic necrosis or pancreatic abscesses, endoscopic debridement is preferred over traditional surgery due to significantly reduced risk of major complications. In a multi-centred randomised study conducted in the Netherlands, the endoscopic approach was associated with a significant reduction in mortality or major complications, multi-organ failure, incisional hernias and the occurrence of new onset diabetes[31]. In another randomised study, EUS-guided transgastric necrosectomy was also associated with reduced levels of acute phase proteins, mortality or major complications and pancreatic fistulas when compared to video-assisted retroperitoneal debridement[32].

EUS-guided access or drainage of the biliary tract

Endoscopic retrograde cholangiopancreatography (ERCP) is currently an integral tool used in the evaluation of biliary tract disorders. However, in 2% to 15% of the patients, biliary access could not be gained and these patients were traditionally managed with percutaneous transhepatic biliary drainage (PTBD)[33,34]. Nevertheless, PTBD carries a risk for morbidities and mortalities and the procedure is uncomfortable for patients due to the presence of an external tube. Hence, EUS-guided access or drainage of the biliary tract offers an option for one-stage endoscopic access and intervention of the biliary tract at the time of failed ERCP [35].

EUS-guided biliary access can be performed with the transhepatic or extrahepatic route and EUS-guided biliary drainage could be performed in a transpapillary or transmural manner[35]. When used for biliary tract access, EUS-guided placement of a guide-wire into the bile duct can facilitate performance of rendezvous ERCP with subsequent biliary tract intervention (Figure 8). In a recent retrospective study, the use of the EUS-guided rendezvous technique was found to be superior to precut papillotomy in achieving single session biliary access with reduced risk of procedural complications (3.4% vs 6.9%, $P = 0.27$) [36]. In particular, none of the patients in the EUS group suffered from pancreatitis or bleeding.

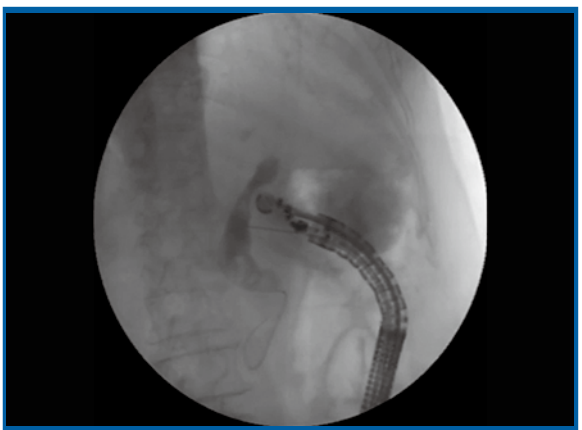

Figure 8. EUS guided rendezvous ERCP with passage of guidewire across the papilla into the duodenum.

When transpapillary access could not be achieved, EUS-guided biliary drainage would be completed in a transmural manner with either a choledochoduodenostomy (CDS) or hepatogastrostomy (HGS)[37]. This involves the creation of a fistula track between the bile duct and the duodenum or the stomach and using plastic or metallic stents to bridge the fistula. In a study involving 57 patients, the technical and functional success rates were 96.5% and 89% respectively. Post-procedural adverse events were 20% and included bile peritonitis (2 patients), mild bleeding (2 patients) and self-limited pneumoperitoneum (7 patients). In another small randomised study comparing EUS-guided CDS and PTBD in patients suffering from malignant distal common bile duct stricture, no differences were observed in the overall success and complication rates between the two groups. Based on the above reasons, EUS-guided biliary access and drainage appears to be a promising modality for substituting the need of external drainage. However, larger randomised studies are required to further confirm the risk and benefits of the procedure.

Conclusion

In conclusion, tremendous advancements have occurred in the field of EUS. The role of the modality is shifting from a diagnostic tool to one with increasing therapeutic capabilities. Further studies would be required to assess how these EUS-guided interventions compared to the traditional counterparts.

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Certificate Course for All Healthcare Professionals and General Public ● Course No. C234 ● CME/CNE Course

Certificate Course on

Communication and Swallowing Problems in the Elderly Population

Jointly organised by

The Federation of Medical Societies of Hong Kong

The Hong Kong Association of Speech Therapists

Objectives:

Upon completion of the course, participants will be able to understand the communication and swallowing problems associated with common disease in the elderly population. Speech therapists will share how these problems are identified and remediated. The course will feature solid theoretical background knowledge as well as day-to-day tips. Participants will be able to enhance their knowledge and confidence in handling individuals with communication and swallowing difficulties.

