



Newsletter

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Surgical Treatment of Stress Urinary Incontinence *by Dr. CHEON Willy, Cecilia, Consultant (O & G), QEH*

Definition of urinary incontinence is the complaint of any involuntary leakage of urine. Stress urinary incontinence is involuntary leakage on effort or exertion, or on sneezing or coughing. Urodynamic stress incontinence are involuntary leakage of urine during increased abdominal pressure, in the absence of a detrusor contraction. Prevalence of Urinary Incontinence varies with the population sampled and definition used for incontinence. Overall prevalence is 10-40%, young adult is 20-30%, middle age is 30-40% with broad peak and elderly is 30-50% with steady increase. About half are SUI. Symptoms of urodynamic stress incontinence (USI) are leakage of urine on effort or exertion or coughing, sneezing or running etc. If sole symptom is stress incontinence and no irritative symptoms => 90% is Urodynamic Stress Incontinence. Mixed symptoms need urodynamics to exclude detrusor overactivity. Impact on quality of life include embarrassment, reduced self esteem, impaired emotional & psychological well-being, poorer sexual relationships and impaired social activities and relationships. Basic evaluations include history, clinical examination, urinalysis and bladder diary. Clinical examinations include palpation of the abdomen, gynaecological examination and neurological examination if indicated. Investigations of LUTS with urodynamics is indicated if there is mixed symptoms, no response to conservative measures and before surgery.

Conservative treatment is still the first line treatment for women with SUI. Treatment for SUI includes general measures, pelvic floor exercises (PFE) biofeedback with perineometer or vaginal cones, electrical stimulation treatment, pharmacological treatment and surgery. Options of surgical treatment are paravaginal repair, bladder neck suspensions, bladder neck slings / midurethral slings, periurethral injections and artificial sphincter. The advantages of paravaginal repair are low operative risk, low complication, low technical requirement and suitable for the elderly. The disadvantages of paravaginal repair are low cure rate (60%) which is similar to PFE.

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Bladder neck suspensions use the anterior vagina as a hammock to elevate the bladder neck which include needle suspensions and retropubic abdominal & laparoscopic Burch suspensions. MMK retropubic suspensions use sutures to elevate anterior vagina to the back of the pubic bone such as Marshall, Marchetti, Krants. Success rate and complication rate of MMK retropubic suspensions are similar to Burch with 5% pubic osteitis. Abdominal & laparoscopic Burch colposuspension suspend anterior vagina to the iliopectineal ligament (Cooper's ligament).

Burch's success rate is 85-90% in the first year and the 70% in the fifth year. There is no significant difference between open and laparoscopic approach. The complications of Burch are De Novo detrusor overactivity (5-10%), voiding difficulty (10-15%) and apical / posterior compartment prolapse (5-17%). Sling under the bladder neck or mid-urethra are used to correct hypermobility and increase sphincter closure pressure. There are three major Midurethral-slings available, Tension-free vaginal tape (retropubic approach)-TVT, Tension-free vaginal tape (transobturator approach)-TOT / TVT-O and mini-sling. Ulmsten et al in 1996 used tension-free vaginal tape (TVT) to treat stress incontinence by positioning a polypropylene mesh tape underneath the urethra, which is monofilament, macroporous (>75 microns) and allows free passage of macrophages, in growth of fibroblast and minimize erosion / infection.

Transobturator tape (outside-in : TOT) procedure in Delorme1 2001, involved the insertion of mesh tape under the urethra through small incisions in the groin area which eliminates retropubic needle passage. A variation of the technique has been described in 2003 by de Leval termed the TOT vaginal tape "inside-out" technique (TVT-O). TVT / TOT / TVT-O complications are around 3%, which include voiding difficulty, hemorrhage, hematoma, bladder perforation, infection and no report of rejection, erosion or fistula.

Today, mid-urethral slings not only have replaced the Burch colposuspension as the gold standard in the treatment of SUI but also are even more often performed than colposuspension because it is easy to perform, superior in terms of operation time, postoperative pain, and hospital stays but similar cure rates. Transobturator approach is less likely to suffer from perioperative hematoma, infection, vascular or bladder injury. Pregnancy after surgical treatment of SUI by sub-urethral tape does not seem to expose patients to important urinary or obstetrical complications. Pregnancy by itself is a risk factor for recurrent incontinence. Vaginal delivery does not increase the risk of recurrence when compared to caesarean section. We may encourage vaginal delivery in women with suburethral sling procedures.

