香港理遺學會

會訊

主編：阮鳳姿
編輯：李偉娟　陳秀娟
顧問：梁萬福醫生

第八期：一九九九年八月

編　者　的　話

阮鳳姿

今期會訊來稿猛料如雲，除了余劍琴醫生贊寫的 “Female Urinary Incontinence (Part II) “之外，本會的副會長郭天福醫生亦會在本期會訊內詳細講解有關 “ Benign Prostate Hyperplasia and Related Bladder Dysfunction” 而今期個案分享的內容亦是講述一位患有BPH老翁醫治小便失禁的成功經驗,相當有鼓舞作用.

今年的九月十八日又是一年一度的週年大會及學術會議，介時又會選出新一屆 Council Members，無論到時選出的是何許人，相信這班 “幕後黑手 “ 都有一個共同目標，就是竭盡所能推展香港的理遺服務，希望各同事鼎力支持踴躍參與是次大會 .

Benign Prostate Hyperplasia and Related Bladder Dysfunction (Part I)

Dr. Kwok Tin Fook　Vice-president Hong Kong Continence Society

Pathology of BPH

The pathology of BPH is heterogeneous. It affects the transitional zone of the prostate and affects both the stromal and glandular elements. Microscopic changes could be found as early as 35 years of age and affects nearly 100% of male when they reach 80-85 years of age. Not all microscopic diseases would become macroscopically identifiable BPH (roughly only about 50%) and not all macroscopic diseases would need any sort of treatment (also about 50%).

Incidence of BPH

The size of prostate increases with age. One recent study (Gu FL 1997)showed an increase in average size of the prostate with age - 20.6 cc (40's), 22.5 cc (50's), 24.8 cc (60's), 28.5 cc (70's). One Japanese autopsy study also showed a 39% incidence in age 50-59 which increased gradually to 92% in those older than 80.

Ethnic difference of BPH

A lot of studies have shown that there are ethnic difference in the incidence of pathology detectable BPH and related symptoms. In one old Chinese autopsy study done in 1921-35, only 6.6% of 1900 autopsies with age 41-80 had evidence of BPH whereas the figure were 47.2% in non-Chinese. Lepor et al (1996) have shown that the cellular composition in Caucasian-American are different from that of Chinese American with the latter having a much higher percentage of glandular lumen element.

Etiology of BPH

Exact mechanism of BPH is still unknown. The presence of circulating male hormone (testosterone) and increasing age are the only two well proven factors. Other factors including blood level of female hormone (estradiol), hypertension, obesity, alcohol, smoking, hereditary.

BPH and Lower Urinary Tract Symptom (LUTS)

Community studies have shown that enlarged prostate is associated with increase incidence of lower urinary tract symptom. BPH is actually a diagnosis by pathology which is not available in most cases. An enlarged prostate without associated symptom is called BPE (benign prostate enlargement). Conventionally, the clinical diagnosis of "BPH" includes (1) BPE + (2) LUTS + (3) reduced urine flowrate.

Incidence of clinical BPH

The incidence is high in various community studies. 253 / 1000 of Edinburgh men of age 40-49 had clinical BPH and the prevalence increased to 430/1000 in age 60-69(Garraway et al 1991).

Symptom of BPH

The symptoms of BPH are now called Lower Urinary Tract Symptoms (LUTS) instead of called "prostatism", as they are not specific for BPH. They are separated into so called "voiding" and "storage" symptom as they may reflect the corresponding voiding and storage activities of the bladder.

Storage symptom includes frequency, urgency, nocturia, urge incontinence, nocturnal incontinence, pain and small volume voiding. Voiding symptom includes hesitancy, straining, weak stream, intermittency, terminal dribbling, prolonged voiding, retention of urine and overflow incontinence.

