



Surgical Management of Faecal Incontinence and Functional Constipation

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Faecal incontinence and functional constipation are very common problem in our society. Most of the time they can be treated, if not cured, by non-invasive therapy like physiotherapy or medication plus good nursing care. However, operative therapy is a good supplementary management for some selected patients of serious problems and suboptimal results after several courses of conservative management.

There are grossly four elements to help control faecal continence:

1. Plug function - Internal anal sphincter (IAS) plays a major role in acting as a plug at the final end of our gastrointestinal tract. It is innervated by our autonomous nervous system. External anal sphincter (EAS), puborectalis sling plus other pelvic floor muscle and haemorrhoidal cushionings at anal canal also contribute.
2. Stool consistency - The looser the stool, the more difficult we can prevent incontinence
3. Rectal capacity - Rectum acts as temporary store for stool before we can choose a convenient place to evacuate. That means its volume and compliance are directly related our continence function.
4. Neurological function - Central nervous system (brain and spinal cord) is definitely the higher centre to control. We can also control voluntary muscle like EAS through peripheral (somatic) nervous system. In the same time, autonomous nervous system receives sensation from rectum (distension) and anal canal (stretching) on one hand, it controls involuntary muscle like IAS on the other hand.

Surgical management is aiming at correcting pathology of the above four elements. Therefore, first of all, we need to identify where it goes wrong first. Several investigations like anorectal manometry, pudendal nerve terminal motor latency and anorectal ultrasound helped us to diagnose and then quantify the problem. For example, for a multiparous lady with faecal incontinence, the above tests can tell us whether anal sphincter complex is of defect with or without pudendal nerve transmission problem. All those information is very detrimental in our decision making for which type of surgery we will offer. If that lady has bilateral pudendal neuropathy as well, sphincter repair may not be as effective as for other patients without that problem and artificial bowel sphincter (ABS) may be a better alternatives for her instead. Certainly, operative risks and complications of each type of operation are also main concerns for method we choose.

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Overlapping sphincter repair was first described by Parks and Mcpartlin in 1971. The sphincter defect was repaired with overlapping layers of healthy sphincter muscles. Its advantage is of good short and mid-term result with only minor risks like infection. However, the result may deteriorate many years later but redo repair can still help some patients.

Artificial bowel sphincter (ABS) was developed as an implant to substitute a severely damaged anal sphincter complex. It was also good for patients with marked bilateral pudendal neuropathy. The main concern is that it bears relatively higher infection risk; as a result, we may be forced to remove the implant if infection cannot be controlled.

Sacral nerve stimulation (SNS) was first developed to help patients with urinary incontinence. It was then found that it can help those with faecal incontinence too. The exact mechanism is still unknown. It was postulated that it can recruit additional function from pelvic floor musculature and pelvic organs and also affect the local spinal reflex arcs to increase rectal blood flow and then reduce rectal sensory threshold. Firstly we need to identify which patient is responder through peripheral nerve evaluation. Then we can provide permanent implantation of quadripolar foramen electrode. The biggest advantage of this method is that its good efficacy and its minimal complication rates like superficial wound infection. Recent studies showed that SNS and sphincter repair can be synergistic in treatment of faecal incontinence. However, it is contraindicated for patient with bilateral denervated pudendal nerves. Another shortcoming is its high costs and demand on expertise.

Injectable implants, radiofrequency and rectal augmentation are recent innovative methods for faecal incontinence. Stoma is the last resort.

For functional constipation, we divided the causes into colonic inertia, pelvic outlet obstruction or both. Basic investigation like anorectal manometry, colonic transit study and defecating proctogram are essential. For example, resection of colon is a good method to treat serious colonic inertia if patient fails all conservative management. However, the operative result may be poor for patient with synchronous pelvic outlet obstruction. Therefore, thorough investigation before operative is very detrimental.

