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EDITORIAL

LIVE SURGICAL DEMONSTRATION IN UROLOGY

Most doctors and educationist agree that students and trainee surgeons should be exposed to as many relevant learning experiences as possible. Observing recognized urological experts works provide excellent exposure to surgical techniques. Most major urological meetings include live interactive surgery from recognized experts broadcasting to a packed auditorium. There are serious concerns regarding patient's safety, consent and privacy that need to be addressed. Operations might take long sessions due to interactive discussion and procedure might be delayed. The focus of the surgeons might be split between patients and audience. Visiting Surgeons may be affected by stress, fatigue and jet lag which could have a impact on their motor skills.

Advantages include educating a large group, peer review by experts and a exchange of ideas. Regarding the patients, potential candidates should be relatively fit with straight forward pathology.

All academic centers for live operative surgery should have drafted guidelines which should address both technical and ethical issues related to live surgical telecast. It has been observed that patients undergoing live surgical procedures may have higher complications and prolonged anesthesia. The implication specific to transmission should be detailed including limitation resulting from interruption and the presence of more people in OT.

The potential limits of broadcast must be classified as to the circumstances, when transmission will be stopped i.e. open conversion. Many believe there is little benefit of live surgery over edited video recording. Weighing of the risk benefits and proper guidelines need to be drafted in future.

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FRACTURE PENIS: REPORT OF 31 CASES

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Abstract

Purpose: *To evaluate the presentation and surgical management of fracture penis.*

Materials and Methods: *Between January 2005 and July 2008, 31 patients 19 to 42 years old (mean age 28), were evaluated after blunt trauma to the erect penis. Patients were diagnosed by history and physical examination. All patients were treated surgically. The surgical technique for correction of penile fracture and associated urethral injuries consists of penile degloving through subcoronal incision, with debridement and repair of the albuginea of the corpora cavernosa. Urethral lesion was primarily corrected with interrupted suture over a Foley catheter. The patients were followed up after 6 months of the traumatic event. The patients were clinically evaluated for the presence of erectile dysfunction based on the international sexual dysfunction index and penile deformity.*

Results: *Surgical exploration revealed corporeal rupture bilaterally in 2 cases (6.4%), right corpus cavernosum in 17 patients (54.84%) and left corpus in 12 (38.7%). There was also urethral injury in 1 case (3.2%). The site of tunical tear was in the proximal shaft of the penis in 10 patients (32.2%), in the mid of the shaft in 17 patients (53.1%), and distal part in 5 patients (16.1%). The rupture ranged from 0.5 to 3.2 cm. (mean 1.8 cm). Out of 31 patients 27 completed follow up. Each reported erection adequate for intercourse associated mild pain in 2 cases. Only 3 patients (9.6%) stated that they had mild curvature. However, they did not seek intervention to treat the curvature.*

Conclusions: *Penile fracture is a urological emergency that is best treated with immediate surgical exploration and repair. Preoperative imaging evaluation is not mandatory to make diagnosis. If a concomitant urethral injury has been identified it must be repaired over a Foley catheter.*

Key Words: Penis, urethra, fracture, trauma

Introduction

Penile fracture is an unusual urological emergency that is not always reported. It is defined as a rupture of the corpus cavernosum caused by blunt trauma to an erect penis. Injuries to a flaccid penis or in the suspensory ligament of the penis are not included in this definition.[1,2] The penis in human beings is entirely soft tissue and is not subject to fracture in the usual sense of the word.[3] The tunica albuginea has high tensile strength, requiring a pressure in excess of 1500 mm Hg to achieve rupture.[4] Rupture occurs because the tissue thickness of the tunica albunginea, which is thinner during erection, is overwhelmed by the sudden increase in intracorporeal pressure.[5–7] More commonly, only one side is involved, but both corpora may be injured. In 20%-30% of the cases, the tear may extend into the corpus spongiosum, and in the urethra in 10%-20% (either partial or complete).[8]

The most common etiology is vaginal intercourse but it may occur after manipulation, rolling over onto an erect penis or any type of blunt trauma affecting the tumescent shaft. [6,9] Patients typically present with complaints of a classic snapping or popping sound, sharp penile pain, rapid detumescence and swelling with or without ecchymosis of the penile shaft after blunt trauma to the erect penis. Sometimes a palpable defect in the tunica is present. [7,9]

Initial reports of treatment for penile fracture involved conservative approach.[5-7,10-17] However, the long-term results of conservative management indicated significant complications.[5,6,12-15] However, most recent studies advocate the immediate repair of penile fracture. These reports show excellent initial and long-term results, including a decrease in the complications associated with conservative management as well as decreased hospital stay.[16-23] We report on 31 patients with penile fracture treated surgically.