Some of these symptoms are being grouped into various symptom scores in order to better document the degree of severity and to follow up on treatment response. One commonest used one is the International Prostate Symptom Score (IPSS) which includes assessment of 7 symptoms namely: frequency, urgency, straining, weak stream, sense of incomplete emptying, intermittency and number of nocturia. There are totally 35 points and a score of 7 or above indicate the presence of LUTS in supportive of though not specific of BPH.

Urodynamic effect of BPH

The urethra is a distensible elastic tube which acts as a conduit to transmit urine from the bladder to outside. An enlarged prostate may cause obstruction to urine flow due to two elements - static or dynamic. Static obstruction is caused by the presence of an enlarged prostate. Dynamic obstruction is caused by increase in smooth muscle contraction tone in the prostate which can contribute to up to 50% of total obstruction.

Urodynamics of obstruction

An enlarged prostate causes increase in urethral

resistance which prevents the bladder muscle (the detrusor muscle) from expelling urine which then gives rise to a higher driving pressure.

The detection of this higher driving force (high detrusor pressure) and lowered urine flow (low flow) forms the basic principle in the diagnosis of urinary obstruction. However, obstruction is also said to be present even if the flow is normal but the detrusor pressure is found to be high. A normal flow in association with low detrusor pressure means the flow is unobstructed. However, a low flow in association with low detrusor contraction pressure is due to underactivity of the bladder detrusor muscle.

Measurement of obstruction - uroflowmetry and residual urine volume measurement

Uroflowmetry is the study of urine flow rate and uroflow pattern. It is being done by asking the patient to void into an uroflowmeter which gives a print-out to show the following results usually: graphic representation of the whole act of micturition, total volume passed, maximal flow rate, average flow rate etc. By far, the most useful figure is the maximal flow rate (called the "peak flow rate"). Urine flow rate is a function of both detrusor contraction function and degree of obstruction. It also depends on the volume of urine passed. Therefore, presence of abnormally low flow rate does not immediately indicate the presence of obstruction although if the peak flow is rather low, the possibility of presence of obstruction is rather high. According to one recent study coordinated by the International Continence Society (ICS)(Reynard 1998):

Peak flow	Specificity	Sensitivity	Positive predictive value for obstruction
10 ml/s	70%	47%	70%
15 ml/s	38%	82%	67%

15 ml/s is usually being used as an indicator but not diagnostic for presence of obstruction.

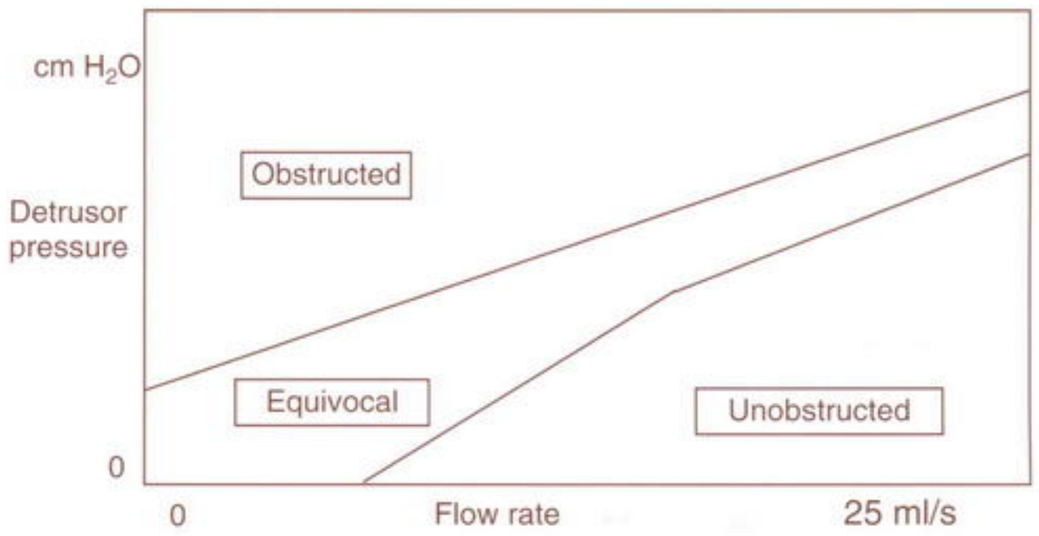
Whether the bladder can empty itself completely depends not only on whether the urethra is obstructed or not. It largely depends on the contractility of the detrusor muscle and how well the bladder contraction is maintained. However, studies have shown that there is high correlation between post-void residual urine volume (PVR) and the prostate volume. If the prostate is enlarged together with a PVR >50cc, the patient is 3 times more likely to develop retention of urine in the next 3-4 years (Kolman et al 1999).