Date	Topics	Speakers
21 Feb	Neurogenic communication disorders (I) – aphasia and cognitive communication disorders 神經性溝通障礙 (I) - 失語症及認知溝通障礙	Mr. Raymond FONG 方思行先生 Speech Therapist Queen Mary Hospital 言語治療師, 瑪麗醫院
7 Mar	Neurogenic communication disorders (II) – dysarthria and apraxia of speech 神經性溝通障礙 (II) - 中樞性構音障礙及言語失用症	Ms. Doris Lai-shan CHO 曹麗珊女士 Speech Therapist Yan Chai Hospital 言語治療師, 仁濟醫院
14 Mar	Dysphagia management in the elderly population 長者吞嚥困難的處理方法	Mr. Joshua MAK 麥錦和先生 Senior Speech Therapist Tuen Mun Hospital 高級言語治療師, 屯門醫院
21 Mar	Communication problems in patients with dementia 腦退化症患者的溝通困難	Ms. Rita Wai-ming WONG 王維明女士 Speech Therapist The Chinese University of Hong Kong 言語治療師, 香港中文大學
28 Mar	Communication problems in patients with Parkinson's disease 柏金遜症患者的溝通困難	Mrs. Lorinda KWAN 關陳立穎女士 Speech Therapist/ Lecturer Department of Special Education & Counselling The Hong Kong Institute of Education 言語治療師/講師 特殊教育與輔導學系, 香港教育學院
4 Apr	Communication Problems of Geriatric Patient with Hearing Impairment 聽障長者的溝通問題	Ms. Polly Suk-han LAU 劉淑嫻女士 Speech Therapist/ Audiologist/ Senior Teaching Fellow Department of Special Education & Counselling The Hong Kong Institute of Education 言語治療師/聽力學家/高級專任導師 特殊教育與輔導學系, 香港教育學院

Dates : 21 February 2014 - 4 April 2014 (Every Friday, Skip 28 February)
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Management of Gastrointestinal Stromal Tumours beyond the scalpel

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Introduction

Gastrointestinal stromal tumours (GIST) are the most common sacromatous growth of the alimentary tract with an incidence ranging from 1.5 to 2 per 100,000 per year. The majority of GISTs occur in the stomach (60%) and small intestine (30%), while some may be found in the rectum or oesophagus and outside of the gastrointestinal (GI) tract, such as the retro-peritoneum. The prognosis of GISTs varies greatly depending on the size, mitotic index and anatomical location.[1]

Diagnosis

Most gastric GISTs are diagnosed by endoscopy, either incidentally or during investigations for epigastric pain or GI bleeding. Smaller lesions may appear as a submucosal tumour with intact overlying mucosa, while larger tumours may develop centrally depressed ulcer on a protruding mass, which is a characteristic endoscopic morphological feature. Small bowel GISTs, on the other hand, may manifest as an abdominal mass, anaemia, GI bleeding of unknown origin or intestinal obstruction. These tumours are often referred to the general surgeons, especially those specialised in the upper GI system because of the anatomical predilection of the disease.

Generally speaking, percutaneous needle or core biopsy should not be attempted for a clinically or radiologically suspected GIST. Surgeons used to operate on these cases based on clinical judgement and imaging findings. However, there is a recent increasing trend of performing endosonographic-guided needle biopsy of gastric submucosal tumours in the UGI, which provides more information before a treatment plan can be formulated.

Treatment

Surgery is still the "gold standard" treatment for most primary resectable GISTs, and is currently considered the only possible curative therapy. Over the past two decades, there has been an increasing trend of using the laparoscopic approach in resecting GISTs.[2] Based on our local statistics and also data from the literature, laparoscopic resection is technically feasible and oncologically safe for tumours smaller than 7cm in maximal diameter. For tumours of bigger sizes, the benefit of laparoscopic resection diminishes because it would still require a bigger wound for retrieval of the specimen.

For relatively small gastric GISTs, there is a recent enthusiasm in treating them with submucosal tunnel endoscopic resection (STER).[3] It is noteworthy that the malignant potential for very small gastric GISTs (smaller than 2cm) is small and arguably a "wait and see" policy can also be an acceptable management. For intermediate size GISTs of 2-5 cm in diameter, there is a definite albeit small risk of local recurrence if resection is performed with an inadequate margin. STER is technically an enucleating procedure only and long term outcome data are lacking. A watchful attitude should be adopted for such a novel technique and meanwhile it is better confined to centres performing it under a study protocol with stringent follow-up arrangement.

Beyond the surgeon's scalpel

Based on data from historical surgical series, primary resection of GISTs confers a cure for only around 50% of the patients.[4] Relapse is not uncommon and there was no effective chemotherapy or radiotherapy in the past. The outlook of patients with unresectable primary or recurrent GISTs and those with metastases used to be gloomy. However, a better understanding of the biology of GIST followed by FDA approval of imatinib mesylate in 2002 has led to a revolution in its management, resulting in greatly improved survivals. Tyrosine kinase inhibitors (TKI) antagonising C-KIT receptors are now the standard treatment for unresectable or metastatic diseases. With the promising tumour control achieved by TKIs, surgeons nowadays are actually playing additional roles in the multidisciplinary treatment of GISTs.