Patients and Methods

Between January 2005 and July 2008, 31 patients of 19 to 42 years old (mean age 28) at presentation were evaluated after blunt trauma to the erect penis. The interval from injury to presentation was between 12 hours and 5 days. Of these 31 patients, 28 had been injured during sexual intercourse, 2 during masturbation

and one during rolling over onto an erect penis. Each patient complained of hearing a cracking or popping sound, followed by rapid detumescence, sharp pain and penile swelling. One patient complained of gross hematuria.

Physical examination demonstrated penile swelling and various degrees of ecchymosis limited to the penile shaft. While most patients had significant tenderness on palpation of the penile shaft, we usually did not identify a discrete rupture site due to significant hematoma.

All patients were treated surgically. The surgical technique for correction of penile fracture and associated urethral injuries consists of penile degloving through subcoronal incision, with debridement and repair of the albuginea of the corpora cavernosa with interrupted polyglactin 4-0 sutures. Urethral lesion was primarily corrected with interrupted polyglactin 5-0 suture over a Foley catheter.

The patients were followed up after 6 months of the traumatic event. The patients were clinically evaluated for the presence of erectile dysfunction based on the international sexual dysfunction index and penile deformity.

Results

Surgical exploration revealed corporeal rupture bilaterally in 2 cases (6.4%), right corpus cavernosum in 17 patients (54.84%) and left corpus in 12 (38.7%). There was also urethral injury in 1 case (3.2%). The site of tunical tear was in the proximal shaft of the penis in 10 patients (32.2%), in the mid of the shaft in 17 patients (53.1%), and in distal part in 5 patients (16.1%). The rupture ranged from 0.5 to 3.2 cm. (mean 1.8 cm). There were no significant intraoperative or immediate postoperative complications except mild infection in 3 cases managed conservatively, and most patients were discharged home 5 days postoperatively (mean 4.8 days, range 3 to 7 days). Delay in surgery until the next morning did not result in any difficulty in dissection or postoperative course. Out of 31 patients 27 completed follow up. Each reported erection adequate for intercourse, associated mild pain in 2 cases. Only 3 patients (9.6%) stated that they had mild curvature. However, they did not seek intervention to treat the curvature.

Characteristics of penile fracture in 31 patients

	No. of patients (%)
Cause	
Sexual intercourse	28 (90.3%)
Masturbation	2 (6.4%)
Rolling over onto an erect penis	1 (3.2%)
Corpus involved	
Both	2 (6.4%)
Right	17 (54.84%)
Left	12 (38.7%)
Site of injury	
Proximal third	10 (32.2%)
Middle third	17 (53.1%)
Distal third	5 (16.1%)
Complications	
Penile curvature	3 (9.6%)
Pain during coitus	2 (6.4%)
Infection	3 (9.6%)

Discussion

The penis is protected by evolutionary defenses of the position and mobility but the erect penis is injury prone especially to marked short-term intracavernous pressure increases, which exceed the tunica albuginea tensile strength (defined as the maximum force per unit cross-sectional area required to rupture the tunica) during acute, abrupt loading of the erect penis. In the flaccid state the tunica albuginea is 2 mm. thick whereas during erection it is only 0.5 to 0.25 mm. The classical pathological injury to the erect penis is tunical rupture.[24]

Until 1998 only 250 cases of penile fracture were reported in the literature.[6] The most common cause was vaginal intercourse.[11] Other reported causes are accidental.[10] or self-inflicted. In our series vaginal intercourse is the leading cause. The diagnosis of penile fracture is usually based on typical clinical features and associated history. While many patients underwent radiographic assessment to confirm the diagnosis of penile fracture, we relied on clinical examination alone and confirmed our findings at surgery. Similarly others have relied on the clinical diagnosis alone with corporeal disruption only confirmed at exploration.[9,16,18]

Some authors report that the distal third of the penile shaft is most often involved, which is in sharp contrast to the present experience as most cases were mid penile

in location due to the mechanism of fracture. The frequency of urethral injuries ranges from 0% to 3% in the Persian Gulf and Japan to 20% to 38% in the United States and Europe.[26] This difference could be explained by the fact that most of the cases from the former regions were caused by a relatively weak force of manipulation. The 3.2% incidence of concomitant urethral injury in this review is in accordance with that reported from the Persian Gulf and Japan.

Whether urethrography is necessary for penile fracture remains controversial. Although some recommend urethrography for all patients before repair,[27] it was not performed in the cases reviewed and there were no missed cases of urethral abscess, fistula, or other urethral complication. However, urethral injuries could be missed by false-negative urethrogram due to a large overlying masking hematoma.[25] Close attention to signs and symptoms can eliminate the need for urethrography in the majority of cases.