The use of uroflowmetry and measurement of PVR is useful in following up patient's response to treatment. Use of ultrasound to measure PVR gives acceptably accurate result when compared to bladder catheterisation which is a bit invasive.

Criteria to define obstruction

Obstruction is defined by the pressure-flow relationship measurement of the bladder during urodynamic studies of filling and voiding cystometry. After bladder capacity is reached and filling cystometry is done, the patient is asked to void into the uroflowmeter. Both the urine flow rate and its corresponding detrusor contraction pressure is being recorded by the electronic urodynamic machine continuously. Multiple readings are recorded throughout the whole voiding. They can be plotted by the machine onto a so-called PQ Plot (pressure flow plot). The plot is a graph with 2 axis namely the detrusor pressure and the urine flow rate. The micturition is represented by a continuous curve on the graph. The graph is divided into 3 zones using figures derived from surveys. The 3 zones are (1) obstructive (2) non-obstructive (3) equivocal. The graph is called a nomogram and the commonest used ones are:

1. Abrams-Griffith Nomogram
2. ICS Provisional Nomogram
3. Linear Passive Urethral Resistance Relation (PURR)
4. Group Specific Urethral Resistance Factor (URA)



Abrams/Griffiths Nomogram

The most important figure in defining obstruction is the detrusor pressure at maximal flow (PdetQmax). The figure can be used to calculate empirically the so called Abrams/Griffiths Number (A/G number):

A/G number = PdetQmax - 2 Qmax

Obstructed = > 40 cm H_2O

Unobstructed = < 20 cm H_2O

Equivocal = 20- 40 cm H_2O

The A/G number is useful in both diagnosing obstruction, to follow up the patients' response to treatment and to assess treatment efficacy of various methods, both pharmacological and surgical.

(to be continued in next issue of Newsletter)

專題一：Female Urinary Incontinence (Part II)

Dr. Yu Kim Kam, Teresa,SMO, Dept of Geriatrics,

Assessment and Investigation

Careful history should be made of day-time and night-time frequency, any accompanying urgency, sense of incomplete emptying, association with coughing and straining, the amount of urine loss during the inconsistent episode and to identify any transient causes. Physical examination should include the abdomen for any palpable urinary bladder or masses, neurological examination of the lower limbs for evidence of spinal cord disease, a rectal examination for constipation and vaginal examination should be performed.

Investigations in incontinence management may include the following:

- Frequency / voiding charts
- Urinalysis for microscopy and culture, cytology if sterile haematuria
- Post void residual volume (preferable if portable ultrasonic bladder scanner available)
- Blood including RFT, glucose, calcium
- Pad test for stress incontinence
- Urodynamic tests - uroflowmetry, cystometry and video-urodynamics
- Radiological studies
- Cystoscopy

Management

Urinary incontinence is rarely due to a single cause especially in the elderly. The whole patient should be dealt with, paying attentions to search for any transient causes as discussed above and environmental causes (e.g. difficult toilet access). Some general advice to patients includes: be as active as possible, drink adequate amount of fluid to avoid irritant concentrated urine and constipation, bladder irritants such as tea, coffee, cola drinks and alcohol should be avoided, take more fibre to avoid constipation and weight reduction.