In case a severe sigmoidocele is shown in defecating proctogram, laparoscopic resection of sigmoid colon is indicated. If a large rectocele is shown, surgical repair can be offered.

Paradoxical puborectalis syndrome is used to describe the condition that patients fail to paradoxically contract rather than relax the puborectal sling during defecation. For those patient with residual dysfunction after certain courses of biofeedback, ultrasound-guided botulinum toxin injection may help.

SNS was recently shown to contribute in function constipation treatment. The exact mechanism is still unknown. It may involve direct effect on colorectal sensation and motor function or central effect on spinal cord or brain. However, long term data is still pending.

Total colectomy is a treatment for those with refractory slow transit constipation. Careful selection of patients of solely slow transit constipation and no other associated functional gastrointestinal problem is very important; otherwise, the surgical result will be jeopardized. Total colectomy means a major surgery to remove all colon and re-anastomosis between small bowel and rectum under general anaesthesia. Therefore, candidates for surgery should be those of good operative risks. Recent advances is that the surgery can be done in laparoscopic means and it can reduce certain surgical trauma.

Malone antegrade colonic enema (MACE) is to patients' appendix to abdominal wall skin so that they can make use of it as a conduit for antegrade irrigation through a tiny polythene tube at home. It is a good method for paediatric group patients with neuropathic constipation but it demands dedication from patient and parents

In conclusion, surgical treatment for faecal incontinence and constipation can only be considered for those patient failing conservative management. Correct identification of pathology with corresponding investigations can guide choice of treatment and lead to satisfactory outcome. Decision making also depends on cost-effectiveness and expertise. Detailed interviews with patients and relatives are important before any surgical treatment so that patients' expectation are clearly known and risks of surgical treatment are fully explained.

Seminar on Management of Bowel Disorder in Adult Patients

18 March 2015



Ms Michelle Paul

Nurse Practitioner

(Continence, Community Health)

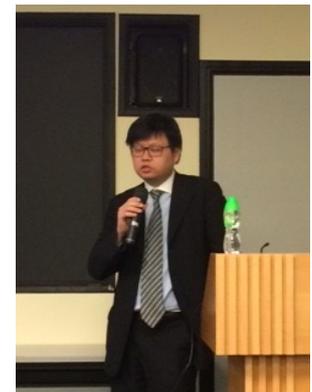
Hunter New England Local Health District



Dr Leung Man Fok

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Low Back Pain and Incontinence. Are we treating both at a time?

Brigitte Fung, Physiotherapist, Kwong Wah Hospital

Low back pain (LBP) is one of the most common musculoskeletal complaints in today's societies, affecting up to 70–80% of the population at least one episode during their lifetime (Ehrlich, 2003). A local study (Fung et al 2012) had shown that 93 out of 121 subjects had the coexisting problem of both low backpain and urinary incontinence. The relationship between the two problems may require special attention to in planning the treatment of incontinence.

Co-ordinated pelvic floor and abdominal muscle activity

The PFM, abdominal muscles and the diaphragm form the muscular boundaries of the abdominal canister and contraction of each, whether concentrically or eccentrically, influence intra-abdominal pressure with consequences for control of the spine, respiratory function and continence. The net effect of contraction of muscles surrounding the abdominal cavity on continence and urine flow depends on the balance between abdominal pressure and urethral pressure. Activation of TrA and OI will increase bladder pressure, but the concurrent automatic activation of the PFM would counteract the challenge to continence, unless the pressure rises sufficiently to exceed the ability of the PFM. Recent work indicates that gentle to moderate effort contraction of the oblique abdominal muscles leads to lesser elevation of the bladder base, measured with ultrasound imaging, than contraction of TrA and OI with a similar effort (Junginger et al 2010). This could be accounted for by differences in co-ordination between each abdominal muscle and those of the pelvic floor.