Previously there has been debate about whether to use immediate surgical exploration and repair, or proceed with conservative management, which included cold compresses, anti-inflammatory agents, instructions to abstain from sexual intercourse, and antiandrogens or sedatives to suppress erections. However, the current standard of care is immediate surgical repair, due to the decreased incidence of subsequent morbidity. Immediate surgical exploration and repair results in > 90% of patients having normal sexual intercourse after surgery.[28]

The circumferential degloving incision allowed careful and complete evaluation of the urethra and corpora so that cavernosography, with its frequent false-negative and false-positive results, and attendant risk of contrast reaction and cavernous fibrosis from extravasated contrast medium, was not required. Penile fracture is a diagnosis based on clinical presentation. The typical history and physical findings rarely warrant further radiographic studies, such as sonography, with its false negative results and operator dependency and magnetic resonance imaging which is expensive.

Conclusions

In conclusion, penile fracture is a urological emergency that is best treated with immediate surgical exploration and repair. Preoperative imaging evaluation is not mandatory to make the diagnosis. A subcoronal circumcising incision is recommended to deglove the entire penile shaft and have complete access to all three corporal bodies. If a concomitant urethral injury has been identified it must be repaired over a Foley catheter.

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TENSION FREE VAGINAL TAPE (TVT) FOR SURGICAL TREATMENT OF STRESS URINARY INCONTINENCE: SHORT - TERM RESULTS

MS ISLAM[1], MW ISLAM[2], NN AVA[3], MA SALAM[4]

Abstract:

Purpose: *To assess the clinical outcome of tension free vaginal tape (TVT) procedure for female stress urinary incontinence.*

Materials and Methods: *A retrospective study conducted in the department of urology, BSMMU and a private institute at Dhaka from April 2005 to December 2008. Thirty five women with genuine stress incontinence (GSI) were selected for the study. After surgery patients were followed up to evaluate the outcome at 6 months. Out of 35 patients 3 failed to attened the follow up. Finally 32 patients were eligible for this study.*

Results: *Mean operation time was 32 minutes and mean hospital stay was 3.4 days. Twenty seven (84.37%) patients found dry at follow up, one patient improved and operation failed in 4 cases. Bladder perforation occurred in 2 cases and urethral injury in one case which was managed conservatively. Two patients develop obstructive voiding symptoms with post voidal urine volume (PVR) more than 200 ml managed by division of tape and urethrolysis. The TVT procedure has a high short-term follow up cure rate with minimal complication.*

Conclusions: *The TVT procedure has a high short-term follow up cure rate. The surgery is easily and rapidly performed. There are associated complications but correction of these complications appears more simple and effective. Based on our short-term results we recommend that the TVT procedure is safe, effective and enduring treatment of female stress urinary incontinence.*

Key words: *Urinary incontinence, stress, tension free vaginal tape.*

Introduction

Urinary incontinence (UI) is common in females. The incidence of female UI is 14-41%[1], and the incidence increases with aging.[2,3] Stress urinary incontinence (SUI) accounts for over 80% of female urinary incontinence and consists of involuntary leakage of urine with effort, exertion, sneezing, coughing, laughing, exercising, or any maneuver that causes increased intra-abdominal pressure.[4,5] Surgery is one of the most effective treatment for SUI. A wide variety of surgical procedures has been developed and described in the literature for SUI in women.[6-8] Recent reports document that based on a new understanding of the pathophysiology of SUI and the development of surgical techniques and devices mid urethral sling operations such as tension-free vaginal tape (TVT) procedure have become widely used and they provide significant short-term and long-term cure rates.[9-13] The TVT procedure, which was first described in 1996 by Ulmsten and Petros, is a modified suburethral sling procedure for treating female stress urinary incontinence (SUI) based on the integral theory.[14] A few studies carried out in Bangladesh regarding the efficacy of TVT. Therefore, we evaluated the short-term results of the TVT procedure for the treatment of female urinary incontinence.

Patients and Methods

All women undergoing surgery for stress urinary incontinence in the department of urology, BSMMU and a private institute at Dhaka from April 2005 to December 2008 were included in the present study. Among 35 women, 3 patients lost to follow up. A total of 32 were eligible in this retrospective study. The women's mean age was 53.4 years (range, 42-61 years). All patients underwent a standard preoperative evaluation consisting of history, physical and gynecologic examinations, urine culture, urodynamic studies, voiding cystourethrogram evaluating urethral mobility. The inclusion criteria were the presence of genuine stress urinary incontinence and written informed consent. The exclusion criteria were a maximal urethral closure pressure of 20 cm H_2O or less, detrusor instability, lower urinary tract infection, neurologic or psychiatric problems, and malignant tumor. Follow-up evaluation was done at 6 months postoperatively. During follow-up visit, the women underwent the cough stress test and investigated for maximum flow rate and post voidal residual volume of urine (PVR).