1) Prevention of recurrence

The high recurrence rate of GIST suggests that micrometastases exist in many patients at the time of surgery. On the other hand, the efficacy of imatinib in metastatic disease makes preoperative and postoperative imatinib therapy an attractive option to improve the treatment outcomes. The first phase III study investigating the use of 1-year imatinib following curative GIST resection versus surgery alone reported a significant improvement of cumulative relapse free survivals from 83% to 98% at one year.[5] Another randomised study published by the EORTC group later confirmed that prevention of recurrence with a 3-year imatinib was even better than that of a 1-year regimen (hazard ratio [HR], 0.46; 95% CI, 0.32-0.65; P <0 .001; 5-year RFS, 65.6% vs 47.9%, respectively).[6] Currently, postoperative adjuvant imatinib has already been approved as a standard therapy after resection of high risk GISTs (according to the modified Miettinen risk table) in the U.S. and many European countries. It is not

sure, however, whether extension of the adjuvant target therapy beyond 3 years can further improve the survival outcomes. A prospective single arm study (PERSIST) is currently in progress with case recruitment already completed.

It is noteworthy that not all GISTs with c-kit mutation are responsive to imatinib. Tumour subgroups with exon 9 mutation or wild type c-kit are less susceptible to imatinib treatment when compared to the more common exon-11 mutation tumours. There is a recent advocate that mutation analysis of the resected GIST should be put into the equation when considering a patient for adjuvant imatinib.

2) Resection of recurrence and metastases responding to TKI

Though up to 80% of patients with recurrent or metastatic GISTs exhibit some partial responses or stable disease after starting TKI therapy, complete pathologic responses are rare and responses to imatinib are not maintained indefinitely. From prospective series, the median tumour control time by imatinib alone is around 2 years. It is indeed tempting to resect GISTs responding to the target agent so as to improve the patient's outcome. The optimal time to consider patients for surgery in the metastatic/recurrent setting is usually 6-12 months after commencement of treatment. The B2222 trial indicated that patients had a median time to response at around 3 months, although 25% responded after 5 months of treatment.[7] On the other hand, other studies revealed that there was little incremental tumour shrinkage after 9 months of imatinib treatment.[8]

There is yet any level I or II evidence to confirm added benefits from surgery in patients with metastatic/recurrent GISTs treated with imatinib. In non-randomised studies, combination of surgery and TKI therapy has been associated with some cures and delays in the development of secondary resistance to the target agent.[8,9] In contrast, patients with metastatic or unresectable recurrent GISTs had only a 5-year survival of around 20% if being treated with imatinib alone. Currently, a phase III randomised trial of imatinib with or without early surgical resection (CALGB 80902) for resectable metastatic GISTs is underway.

3) Resection of metastatic GIST developing secondary resistance to TKI

Most patients with multiple recurrence or metastatic GISTs are primarily treated with TKI. However, with prolonged period of therapy, secondary resistance may arise in one or two foci upon follow-up scanning. It is worthwhile to resect these relatively isolated resistant clones and continue the TKI postoperatively. It should help to prolong the patient's progression-free survival and improve their symptom-control and quality of life.

4) Neoadjuvant target therapy

Though improvements in RFS from the use of postoperative adjuvant imatinib have been shown in prospective randomised trials, it is noteworthy that the subgroup with giant GISTs (> 10cm) in the ACOSOG Z9001 trial still had a high recurrence rate of up to 50% by 3 years, which indicated the poor prognosis of the patients.[5] Thus, therapy specific to large GISTs is still needed to be developed so that a neoadjuvant therapeutic effect is expected like that in other malignant tumours.

There are already prospective studies showing that neoadjuvant imatinib reduces tumour burden and facilitates less morbid operation and allows organ-preserving surgery. Hohenberger et al treated 33 patients with locally advanced GISTs with 11 months of neoadjuvant imatinib and observed reduction in median tumour size from 10.5cm to 5.5cm.[10] Five of the 6 patients previously considered to be unresectable underwent a successful resection. Complete resection was accomplished in a total of 28 patients with less morbid procedures performed in 21 of 25 patients. Currently, the National Comprehensive Cancer Centre Network (NCCN) and the European Society of Medical Oncology recommend neoadjuvant imatinib therapy in patients in whom preoperative cytoreduction would be beneficial including marginally resectable tumours and resectable tumours that pose significant risks of surgical morbidity. The optimal duration of preoperative imatinib would be around 6-9 months, but it is not always necessary to wait for a maximal response prior to surgery. Imatinib should be stopped just before surgery and resumed as soon as the patient is able to tolerate oral medications. However, whether the use of neoadjuvant imatinib can improve the RFS and OS postoperatively remains uncertain and several prospective phase II and phase III trials are ongoing.