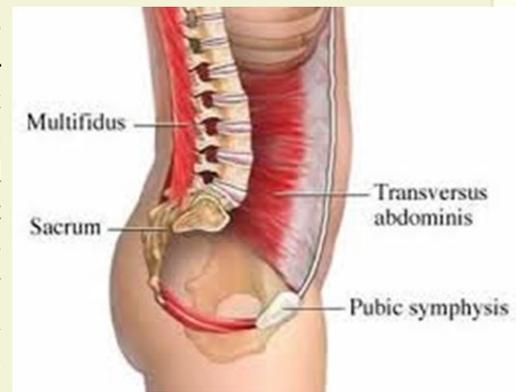


Diagram 1. The Core. (physioworks.com.au)

Pelvic Floor Muscles (PFM) and the lumbar stability

The PFM are the only transverse load bearing muscle group in the body which support the abdomino-pelvic organs. Dual function of providing stability in the lumbo-pelvic region and controlling bladder continence has been their role. (Sapsford, 2004). They play an important role in generating, maintaining and increasing intra-abdominal pressure in functional tasks such as lifting, laughing, coughing and valsalva (Neumann and Gill, 2002; Sapsford, 2004; Hodges et al., 2005).

PFM are a part of the trunk stability mechanism. The contribution of PFM to intra- abdominal pressure and trunk stability has been explained by feed forward activation of these muscles in response to trunk perturbation similar to the other components of the deep stabilizing muscle system of the trunk including deep abdominal muscles (transverse abdominals) and lumbar multifidus (Hodges et al., 2002).

It is believed that altered function of these deep stabilizing muscles of the trunk affects spinal stability. There is substantial evidence indicating that primary muscular impairment in patients with pain in lumbo-pelvic region is dysfunction and loss of motor control characteristics of deep local muscles (Jull and Richardson, 2000).

Review of the literature also showed that a few studies have been directly conducted to assess PFM function in patients with lumbo- pelvic pain. With the use of different designs, testing procedures and samples, controversial results have been reported regarding the PFM dysfunction in LBP. Decreased endurance time of PFM has been reported in patients with pregnancy-related LBP compared to healthy subjects (Pool-Goudzwaard et al., 2005). Altered motor control of PFM has been found in individuals with sacroiliac joint pain (Avery et al., 2000;

O’Sullivan et al., 2001, 2002). In contrast, Stuge et al. (2006) found no significant difference in PFM strength between women with and without long lasting pelvic girdle pain. This controversy could arise from the fact that different approaches and samples have been used in the previous studies. Smith et al (2009) demonstrated in a large scale study that a total of 2943 younger, 2298 mid-age, and 2258 older women from the Australian Longitudinal Study on Women’s Health who reported no back pain during the preceding 12 months were followed for 4, 2, and 3 years, respectively. Crude and adjusted associations between the development of back pain and changes in the presence of incontinence, breathing difficulty, and gastrointestinal symptoms were assessed with logistic regression. Women with preexisting incontinence (prevalence ratios [PR]: 1.26 to 1.46) and gastrointestinal symptoms (PR: 1.24 to 1.44) and women who developed breathing problems (PR: 1.63 to 2.11) were more likely to develop back pain than women without such problems. The associations between incontinence, respiratory disorders, and back pain identified in this prospective cohort study were predicted from studies of trunk muscle control. This suggests that incontinence and respiratory disorders may contribute to the development of back pain as a result of changes in control of the trunk muscles. The trunk muscles, including muscles of respiration (eg, diaphragm and transversus abdominis) and continence (eg, pelvic floor muscles), provide mechanical support to the spine and pelvis. Sneezing and coughing, which are common in people with respiratory allergies, are associated with trunk muscle co-contraction and increased spinal loading, which may contribute to the development of pain.

Assessment of the PFM function using transabdominal ultrasound in women with LBP and those with no LBP

Real-time ultrasound imaging is an established method recently used by physical therapists to evaluate muscle structure, function and activation patterns. It allows for real-time study of the deep muscles of trunk such as deep abdominals and PFM as they contract (Whittaker et al., 2007).