Results

From April 2005 to December 2008 thirty five patients underwent TVT. All 35 patients had stress urinary

incontinence associated with urethral hypermobility. A total of 32 patient completed follow up and were eligible in this retrospective study. Mean operation time was 32 minutes (range 20 to 40). Blood loss was minimal (less than 150 cc). Mean postoperative hospital stay was 3.4 days (range 2 to 8). Postoperatively 27 women (84.37%) were dry and remained dry throughout follow up. During the procedure bladder perforated in two (6.25%) cases, managed conservatively by keeping catheter in situ for one week. Urethral injury was identified in one case managed conservatively as bladder injury. No transfusions were required. No damage to nerves, or vessels occurred during surgery. In all patients, the catheter was removed 48 hours postoperatively. After two spontaneous micturitions, 3 patients had a post void residual urine volume greater than 100 mL. These 3 patients required intermittent catheterization for 3 more days. All patients had a follow-up examination 6 months after surgery: Twenty seven women (84.37%) were considered cured (no persistent urinary stress incontinence when questioned, negative cough stress test and pad test findings), 3 complained of dyspareunia, 1 (3.12%) was improved, and in 4 (12.5%), the treatment had failed. Two patients developed obstructive voiding symptoms with PVR more than 200ml undergone division of tape and urethrolysis. No tape infection occurred. None of the patients developed fistula. In one case, vaginal erosion developed that was managed conservatively with observation and resulted in complete spontaneous healing.

Table I
Preoperative characteristics of patients who underwent TVT

Mean Age	53.4
Mean Parity (times)	02.5
No. menopause (%) 19 (31.7)	11 (34.37)
No. previous surgery (%):	1 (3.12)
Pelvic	1 (3.12)
Incontinence	-
Mean Preop clinical parameters:	
Symptom duration (yrs)	7.5
SUI grade (range 1–3)	1.7
Mean Preop urodynamic parameters:	
MFR (ml/sec)	24.9
PVR (ml)	8.6
Abdominal leak point pressure (cm H2O)	93.4

Table-II
Complications after TVT procedure

	No. (%)
Bladder perforation	2 (6.25)
Urethral injury	1 (3.12)
Urinary tract infection	1 (3.12)
Short-term voiding difficulties	3 (9.37)
(indwelling catheter for 3–7 days)	
Obstructed urethra requiring urethrolysis	2 (6.25)
Dyspareunia	3 (9.37)
Vaginal erosion	1 (3.12)

Table-III
Clinical outcome of patients treated with TVT

Objective cure rates	No. (%)
Cure	27(84.37)
Improvement	1(3.13)
Failure	4(12.5)
Satisfaction	
Satisfied	27(84.37)
Fair	5(15.63)

Table-IV
Postoperative urodynamic parameters

Mean MFR (ml/sec)	22.6
Mean PVR (ml)	11.4

Discussion

The tension-free mid-urethral sling procedure, the gold standard of treatment for female SUI, is based on the integral theory proposed by Petros and Ulmsten in 1993.[10] The TVT procedure, introduced by Ulmsten et al in 1996, has spread worldwide as the first-generation sling procedure, and it is still the most universally used owing to its high efficacy and safety.[9,15]

Several studies showed high success rates during short-term and mid term follow up after TVT treatment.[9,16] Although the initial promising results of other minimally invasive anti-incontinence surgery, eg collagen injection therapy, needle suspension and 4-corner bone anchoring, have shown rapidly decreasing cure rates with time a

long-term follow up study of the TVT procedure takes on greater importance in establishing its safety, efficacy and durability.[17-19] In a series of Shah et al 81.63% of the patients were dry after undergoing a procedure with a broad based, tension-free synthetic sling.[20] In the series of Nilsson et al 84.7% of the patients were cured after the TVT procedure.[21] Our data confirm the high success rate of 84.37% during a minimal follow up of 6 months. Our success rate is comparable to that reported by other studies.[20,21] We recorded bladder injuries in 2 of our patients (6.25%). These findings were not associated with previous pelvic surgery. According to the literature bladder perforation is the most common complication of TVT, occurring in up to14% of cases.[22] In our series catheter drainage for a week was sufficient for complete bladder healing.

Several reports of tape erosion into the urethra, bladder or vagina, and of urethral obstruction have recently appeared.[23-26] For vaginal erosion, which is uncommon, we suggest that some possible reasons are wound infection, impaired wound healing and foreign body rejection. Vaginal erosion may also result from technical reasons, such as vaginal wall dissection in the wrong plane, inadequate dissection (causing the tape covered vaginal wall to be thin, avascular and stretched) and inadequate vaginal incision suturing. As for urethral obstruction, we suggest that except for a technical error (ie nontension-free performance of the procedure) cephalad migration of the tape probably occurs during postural change from the supine to the erect position. The additional tension applied on the tape when this test shows significant leakage may contribute to postoperative obstruction.