Conclusions

Standard treatment for primary GISTs is still surgery. However, the availability of tyrosine kinase inhibitors such as imatinib and sunitinib has revolutionised the treatment approach to giant or borderline resectable GISTs. TKIs also enhance the role of surgeons in the multidisciplinary management of metastatic GISTs in some patients whom might be considered hopeless in the pre-TKI era.

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Achalasia: Current management

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Achalasia is an uncommon condition of unknown aetiology in which the lower oesophageal sphincter (LES) fails to relax[1]. Since the first description by Sir Thomas Willis in 1674, the pathophysiology for achalasia was established as spasm or failure of LES relaxation. The exact aetiology for achalasia was unknown, but it was postulated that this could be due to autoimmunity or viral infection. The reported incidence of achalasia ranged from 0.3 to 1.63 per 100,000 individuals[2,3]. Although uncommon, patients with achalasia have significant symptoms including dysphagia, retrosternal chest pain and food regurgitation. Primary oesophageal motility disorders will be suspected in patients who have dysphagia with normal upper endoscopy. Currently, the standard for diagnosis of achalasia will depend on findings upon High Resolution Manometry (HRM)[4]. The advantage of HRM is the high density of pressure sensors placed at 1cm apart which are highly sensitive to pressure changes along the whole oesophagus. Achalasia is now subclassified according to findings from HRM into 3 types: Type I is the classical achalasia without pressurisation; Type II is achalasia with compartmentalisation in the distal oesophagus of more than 30mmHg & Type III is achalasia with two or more spastic contractions[5]. The diagnosis of achalasia will be established under HRM with the integrated relaxation pressure (IRP), type I being IRP of more than 10mmHg, Type II with IRP of more than 15mmHg and type III with IRP of more than 17mmHg.

As the LES fails to relax, at present there is no curative treatment for achalasia. Clinical studies confirmed that pharmacological treatments did not achieve effective relief of dysphagia[6]. Nowadays, treatments for achalasia are mainly focused on either endoscopic or surgical treatments. The options of endoscopic treatments included injection of Botox or pneumatic dilatation. Randomised studies showed that endoscopic injection of Botox was inferior to pneumatic dilatation in achieving relief of dysphagia[7,8]. Hence botox injection is reserved for patients who are poor surgical candidates with multiple comorbidities and cannot sustain any surgical risk. Endoscopic pneumatic dilatation is an established treatment for achalasia. The objective of the dilatation is to forcefully destroy the tight lower oesophageal sphincter to reduce the outflow obstruction. After endoscopic placement of a guidewire across the tight gastroesophageal junction, the specially designed achalasia balloon will be passed beyond the gastroesophageal junction under fluoroscopic guidance by the guidewire. There are 3 sizes of achalasia balloons, including the 30mm, 35mm and 40mm. The pneumatic dilatation usually starts at 5 p.s.i. with a 30mm or 35mm balloon and is sequentially escalated to 8 p.s.i. The success of pneumatic dilatation would be evidenced by the loss of waisting under fluoroscopy[9]. In our retrospective study on 66 patients who had received endoscopic pneumatic dilatations for achalasia, the symptom of dysphagia was relieved in 74% of patients 5 years after the procedure[10]. Though pneumatic dilatations can achieve early relief of dysphagia, the long term relief of dysphagia might not be sustainable. Our study showed that cumulative success in relieving dysphagia was only 62% after 19 years. Moreover, endoscopic pneumatic dilatation is associated with a 5% risk of perforation.

Ernest Heller first reported the performance of cardiomyotomy for treatment of achalasia in 1913[11]. In the initial description of Heller myotomy, both anterior and posterior myotomy was performed with extension to the gastric cardia. Nowadays, most surgeons will only perform anterior myotomy within 5cm above the gastroesophageal junction and 2cm below it. In the recent decade, laparoscopic cardiomyotomy became the standard surgical treatment. Campos et al showed that laparoscopic cardiomyotomy achieved better symptomatic relief than thoracoscopic myotomy (89.3% vs 77.6%; p = 0.048)[12]. We retrospectively compared endoscopic pneumatic dilatation to laparoscopic Heller cardiomyotomy for treatment of achalasia in 68 patients[13]. There was significantly higher improvement in quality of life as assessed by SF-6D after laparoscopic Heller cardiomyotomy than endoscopic pneumatic dilatation. Patients treated with pneumatic dilatation had a higher risk of recurrence of dysphagia and need reintervention.