In a study done by Arab et al (2010), the amount of bladder base movement on ultrasound was measured in 40 non-pregnant subjects (20 with LBP and 20 without LBP). Displacement of the bladder neck was as an indicator of PFM function. Statistical analysis (Independent t-test) revealed significant difference in transabdominal ultrasound measurements for PFM function between the two groups (P 1/4 0.04, 95% CI of difference: 0.002–0.27). The results indicated that women with LBP have significantly lower PFM function compared to those without LBP.

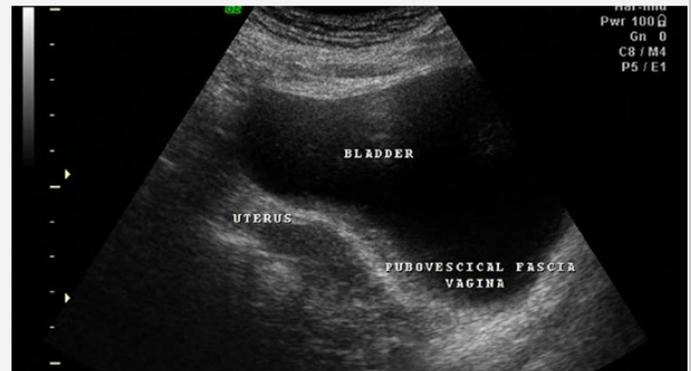
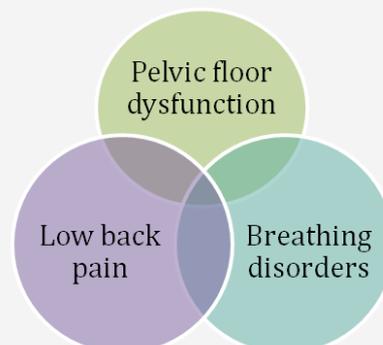


Diagram 2. Bladder neck displacement.

Similar findings have been reported by others investigators as well. (O’Sullivan et al. 2002; Pool-Goudzwaard et al., 2005). These investigators have attributed LBP to the loss of motor control characteristics of PFM. Lack of proper PFM function is believed to be associated with trunk instability, resulting in LBP (Sapsford, 2001; Hodges et al., 2002).

In the future

Postural Stability, low back pain and pelvic floor dysfunction are problems that should be evaluated and assessed together for optimal treatment of any dysfunction. Future work should evaluate whether treatment of incontinence and breathing disorders and improving trunk muscle control has the potential to reduce the burden of back pain.



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Coming Events

2015 Annual Meeting of the International Continence Society (Oct 6-9, 2015) at Montreal, Canada

www.ics.org/2015

26th Congress of the European Society for Paediatric Urology (Oct 14-17, 2015) at Prague, Czech Republic

www.jointmeeting2015.espu.org

24th National Conference on Incontinence (Nov 25-28, 2015) at Melbourne

www.continence.org.au/national-conference.php

2016 Annual Meeting of the International Continence Society (Sep 12-16, 2016) at Tokyo, Japan

<http://www.ics.org/2016>

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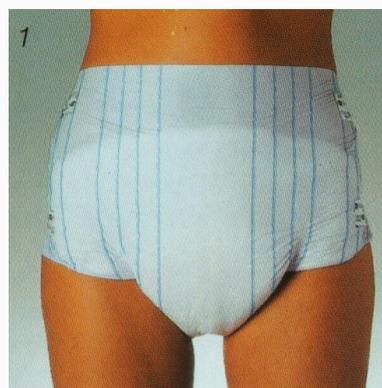
Pads 尿墊 / 片芯



Pants with built in pad (pull-ups) 尿褲



Incontinence sheet 尿墊紙



Diaper 尿片



Urinal 尿壺



Sheath 男性的尿套



Bed pan 便盤



Commode 便椅

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