The intraoperative cough test, not done in some series to avoid this unwanted effect as described by Ulmsten1 and Nilsson et al.[21] In our opinion the tape should be placed loosely beneath the urethra. In our series urethral obstruction 2 (6.25%) managed effectively by division of tape and urethrolysis. Petrou et al[27] reported about 65% of women with urinary retention voided well after suprameatal transvaginal urethrolysis and in the series of Cross et al[28] 85% of patients achieved efficient voiding after transvaginal urethrolysis. The limitations of the current study are its retrospective nature and the lack of some preoperative data and small number of cases. However, it may be that these data may not be important when considering the treatment of an individual because of the universal application of distal urethral supports for all grades of GSUI.

Conclusions

The TVT procedure has a high short-term follow up cure rate. The surgery is easily and rapidly performed. There are associated intraoperative and postoperative complications but correction of these complications appears more simple and effective than corrections after other types of anti incontinence surgery. Based on our short-term results we recommend the TVT procedure for safe, effective and enduring treatment of female stress urinary incontinence but long-term follow up study should be done to confirm this efficacy.

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CASE REPORT

URETEROURETERAL REFLUX (YO-YO REFLUX) IN INCOMPLETE URETERAL DUPLICATION: TWO CASE REPORTS

AU SHAIKH[1], W ZAMAN[2]

Abstract

In case of incomplete ureteral duplication where the ureters join to form a single stem at a variable distance above the bladder, may cause ureteroureteral reflux (also known as Yo-Yo reflux). We report two cases of incomplete ureteral duplication in which we performed ureteropyelostomy in one case and pyelopyelostomy in another case. Both cases patients had intractable urinary tract infection and flank pain. Both the patients were symptom free during follow up.

Key words: *Ureteroureteral reflux, incomplete ureteral duplication, recurrent urinary tract infection*

Introduction

Most common congenital abnormality of the upper urinary tract is duplication of the renal collecting system[1,2]. It seems to occur in 0.75 % of the general population and in 2 to 4 % of children undergoing excretory urography.[3] The incomplete form, where the two ureters join to form a single stem at a variable distance above the bladder, is twice more common.[4]

Case reports

A 21- years old male was referred to our hospital with a history of recurrent urinary tract infection and occasional flank pain. Urine routine microscopy showed plenty of pus cells and culture revealed growth of E.coli. He was treated according to sensitivity. Intravenous urography revealed left duplex collecting system with ureter joining at the level of the fifth lumbar vertebra; there was marked dilatation of both upper and lower ureteral moieties and pyelocaliectasis. Right kidney revealed normal excretion (Figure 1).

Voiding cystourethrogram showed no vesicoureteric reflux. Cystoscopy revealed apparently normal ureteral orifices and retrograde pyelography determined incomplete ureteral duplication with marked pyelocaliectasis on left side and showing Yo- Yo reflux on continous fluroscopy.

Left flank incision was given and through retroperitoneal approach kidney was dissected. Pelvis was intrarenal. The two proximal left ureters were dissected upwards

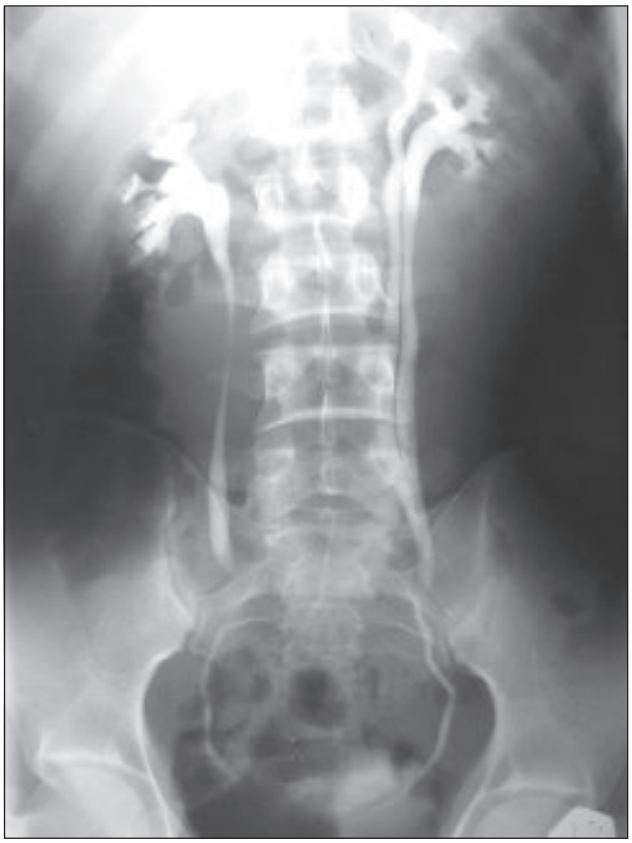

Fig.-1:*Intravenous urography showing incomplete duplication of left ureter and there is a marked dilatation of both ureteral moieties and pyelocaliectasis .*

to the kidney. Lower moiety ureter was preserved and the upper moiety one was resected. A ureteropyelostomy was performed between the remaining part of the upper ureteral moiety and pelvis near PUJ. The defect at the bifurcation was repaired in the way not to develop a ureteral stricture. There was no postoperative problem. An intravenous urography (IVU) performed at the third month after operation showed normal drainage (Figure 2). The patient was free of symptoms and urinary tract infection for more than two years during follow up.