Recent developments in natural orifices transluminal endoscopic surgery (NOTES) have led to the concept of submucosal tunnelling for peritoneal access[14]. This concept has been extended to performance of cardiomyotomy by endoscopy through a long submucosal tunnel – the procedure named the Peroral endoscopic myotomy (POEM). All patients will receive POEM under general anaesthesia and CO2 insufflation to prevent surgical emphysema. The tight gastroesophageal junction (GEJ) will first be identified by endoscopy. A 3cm mucosal incision will be made 15cm above the GEJ, and a long submucosal tunnel will be created using endoscopic dissection devices. The tunnel will be extended to 5cm below the GEJ. A long myotomy for the inner circular muscle will be performed at 5cm below the mucosal entrance, extending to 3 to 5cm below the GEJ. After completion of the myotomy and securing haemostasis, the mucosal entrance will

be closed by endoclips. Inoue et al first reported the performance of POEM in 17 patients with achalasia[15]. All patients had significant improvement in dysphagia score and LES pressure (52.4mmHg to 19.9mmHg; p = 0.0001). There was no significant complications encountered. Our group reported the initial experience of POEM for treatment of achalasia in 16 patients[16]. The mean operative time was 117.0±34.1 minutes, while all patients tolerated diet 2 days after the POEM. There was a significant reduction in the LES pressure and 4 second IRP after POEM, with improvement of quality of life 6 months afterwards. From the surgical perspective, the advantage of POEM is the achievement of similar quality of myotomy through a long submucosal tunnel by endoscopy without surgical incision. Concerns arise on the occurrence of gastroesophageal reflux, as there will be no antireflux procedure after POEM. Currently, gastroesophageal reflux symptoms occurred in around 5 to 15% of patients after POEM. Longer term followup and prospective randomised trials will be necessary to address the issues on clinical efficacy and safety of POEM for treatment of achalasia.

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Radiology Quiz

Radiology Quiz

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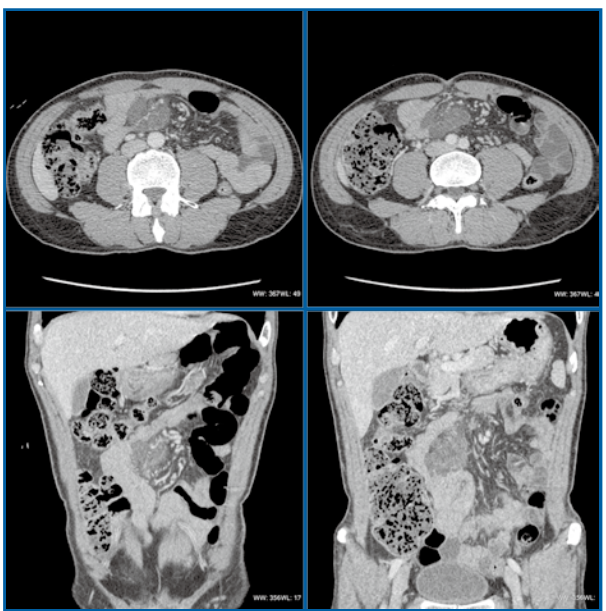

Mesenteric lymphangioma

Questions:

M/53

Good past health. "E" admitted for sudden onset of severe epigastric pain x 1/7. No vomiting or nausea. No diarrhoea or per rectal bleeding. Normal bowel opening. P/E: Vitals stable. Abdomen tender, guarding. No palpable mass or hernia.

Ix: CBC, R/LFT are normal. Urgent Contrast CT Abdomen & Pelvis requested for suspected concealed perforated peptic ulcer.

Questions:

What are your findings and management?

(See P.32 for answers)


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Annual Dinner 2013 - Fantastic New Year's Eve on Federation Cruise

On 31 December 2013, the Federation of Medical Societies of Hong Kong held our Annual Dinner at the Sir Run Run Shaw Hall of the Hong Kong Academy of Medicine as per the good tradition, to celebrate the New Year's Eve together with our members, friends and families. The Dinner event was absolutely another success exemplified by the Federation spirit, and was attended by over 300 guests from our member societies and partners from the medical & health care communities.

With the theme "Fantastic New Year's Eve on Federation Cruise", the programme and venue were designed to match a joyous cruise atmosphere. Our President & Captain Raymond rang the captain's bell at the elegant opening ceremony, to launch the evening of celebration and entertainment. We were privileged to have many distinguished guests joining us, including the Chief Executive and Patron of the Federation, The Honourable Mr Chun-ying LEUNG; Secretary for Food and Health, Dr Wing-man KO; Under Secretary for Food and Health, Prof. Sophia Chan; President of the Academy of Medicine, Dr Donald Li; The Hon Dr Ka-lau LEUNG and The Hon Prof Kwok-lun LEE, The Hon Dr Che-hung LEONG and Dr Lillian LEONG, Dr York Chow, and together with Professor Grace TANG, Professor Gabriel LEUNG and Professor Francis CHAN. We were especially delighted to have exquisite performances delivered by Dr. David FANG and Dr York CHOW. With the other performing artists Ms. Annabelle Louie, Ms. Suzan GUTERRES, Mr. Alex KONG, Mr. Roger FUNG, and young violinists from the Takako Nishizaki Violin Studio, the dinner was indeed a star-studded event with excellent entertainment and fun.