Dr. Cheon and other speakers



Data on the frequency of SUI after the two modes of delivery remain controversial. Mini-sling released in the United States in late 2006 by Gynecare/Johnson and Johnson under the name of TVT-Secure. Short term cure rates from 67% to 83%, much lower than the existing TVT and TOT slings. In March 2007, AMS released the most recent mini-sling called the Mini-Arc which has several improvements over the TVF Secure sling. Mini arc sling procedure displayed 92.3% cure rate and reduces the risk of bowel injury, bladder injury, and major bleeding because it bypasses retropubic needle passage. More data is needed to justify the effectiveness of min-sling. Use of peri-urethral injection bulk forming agents is to increase the urethral closure pressure. Peri-urethral injection material includes fat, collagen and silicone.

The advantages of peri-urethral injection is safe. The disadvantages of peri-urethral injection are low success rate (25–60%), expensive and need to repeat injection once every 1-2 year. Use of artificial sphincter is only indicated when all the other operations have failed and is considered to be the last resort.

Conclusions are : 1 in 2 women in HK has urinary symptoms and 1 in 3 women has SUI. Much advances have been made in the care of female urinary incontinence. Effective treatments are available which can significantly improve women's QoL. The concept of the midurethral sling has revolutionized surgical treatment of SUI.

Its minimally invasive approach and success rates have led to an increasing acceptance of the technique. TVT and TOT are both comparable in cure rate. The TOT approach is a potentially safer method owing to the avoidance of the retropubic space: bladder, vessels, bowel injury. Pregnancy is not contraindicated and cesarean section is not absolute. Long-term studies and RCTs are needed to identify the proper indications for the various types of slings and to assess efficacy and complication rates over time.



1st Certificate Course on Assessment and Management of Constipation and Faecal Incontinence

8 May 2010



Participants at the lecture



Dr. Michael Leung presented a gift to our speaker, Dr. William Meng



Ms Chan Sau Kuen presented a gift to our speaker, Ms Brigitte Fung

Pharmacological treatment for constipation

By Dr. TONG Bing Chung, Senior Medical Officer (M & G), PMH

Medications are commonly prescribed for constipation, which is the most common bowel disorder encountered in clinical practice. In Hong Kong, the prevalence of constipation as defined by Rome II criteria was reported to be 14.3%.

There are three main types of **functional constipation**, namely slow transit constipation, dyssynergic defaecatory disorder and normal transit constipation. However, one should also bear in mind that constipation is commonly secondary to **underlying disease pathology**. Recent onset constipation, particularly in association with other gastrointestinal (such as abdominal pain or rectal bleeding) or non-gastrointestinal (such as weight lost, anemia or neurological symptoms) will warrant a thorough physical examination and investigation, rather than just a routine prescription of laxatives. Moreover, **drug induced constipation** should not be overlooked.

Transit of faecal matter in the gut is a result of forward **peristaltic movement**, which is a coordinated series of smooth muscle activities resulting in an increase in muscle tone proximal to, and a reduction of muscle tone distal to, the luminal content. The peristaltic reflex is triggered by a distension of intestinal wall by the volume of faecal bolus. Serotonin released from the enterochromaffin cells at the intestinal mucosa then initiates a serial neurocrine, paracrine as well as autocrine mechanism in order to achieve smooth muscular contraction orally and relaxation caudally.

Pharmacological actions of laxatives on the gastrointestinal tract act either by increasing the volume of luminal content or by stimulating the intestinal muscle contraction, which can be of non-specific manner or in a coordinated manner by action on specific receptors.

Laxatives can be classified as:

1. Luminally active agents

- Hydrophilic colloids: bulk forming agents (Brans, Psyllium etc.)
- Osmotic agents (nonabsorbable inorganic salts, sugars or alcohol)
- Stool-wetting agents and emollients (docusate, mineral oil)

2. Non-specific stimulants or irritants (with effects on fluid secretion and motility)

- Diphenylmethanes (phenolphthalein, bisacodyl)
- Anthraquinones (senna and cascara)
- Caster oil

3. Prokinetic agents (acting on specific receptors)

- Serotonergic drugs

Dietary fibre is the most primitive form of **bulk laxative**. These non-digestible carbohydrates have intrinsic water holding property which is thought to be related to their particle size. The resultant increase in bulk size is also contributed by an attraction to bacterial proliferation. Some fibres allow fermentation by bacteria causing production of short-chain fatty acids (SCFA) that are trophic to colonic epithelium and may stimulate intestinal motility. Fibre supplementation in form of wheat bran, fruits (prune, blackberries, grapes) and vegetables (beans, peas, broccoli, fig) in a palatable form is important particularly for elderly patients. High fibre diet may cause gastrointestinal upset such as bloating and flatulence. Such symptom can be minimized by starting with low dose and with gradual increment. **Medicinal fibre** products can be **natural (psyllium)** or **synthetic (methylcellulose and calcium polycarbophil)**. Such agents increase colonic residue and stimulate peristalsis. As with other fibre supplements, the gastrointestinal side effect may be intolerable to some of the patients. Anaphylaxis and asthma are significant but rare side effect of psyllium. An important point to note is that fibres are not effective for all type of constipation. Only people with normal transit constipation (not those with slow transit/ dyssynergia) are helped by additional fibres. For patient with delayed transit, fibre may aggravate symptom of distension. In frail elderly subject, excessive fibre may lead to fecal impaction and incontinence.