Another 20 years lady was presented with right flank pain off and on for one year with a history of urinary tract infection three times during this period. IVU revealed right hydronephrosis of both segments of right duplex kidney with bifid dilated ureters joining at 5th lumbar

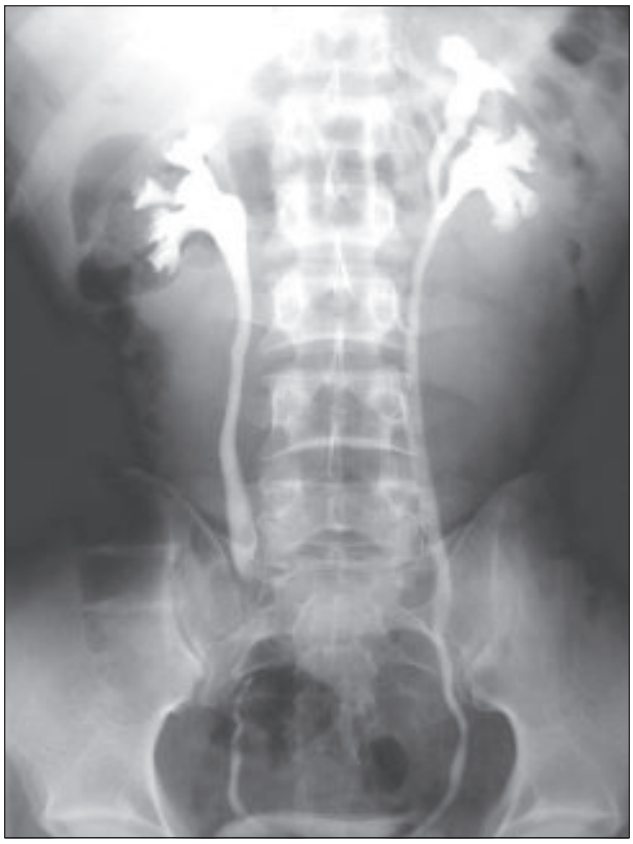

Fig.-2: *Intravenous urography performed at the three month after the operation showing normal drainage.*

vertebra level. Left kidney and ureter was normal. No VUR noted on RGU and MCU. During RGP, continuous fluoroscopy revealed 'yo-yo' reflux between two halves of kidney. Open pyelopyelostomy done through right extraperitoneal flank approach. IVU after 3 months of operation showed normal draining system. She was asymptomatic during follow up for 18 months.

Discussion

Incomplete ureteral duplication is a comparatively common congenital abnormality. But in great majority of patients, it remains asymptomatic and diagnosed incidentally on IVU, performed for other reasons.[1]

Ureteropelvic junction obstruction is the commonest affliction with this entity; however ureteroureteral reflux can also rarely occur. When two ureters exist, it is logical that there may be some abnormal urodynamic features. Two contraction waves originated from two pelvicalyceal systems will spread down through each ureter. Thus, if the peristaltic waves are faced with a resistance at the confluence, they may pass up the other ureter easier than to pass common ureter below. Presence of abnormal junctional angle, mucosal folds and stricture can be other causative factors.[1]

Patients usually present with flank pain. Recurrent urinary tract infection is very rare as lower ureter and ureterovesical junction are anatomically normal.[2] Classically the entity of Yo- Yo reflux is diagnosed by radionucleide imaging (O'reilly) and management consist of pyeloureteral anastomosis. Anastomosis can be also done between two moieties of pelvis (pyelopyelostomy). In order to solve the problem of ureteroureteral reflux, main principle is to convert the duplex system to a single one. Higher and wider the anastomosis , better the outcome.[4] Clues to diagnose in our case were recurrent flank pain despite adequate treatment, dilatation of pelvicalyceal system and both moieties, normal caliber of lower ureter and visible Yo- Yo reflux on continous fluoroscopy.[3] In patients with this anomaly and recurrent UTI, Yo- Yo reflux should be kept in mind and patient should be investigated by radionuclide or retrograde pyelography under fluoroscopy. We managed two cases successfully by performing ureteropyelostomy in one case and pyelopyelostomy in the second case.We recommend a simultaneous ureteroplasty to widen the ureteral bifurcation. Both patients were well with 2 years follow up. Pyelopyelostomy can be done even through laparoscopic retroperitoneal approach.[5,6]

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POSTERIOR URETHRAL VALVES: FULGURATION AND RESULTS

MD. NASIR UDDIN[1], AKM ZAMANUL ISLAM BHUIYAN[2], KAZI RAFIQUL ABEDIN[3], KAZI ZIKRUR RAZZAQUE[4]

Abstract

Obstructive uropathy that takes to the renal failure with more frequency in paediatric age is secondary to posterior urethral valve. Recent advance in endoscopy has altered the management and outcome of the patients.