For genuine stress incontinence in women, pelvic floor exercises are most commonly employed and can be taught by continence nurse or physiotherapists. For women who are unable to contract adequately their pelvic floor muscles, vaginal cones, perineometer or electrical therapy may be used. Biofeedback improves the results of pelvic floor exercise. Oestrogens can be administered orally, parenterally or locally and may be useful adjunct therapy if there is associated atrophic vaginitis. Some devices also help like tampon, sponge, pessary and urethral plugs. If conservative treatment failed, one may consider surgical procedures. A number of different operations have been described including, anterior colporrhaphy with Kelly or Pacey buttressing sutures, Marshall-Marchetti-Krantz procedure, Burch colposuspension, endoscopic guided bladder neck suspension (Stamey, Pereyra, raz), sling procedures and perurethral injectables (e.g. collagen, microparticulate silicone).

In cases of detrusor instability, behavioural interventions are the cornerstone of therapy, including bladder retraining (for co-operative patients) and prompted voiding regimens (for cognitively impaired patients). These training regimens involve elements of patient education, baseline monitoring and then a programme of consciously delaying micturition on a graded pattern. Drugs augment behavioural intervention as they lessen detrusor overactivity by blocking parasympathetic transmission. Drugs with an anticholinergic action are generally effective and the one most commonly used is oxybutynin. Imipramine and propantheline are lesser used alternatives. Side effect of these drugs includes dry mouth, blurred vision, cardiac dysrhythmia and urinary retention. Desmopressin, an analogue of vasopressin, is used in the treatment of nocturnal enuresis. For refractory cases, very rarely, one may consider surgical options like Clam cystoplasty, phenol injection, bladder overdistension, bladder transection and selective sacral nerve stimulation.

Clean intermittent self-catheterisation (CISC) is now well established as a simple and effective treatment for bladder emptying problems leading to urinary retention (e.g. due to hypocontractile detrusor or spinal problems). For the technique to succeed, a post-micturition residual volume of more than 100 ml should be demonstrated. Also, the patient must understand the procedures of CISC and physically capable of performing the technique. Cholinergic drugs such as distigmine and bethanechol have a limited use in treatment of detrusor acontractility and hypocontractility.

Sometimes when all medical means fail, one may need to resort to continence aids and appliance. In the past, patients with intractable incontinence were commonly managed by urethral catheters. But considerable problems are associated with urethral catheters like infections, stone formation, blockade, bladder spasm and bypassing. Alternative methods of management with absorbent pads and garments are preferred.

個案分享-滿溢性失禁

陳秀娟姑娘　聯合醫院

七十五歲的夏老伯因感到全身疲倦、無力，需入院作詳細檢查。

夏老伯與妻子同住，除聽覺稍差外，一般日常活動均應付自如。

過往病歷 — 血壓高，長期按時覆診及服葯。八年前曾在港接受前列腺刮除術，但術後尿頻的情況無明顯的改善，反而在無感覺情況下會有小便失禁，遺小便量常，故需全日使用成人尿褲。

入院後，血的檢查除腎功能稍遜外其他均屬正常，直腸檢查發現前列腺脹大。小便檢驗正常，無發炎。

第二天，夏老伯感到排小便有困難及有血尿出現，故插入保留性導尿管及給予口服止血葯物，期間曾因血塊阻塞導尿管，故更換之。四天後，小便呈黃色，除去保留性導尿管，夏老伯能自行排小便，但仍有小便失禁情況，故套上小便鞘。夏老伯排尿量少及有腹脹出現，剩餘小便多至一千毫升，夏老伯需作前列腺刮除術。

脊髓麻醉下施行手術，一切順利，術後經過二天膀胱傴洗後，便除去導尿管。夏老伯能自行排一百毫升小便，但剩餘小便仍有八百毫升之多，需再度插入保留性導尿管，接駁腳袋，以方便活動及使夏老伯回家時較易接受。向夏老伯及其家人解釋現時仍需插導尿管之原因 — 膀胱過份膨脹，需要時間才能回復正常操作，指導回家後如何料理引流系統及安排社康護士作引流護理。