This year, we had many fabulous prizes which were worth up to $180,000, included the Luxury Prize for Uniworld River Cruise Enchanting Danube Package; Grand prize for Seven Days Alaska Cruise Package, Six Senses hotel accommodation, a pair of round trip air tickets etc.

All our guests had a fabulous evening with the exciting magic show, gaming tables, photo exhibition, portrait shooting, instant fun photo taking, song guessing game, bingo game, song dedication and the climax of the night – countdown to the New Year 2014.

We would like to express our sincere gratitude to all our sponsors, and thank all our guests for joining us on this memorable occasion.


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Federation visit to Beijing

The Federation was cordially invited to attend a 2014 Medical Science Conference organised by the Chinese Medical Association (CMA) on 7-9 January 2013. Dr Raymond LO, President of the Federation of Medical Societies of Hong Kong (FMSHK), together with EXCO members of the FMSHK, Dr Chun-kong NG, Dr Chi-wai MAN and Prof Bernard CHEUNG, and Dr William Chia-shing MENG, President of the Hong Kong Society for Coloproctology Limited, attended the conference at the Beijing Conference Center.

The conference commenced with warm welcome addresses by Dr Yan-fei LIU, CMA Vice President & Secretary General; Dr Zhu-CHEN, CMA President & Vice-Chairman of the National People's Congress; Ms Bin-LI, Director of the National Health and Family Planning Commission, Ms Dong-hong CHENG, Vice President of the China Association for Science and Technology and Dr Margaret MUNGHERERA, President of World Medical Association. Following the opening ceremony were inspiring keynote speeches by experts on a wide variety of medical-related topics, including "Medicine and Development", "The Revolving Roles of Doctors in the 21st Century", "Medicine and Pharmaceutics, Learning from Each Other", "Reflections on Doctor-Patient Tensions" and "Initial Exploration of Integrated Medicine".

Our representatives were also delighted to visit the Peking Union Medical College Hospital to gain more exposure to the local health care practices. After the visit, our delegation attended a bilateral meeting with the Vice-President and Officers of the CMA. The Federation also arranged a meeting with the National Health and Family Planning Commission Office, and our delegates met with Ms Wei LI, Director of Office for Hong Kong, Macao and Taiwan, and also other health officials of the Commission Office. Both meetings were most fruitful with useful ideas exchanged and suggestions of future plans to be implemented.

We would like to express our sincere gratitude to the CMA and the NHFPCO for their invitation and kind hospitality.

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Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
						1
2	3	★ Council Meeting 4	5	6	7	8
9	★ Melanoma in somewhere without sunshine 10	11	★ Hong Kong Neurosurgical Society Monthly Academic Meeting –Role of intraarterial therapy in acute stroke management - an evidence-based review 12	★ HKMA Kowloon East Community Network - New Asthma Insights & its Management ★ HKMA Structured CME Programme with Hong Kong Sanatorium & Hospital Year 2014 – Update on Robotic Surgery in Urology 13	14	★ HKMA CME – Refresher Course for Health Care Providers 2013/2014 15
16	17	★ HKMA Kowloon West Community Network - A Review on Atopic Dermatitis 18	★ HKMA Central, Western & Southern Community Network - Prevention of Allergy in Primary Care 19	20	21	22
23	24	★ HKMA Kowloon West Community Network - Recent Update on Hypertension Guidelines and Advancement on Pharmacological Treatment 25	★ RSCP Golf Tournament 2014 ★ HKMA Kowloon City Community Network - Limitation, Safety and New Advance of GERD Treatment 26	★ HKMA Kowloon East Community Network - Current Management on Rhinitis 27	★ HKMA Yau Tsim Mong Community Network - Do Patient Characteristics Influence Choice of DPP-4 Inhibitor? 28	