Osmotic laxative draws water into the intestine along osmotic gradient and soften stool. Use of **saline laxative** containing **magnesium and phosphate ions** should be cautious in patients with renal insufficiency, cardiac disease or pre-existing electrolyte abnormality, and in patients on diuretic treatment. **Lactulose** is commonly used but **sorbitol** appears to be a cheaper but equally effective alternative. These poorly absorbed sugars cause significant gas production and hence side effect of bloating and flatulence. **Polyethylene glycol (PEG)** is a non-absorbable alcohol and has been used as a colonic cleansing agent. PEG in small packs have been used increasingly as laxative since these polymers, not being metabolized by gut bacteria, cause less bloating and cramping than lactulose. Osmotic laxatives can cause fluid and electrolyte disturbance particularly when taken at excessive amount and with inadequate fluid intake.

Stool softeners are ionic detergents that soften stool by allowing water to interact more effectively with solid stool. They are of limited efficacy and mineral oil is associated with significant side effects. They are seldom used nowadays.

Stimulant laxatives have got bad reputation since they have been linked to serious side effect of pseudomelanosis coli, cathartic colon, enteric neuronal degeneration together with malignant and abuse potential. However, except for phenolphthalein (which was observed to have carcinogenesis potential in animal study) and castor oil (which is of unpleasant taste and causes excessive cramps), most of the stimulant agent (**Senna, bisacodyl**) are usually thought to be safe and effective when use no more than 2-3 times per week even for prolonged period. The malignant potential for melanosis coli has been questioned and so is the presence of the entity of cathartic colon. The microscopic neuronal degeneration is not specific to laxative and the linkage of colonic cancer with stimulant laxative is inconclusive in human study.

Some patients have to rely on **enema or suppositories** to clear their bowel. In fact bowel distension by any means will produce an evacuation reflex in most people, and almost any form of enema, including normal saline solution, can achieve this.

However, safety and efficiency of specialized enema have not been studied rigorously. Repeated enemas with tap water or other hypotonic solutions can cause hyponatremia, while repeated enema with sodium phosphate containing solution can cause hypocalcemia. Enema or rectal washout can also cause injury to the rectum and anus and those should be used with caution.

Prokinetic agents enhance GI transit via interaction with specific receptors involved in regulation of motility. While serotonin is one of the most abundant neurotransmitter in the GI tract, several subtypes of serotonin receptors including 5-HT_{1P}, 5-HT₃ and 5-HT₄ have been found to play significant role in coordination of the peristaltic reflex. The most extensively studied **serotonergic prokinetic** was **tegaserod** which was a **5-HT₄ agonist**. It was found to increase transit throughout the GI tract and to enhance chloride secretion. It was primary introduced for treatment of constipation predominating irritable bowel syndrome for women in 2002, then approved for use in men and women <65 years with idiopathic constipation in 2004. However, it was suspended from the market in US in Mar 2007, owing to concern of a potential in causing of adverse cardiovascular effects. The newer 5-HT₄ agonist **prucalopride** has a higher selectivity and affinity to the receptor and is believed to have a more favorable risk-benefit profile.

Mixed 5-HT₃ receptor antagonist/ 5-HT₄ receptor agonist including **cisapride, renzapride, and mosapride** was used primarily for reflux disease or irritable bowel symptom. They have all found to have a prokinetic effect. Cisapride is no longer available in the market because of reports of causing significant arrhythmias.

The latest agent to received FDA approval for the treatment of adult patients with idiopathic constipation was **lubiprostone**, which is a **selective chloride channel subtype 2 activator**. It stimulates GI epithelium to increase intestinal chloride secretion and thereby intraluminal fluid collection in the gut and was shown to have increase in frequency of spontaneous bowel movement.



The **opioid antagonist *methylnaltrexone*** have been used to treat narcotic related constipation. **Other emerging treatment** for constipation includes the use of ***neurotrophin*, *guanylate cyclase agonist* and *bile acid***. **Botox injection to puborectalis muscle** have also been used to treat defaecatory disorder secondary to spastic pelvic floor dysfunction.