回家三星期後，由社康護士在家除去導尿管，觀察排尿情況及量度剩餘小便，夏老伯可自行排二百毫升小便，而剩餘小便只得五十六毫升，恭喜他，已成功地除去導尿管了！

夏老伯及其家人有點失望，除去導尿管後仍有小便失禁及尿頻情況，約一小時如廁一次及當有尿意時便有小便滲出不能阻止。

經過評估後便指導夏老伯如何施行骨盆底肌肉運動及作膀胱訓練。初期夏老伯有點懷疑運動的作用，經詳細解釋，他樂意接受此法。除運動外，每次有尿意時要盡量延遲小便時間，漸進地延至約二小時才如廁一次。

經過二個多月的努力，夏老伯可以約二至三小時如廁一次，排尿量約二百毫升，有尿意時也可忍十至十五分鐘。最令他開心的是他已結束了小便失禁的生涯，成人紙尿褲再見！

HONG KONG URODYNAMIC WORKSHOP

12-13 November 1999

Principal Instructor:

Dr. Paul Abrams
Secretary General, International Continence Society
Consultant, Bristol Institute of Urology

Faculty Members:

Prof. Yeung Chung Kwong, Chinese University of Hong Kong
Dr. Kwok Tin Fook, Urologist
Dr. Leung Man Fuk, Consultant Geriatrician, UCH
Dr. Yip Shing Kai, Department of Obstetrics& Gynaecology, CUHK
Dr. Cecilia Cheon, Department of Obstetrics & Gynaecology, QEH
Ms Chan Sau Kuen, Nurse Specialist (Continence Care), UCH

Venue:

Function Room, Salisbury YMCA, 41 Salisbury Road, Kowloon

Content:

Assessment of lower urinary tract function
Theoretical Aspect of Urondynamic Study
Standards & Measurements in Urodynamic Study
Basic Urodynamic Techniques
Application of Urodynamic Study in Different Diseases
Video Demonstration
Pitfalls in Urodynamic
Application of Urondynamics in Paediatric Patients
Case Discussions on Various Types of Urodynamic Study
Roles of Urondynamics in Determining Management of Incontinence

Award:

Certificate of Attendance will be issued to those who have attended the whole course

Enquiries:

For further information please phone 2379 4822

SHORT COURSE IN CONTINENCE CARE

15-16 November 1999

Speakers:

Ms Jannette Williams, Continence Nurse Consultant, Australia
Dr. Leung Man Fuk, Consultant Geriatrician, UCH
Dr. Kwok Tin Fook, Urologist
Dr. Yip Shing Kai, Department of Obstetrics& Gynaecology, CUHK
Dr. Cecilia Cheon, Department of Obstetrics & Gynaecology, QEH
Ms Chan Sau Kuen, Nurse Specialist (Continence Care), UCH
Ms Katherine Siu, Nurse Specialist (Continence Care), PMH
Ms Lee Wai Kuen, Nurse Specialist (Stoma Care), QMH
Ms Ip Kam Tin, Nurse Specialist (Geriatrics), KWH
Ms Maisy Wong, Physiotherapist, KWH
Ms Grace Yuen, Occupational Therapist, RH & TSKH

Venue:

Function Room, Salisbury YMCA, 41 Salisbury Road, Kowloon

Content:

Anatomy & Physiology of Urinary System
Types of Incontinence
Impact of Incontinence, Epidemiology of Incontinence
Overview of Surgical Management in Incontinence
Management of Stress Incontinence
Pelvic Floor Exercise & Electrical Stimulation
Aids & Appliance for Incontinence Patients
Catheter Care & Intermittent Self Catheterization
Faecal Incontinence & Nursing Management of Incontinence
Developing Continence Care

Award:

Certificate of Attendance will be issued to those who have attended the whole course

Enquiries:

For further information please phone 2379 4822

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