Date / Time	Function	Enquiry / Remarks
4 TUE 8:00 pm	**Council Meeting** Organiser: The Hong Kong Medical Association, chairman: Dr. TSE Hung Hing, Venue: HKMA Head Office (5/F., Duke of Windsor Social Service Building, 15 Hennessy Road, Hong Kong)	Ms. Christine WONG Tel: 2527 8285
10 MON 7:30pm	**Melanoma in somewhere without sunshine** Organiser: Hong Kong Urological Association, Chairman: Dr LAM, Kin Man, Speaker: Dr LI Ting Bong, Thomas, Venue: Multi-disciplinary Simulation and Skills Centre, 4/F, Block F, Queen Elizabeth Hospital	Ms. Tammy Hung Tel: 9609 6064 1 CME point
12 WED 7:30am	**Hong Kong Neurosurgical Society Monthly Academic Meeting –Role of intraarterial therapy in acute stroke management - an evidence-based review** Hong Kong Neurosurgical Society Monthly Academic Meeting –Role of intraarterial therapy in acute stroke management - an evidence-based review	Dr. Gilberto LEUNG Tel: 2255 3368 1.5 CME point
13 THU 1:00pm	**HKMA Kowloon East Community Network - New Asthma Insights & its Management** Organiser: HKMA Kowloon East Community Network, chairman: Dr. AU Ka Kui, Gary, Speaker: Dr. LO Chi Wai, Venue: Lei Garden Restaurant, Shop no. L5-8, apm, Kwun Tong,No. 418 Kwun Tong Road, Kwun Tong, Kowloon	Miss Hana YEUNG Tel: 2527 8285 1 CME point
2:00pm	**HKMA Structured CME Programme with Hong Kong Sanatorium & Hospital Year 2014 – Update on Robotic Surgery in Urology** Speaker: Dr. Chan Wai Hee, Steve, Venue: Function Room A, HKMA Dr. Li Shu Pui Professional Education Centre, 2/F, Chinese Club Building, 21-22 Connaught Road Central, Hong Kong	HKMA CME Department Tel: 2527 8285 1 CME point
15 SAT 2:15pm	**HKMA CME – Refresher Course for Health Care Providers 2013/2014** Speaker: Dr. Wong Tai Hung, John, Venue: Training Room II, 1/F, OPD Block, Our Lady of Maryknoll Hospital, 118 Shatin Pass Road, Wong Tai Sin, Kowloon	Ms. Clara Tsang Tel: 2354 2440 2 CME point
18 TUE 1:00pm	**HKMA Kowloon West Community Network - A Review on Atopic Dermatitis** Organiser: HKMA Kowloon West Community Network, Chairman: Dr. LEUNG Kin Nin, Kenneth, Speaker: Dr. CHUNG Chun Kin, Alex, Venue: Crystal Room I-III, 30/F., Panda Hotel, 3 Tsuen Wah Street, Tsuen Wan, N.T.	Miss Hana YEUNG Tel: 2527 8285 1 CME point
19 WED 1:00pm	**HKMA Central, Western & Southern Community Network - Prevention of Allergy in Primary Care** Organiser: HKMA Central, Western & Southern Community Network, Chairman: Dr. YIK Ping Yin, Speaker: Dr. TAM Yat Cheung, Alfred, Venue: HKMA Central Premises, Dr. Li Shu Pui Professional Education Centre, 2/F, Chinese Club Building, 21-22 Connaught Road Central, Hong Kong	Miss Hana YEUNG Tel: 2527 8285 1 CME point
25 TUE 1:00pm	**HKMA Kowloon West Community Network - Recent Update on Hypertension Guidelines and Advancement on Pharmacological Treatment** Organiser: HKMA Kowloon West Community Network, Chairman: Dr. WONG Wai Hong, Speaker: Dr. WONG Tai Hung, John, Venue: Crystal Room I-III, 30/F., Panda Hotel, 3 Tsuen Wah Street, Tsuen Wan, N.T.	Miss Hana YEUNG Tel: 2527 8285 1 CME point
26 WED 12:00pm	**RSCP Golf Tournament 2014** Venue: Sai Kung	Mr. Andie HO Tel: 2527 8285
1:00pm	**HKMA Kowloon City Community Network - Limitation, Safety and New Advance of GERD Treatment** Organiser: HKMA Kowloon City Community Network, Chairman: Dr. CHIN Chu Wah, Speaker: Dr. SIU Ka Fai, Danny, Venue: Spotlight Recreation Club, 4/F, Screen World, Site 8, Whampoa Garden, HungHom, Kowloon	Ms. Candice TONG Tel: 2527 8285 1 CME point
27 THU 1:00pm	**HKMA Kowloon East Community Network - Current Management on Rhinitis** Organiser: HKMA Kowloon East Community Network, chairman: Dr. MA Ping Kwan, Danny, Speaker: Dr. TO Shing Howe, Victor, Venue: East Ocean Seafood Restaurant, Shop 137, 1/F, Metro City Plaza 3, 8 Mau Yip Road, Tseung Kwan O, Kowloon	Miss Hana YEUNG Tel: 2527 8285 1 CME point
28 FRI 1:00pm	**HKMA Yau Tsim Mong Community Network - Do Patient Characteristics Influence Choice of DPP-4 Inhibitor?** Organiser: HKMA Yau Tsim Mong Community Network, Chairman: Dr. CHENG Kai Chi, Speaker: Dr. TSANG Man Wo, Venue: Jade Ballroom, Level 2, Eaton Hotel, 380 Nathan Road, Kowloon	Ms. Candice TONG Tel: 2527 8285