Materials and methods: *This retrospective study was conducted at National Institute of Kidney Diseases and Urology, Dhaka from July 2005 to December 2009. Total 48 patients were selected for this study among them most were less than 1 year of age and 13 patients (27.08%) had associated vesicoureteric reflux. Most of the patients were presented with dribbling of urine and some were with repeated urinary tract infection and renal failure. Diagnosis was confirmed by Micturating cystourethrogram and Urethrocystoscopy.*

Results: *All the patients were managed by endoscopic fulguration. In most of cases fulguration was primary but in some cases after supportive treatment. Outcome was satisfactory in all cases except one patient 1 (2.08%) developed stricture urethra and 4 patients (8.4%) developed end stage renal diseases. After fulguration 13 patients (27.08%) showed to have associated bladder dysfunction and 4 patients (8.4%) required antireflux surgery. Followup period was 36 months varying between 3 to 48 months.*

Conclusion: *Early and adequate valve fulguration provides the better outcome of posterior urethral valve.*

Key word*: Posterior urethral valve, Endoscopic fulguration, Bladder dysfunction*

Introduction:

Posterior urethral valve is one of the major common devastating, congenital obstructive urethral lesions in male infants and newborns. These valves are mucosal fold and usually result in lifelong disabilities with urinary incontinence and decreased renal function despite optimal medical management. They may cause varying degree of obstruction when the patients attempts to void. Patients with severe degree of obstruction can present with distended bladder, hydronephrosis and even renal failure. This can also be diagnosed in utero during antenatal checkup by Sonologist.

Posterior urethral valve occur in 1 in 8,000 to 25,000 live births and make up 10% of urinary obstruction diagnosed in utero[1]. The diagnosis has been made on average 1 in 1250 fetal ultrasound screenings [2]. Posterior urethral valves sometimes associated with other congenital anomalies like pulmonary hypoplasia, vesicoureteric reflux, and cryptorchidism. Hoover and Duckett showed 13% of valve patients associated with vesicoureteric reflux, among them 92% on left side[3]. Most of them resolved spontaneously, 35% of them that failed to cease required antireflux surgery [4]. Children presented with mild, moderate or severe symptoms of obstruction depending on age of presentation and types of valves. They ranged from life threatening renal conditions in newborns to minor voiding dysfunction in older children like poor, intermittent dribbling urinary stream. Sometimes recurrent urinary tract infection and failure to thrive may be only feature.

Materials and Methods:

Total 48 patients were enrolled for this study at NIKDU from July 2005 to December 2009. Patients were evaluated with Urine RME and culture to exclude infection, S. creatinine to see renal functional status, CBC to detect anemia, creatinine clearance to see the extent of renal failure. USG were done to see post void residue, hydronephrosis, hydroureter and also helpful for prenatal diagnosis.IVU showed hydronephrosis and hydroureter in long standing cases. Diagnosis was established by Micturating Cysto Urethrogram (MCU) which showed elongated and dilated posterior urethra with large PVR and vesicoureteric reflux. Urethrocystoscopy confirmed the diagnosis by visual identification and supravesical compressions shows that the valves cause obstruction. Urodynamic study was required to exclude any neuropathic component. Nuclear renal scan sometimes required to evaluate persistent hydroureteronephrosis.

Initially all patients were managed with urethral catheterization for drainage of urinary bladder. Healthy,

uninfected patients managed with endoscopic fulguration that was done by Bugbee's electrode or a pediatric resectoscope with hook in retrograde fashion. If the patients were so small for safe instrumentation or very ill then cutaneous vesicostomy performed as a temporary measure, later on these patients managed with fulguration when patients became older and healthy. Patients with urosepsis, hydronephrosis and renal failure were managed with antibiotics, and correction of fluid and electrolyte imbalance. Fulguration done when patients were stable. Patients with severe hydronephrosis initially managed by cutaneous pyelostomy or loop ureterostomy followed by valve destruction later on when patients condition permit. After fulguration of valve in most of the cases associated vesicoureteric reflux improved spontaneously. Antireflux surgery required later on where it was persisted. Patients followed regularly at three months interval in 1st year, half yearly in 2nd year, then yearly to predict result of fulguration, complication and monitor renal function.

Results:

This retrospective study was conducted at National Institute of Kidney Diseases and Urology, Dhaka from July 2005 to December 2009.Total 48 patients were enrolled for this study where the patients were diagnosed at different age. Among them 13(27.08%) patients were less than 1 month, 21(43.75%) patients less than 1 year and 14(29.16%) patients more than 1 years with mean age 1.5years (Table-I).13 (27.08%) patients were associated with vesicoureteric reflux, among them bilateral involvement were in 8 cases and unilateral left side involvement in 5 cases.3 (6.25%) patients were associated with right side undescended testis and inguinal hernia.