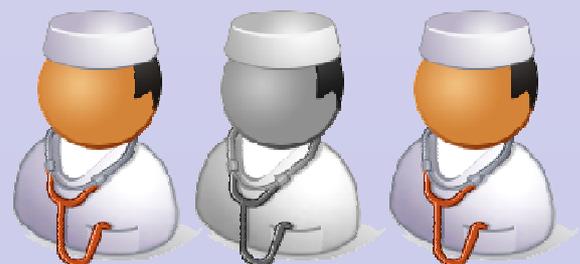
Probiotics are living microorganisms which when administered in adequate amounts confer a health benefit on the host. They are found to lower pH in colon, secondary to production of SCFA. A lower pH enhances peristalsis. A review of clinical trial had made a conclusion that that adults with constipation might benefit from ingestion of *Bifidobacterium lactis* DN-173010, *Lactobacillus casei* Shirota and *E. coli* Nissle 1917 which are shown to increase defecation frequency and improve stool consistency. However, the clinical relevance is unclear as the effects appeared modest.

Many traditional Chinese medicines which include combinations of herbs (**Chinese Herbal Medicine CHM**) have been used to treat constipation. According to a recent review CHM interventions or CHM combined treatments have showed benefit in the treatment of FC when compared with cisapride, PEG, mosapride, phenolphthalein, itopride and bifidobacterium alone. However, the evidence and reliability of those conclusions are compromised by methodological flaws and lack of replicable validation.

There have not been any well-designed trials to **compare the efficacy of fibre and different laxatives**. The conclusion from a review published in 1997 analysing 36 randomized trials of laxative or fibre therapy on chronic constipation was: 'both fiber and laxatives modestly improves bowel motion frequency in adult with chronic constipation. There was inadequate evidence to establish whether fibre was superior to laxative or one laxative class was superior to another'.

The American College of Gastroenterology Chronic Constipation Task Force issued recommendation in 2005 and the efficacy of PEG, lactulose, and tegaserod was concluded to have Grade A recommendation while psyllium received a grade B recommendation. In a similar American review published in 2005, only PEG and tegaserod was granted Grade A recommendation while both lactulose and psyllium received a grade B recommendation. The lack of evidence-based efficacy for the older and more traditional laxative, particularly for the stimulant laxatives, simply reflect a lack of data rather than genuine clinical ineffectiveness. The older and more traditional laxatives are still extensively prescribed with their own efficacy.

Approach to management of constipation should include an assessment of the possibilities of secondary causes, with high index of suspicion particularly for iatrogenesis. Faecal impaction should be watched out for and treatment may need to include repeated enemas, colonic cleansing and manual evacuation. After trying vigorous lifestyle modifications, non-absorbable sugar will be the first line medication the author will choose. In patient who is obviously deficient in fibres which cannot be obtained by dietary means, medicinal fibres can be considered. Stimulant laxatives used as required every 3-4 days can be added if osmotic or bulk laxatives fail to establish bowel opening. More expensive prokinetic drugs will only be reserved for refractory cases or in case there is coexisting indication, such as irritable bowel syndrome. Referral to specialist will be needed if patient fails to response to medical treatment adequately.



Upcoming events

A) 2nd Certificate Course on Assessment and Management of Constipation and Faecal Incontinence



Due to the overwhelming response of the First Course, we have organized a Second course to be delivered in July. Schedule will be as follow:

Date & Time	Topic	Speaker (s)
10-7-2010 1430-1630	Anorectal Physiology and Diagnostic Imaging for Functional Bowel Disorder	Dr William Meng
	Physiotherapy intervention for constipation and faecal incontinence	Ms Brigitte Fung
17-7-2010	No Lecture (Venue not available)	
24-7-2010 1430-1630	Surgical Related treatment and	Dr. Luk Lai Yin
	Nursing Management on Constipation and Faecal incontinence	Ms Chan Sau Kuen
31-7-2010 1430-1630	Childhood constipation and bowel incontinence: Surgical Management	Dr Michael Leung
	Nursing Management	Ms Ng Wai Hing
7-8-2010 1430-0630	Medical Nutrition Therapy on Constipation and Faecal Incontinence.	Ms. Vanessa Lam
	Drugs and Bowel Disorder	Dr. Tong Bing Chung

B) 40th Annual Meeting of the International Continence Society (Toronto, Canada, Aug 23 - 27, 2010)

Sponsorship Application

The Hong Kong Continence Society will sponsor a maximum of 8 members to attend the captioned meeting. Each sponsor will be **HK\$8,000** for passive participation or **HK\$10,000** for active participation (i.e. having a paper accepted for presentation).

The application is now opened to all members with at least 2 recent consecutive years of membership (i.e. 2009 & 2010 memberships)

Deadline of application: 30 June 2010

(for more detail, please refer to Website: <http://www.hkcs.hk>)

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Congratulations to Chan Sau Kuen



Chairperson Dr. MF
Leung and Sau Kuen



Sau Kuen on the stage