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Answers to Radiology Quiz

Findings:

Post-IV contrast-enhanced CT scan

- A well-defined 5 x 3 x 5cm multiloculated low attenuation cystic mass in small bowel mesentery is seen in central abdomen. The mass insinuates around the mesenteric vessels, and demonstrates mild thin septa and rim-enhancement. No calcification or stellate appearance associated. Mild perifocal stranding associated. Features suggest mesenteric lymphangioma. Differentials include enteric duplication cyst, mesothelial cyst, non-pancreatic pseudocyst, necrotic mesenteric lymph nodes. The insinuating appearance of the mass would speak for mesenteric lymphangioma.
- The mesenteric mass shows no significant mass effect to the adjacent structures. No complication of bowel obstruction, volvulus or infarction is seen.
- No pneumoperitoneum. No intra-abdominal abscess or evidence of perforated peptic ulcer.
- Trace amount of free fluid in lower abdomen.

Management:

- Inform surgeon of findings; recommend surgical resection for histology confirmation and relief of acute abdomen.
- Although lymphangiomas are benign lesions, radical excision is required as incomplete excision may lead to recurrence. [2]

Discussion: [1]

Lymphangiomas are benign lesions of vascular origin that show lymphatic differentiation. They occur in many anatomic locations and may have a paediatric or adult clinical presentation. Most (95%) occur in the neck and axillary regions; the remaining 5% are located in the mesentery, retroperitoneum, abdominal viscera, lung, and mediastinum.

Abdominal lymphangiomas are reported to occur most commonly in the mesentery, followed by the omentum, mesocolon, and retroperitoneum. Mesenteric lymphangiomas may produce complications such as intestinal obstruction or volvulus, and infarction may occur. IV contrast–enhanced CT may show enhancement of the cyst wall and septa. The fluid component is typically homogeneous with low attenuation values. Occasionally, negative attenuation values occur in the presence of chyle. Calcification may occur but is uncommon.

Accurate anatomic localizsation and definition of the lesions are important in preoperative planning because lymphangiomas have an insinuating nature that makes complete surgical excision difficult in some cases. The diagnostic challenge on imaging is the differentiation of lymphangiomas from other fluid-containing masses and ascites in the abdomen. Retroperitoneal lymphangiomas tend to be large elongated lesions that traverse adjacent anatomic compartments. Large mesenteric lymphangiomas can be differentiated from ascites by the presence of septa, compression on adjacent intestinal loops, and lack of fluid in the dependent recesses of the peritoneum such as the paracolic gutters and subhepatic spaces and between the leaves of the small-bowel. Differentiating lymphangiomas from enteric duplications, mesothelial cysts, and pseudocysts may be difficult because the imaging features of these lesions overlap.

References

1. A.D.Levy et al. Abdominal Lymphangiomas: Imaging Features with Pathologic Correlation. AJR 2004;182:1485–1491
2. J.C. Chung et al. Cystic lymphangioma of the jejunal mesentery presenting with acute abdomen in an adult. Can J Surg. 2009 December; 52(6): E286–E288.

Dr Grace HO

Department of Radiology, Queen Mary Hospital

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Reference 1: Dahlof B, Sever PS, Poulter NR, et al. Prevention of cardiovascular events with an antihypertensive regimen of amlodipine adding perindopril as required versus atenolol adding bendrofluazide as required, in the Anglo-Scandinavian Cardiac Outcomes Trial-Blood Pressure Lowering Arm (ASCOT-BPLA): a multicentre randomized controlled trial. Lancet. 2005;366:895-906.

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Reference: HK PI (version date Jan2006) Date of preparation: MAR2011 Identifier number: NORV0311
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References: 1. Miner P, et al. Am J Gastroenterol 2003;98:2616-20. 2. Miner P, et al. Am J Gastroenterol 2006;101:404-5. 3. Rohss K, et al. Clin Drug Invest 2004;24:1-7. 4. Kahrilas PJ, et al. Aliment Pharmacol Ther 2000;14:1249-58. 5. Richter JE, et al. Am J Gastroenterol 2001;96:656-65. 6. Castell DO, et al. Am J Gastroenterol 2002;97:575-83. 7. Malfertheiner P, et al. Gut 2002;51:65. 8. Johnson DA, et al. Am J Gastroenterology 2001;96:27-34. 9. Nexium Hong Kong prescribing information, August 2012

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