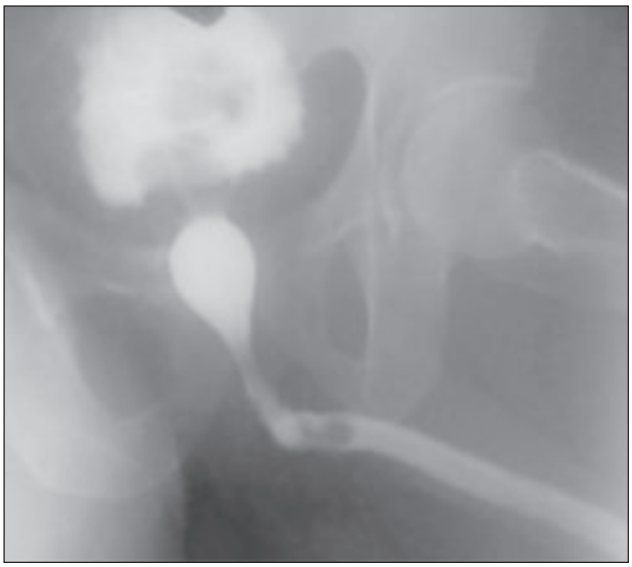

Fig.-1: *MCU showed PUV*

Table-I
Age of Diagnosis

<1 month	13(27.08%)
<1 year	21(43.75%)
> 1 year	14(29.16%)

Most of the patients were presented with symptoms but 11 with repeated urinary tract infection and 6 patients with renal failure.

21(43.7%) patients initially treated with fulguration. 13(27.08%) patients were so small to negotiate endoscopic instruments that they were treated initially with cutaneous vesicostomy followed by endoscopic fulguration when child become larger one. 6(12.5%) patients with urosepsis initially treated with indwelling urethral catheterization and infection was controlled by sensitive antibiotics followed by fulguration. 8(16.66%) patients with hydroureteronephrosis and renal failure initially treated with urethral catheterization with correction of fluid and electrolyte imbalance. Among them 1 patient underwent loop ureterostomy, 2 patients cutaneous pyelostomy where renal failure were not improved with urethral indwelling catheterization. Then all 6 patients underwent fulguration. (Table-II).

Table-II
Treatment

Initial fulguration	21 (43.7%)
Vesicostomy then fulguration	13 (27.08%)
Urosepsis control then fulguration	6(12.5%)
Renal failure treatment then fulguration	5(10.41%)
Loop ureterostomy then fulguration	1(2.01%)
Cuteneous pyelostomy then fulguration	2(4.16%)

After operation 1 patient (2.08%) developed stricture urethra, and 4 patients (8.4%) developed end stage renal disease (Table-III). 13 patients (27.03%) showed bladder dysfunction and 4 patients (8.4%) required antireflux surgery.

Table-III
Complication of disease and fulguration

Bladder dysfunction	13(27.08%)
Stricture urethra	1(2.08%)
ESRD	4 (8.33%)

Discussion:

Obstructive uropathy that takes to the renal failure with more frequency in pediatric age is secondary to posterior urethral valves. The management has changed in important form in last few years that leads to better outcome of the patients with good quality of life. Prenatal diagnosis has improved the opportune detection of these patients. Appropriate treatment of patients with PUV, resides in a series of requirements that include: 1. opportune diagnosis, of being possible prenatal 2. Use of fine endourologic equipment 3. Patient's categorization for group's presage that allows to values the functional renal evolutions and therapeutic result. 4. Study of dynamics vesical function [5].

We retrospectively reviewed 48 patients that underwent endoscopic posterior urethral valve fulguration. 31 (64.58%) patients were presented with dribbling of urine and failure of thrive. 17(35.41%) patients presented with repeated urinary infection and renal failure. In our series 34(70.83%) patients were presented less than 1 year. Diagnosis was confirmed with Micturating Cystourethrogram and Urethrocystoscopy.21 (43.7%) patients was treated primarily with valve fulguration except some too small patients and severe hydroureteronephrosis with renal failure where treated initially with high diversion followed by fulguration when the patients become larger and stable. All the patients were followed regularly with history, physical examination and necessary investigations. Average length of followup was 36 months varying between 3 months to 48 months. 3 patients were lost from followup, 2 from 6 months and 1 from 1 year of followup.

In our series most of the patients showed satisfactory micturation and good quality of life after fulguration. 13 patients (27.035%) after fulguration showed frequency of micturation and occasional incontinence. They were evaluated with urodynamic study and showed bladder dysfunction ranging from instability to myogenic failure and managed accordingly. Bladder dysfunction commonly founded when diagnosis was late and or delayed treatment, may be due to long term outflow obstruction. This result was nearer to study conducted by Warren J, Pike JG et al [6]. The patients those underwent high diversion before ablation showed less bladder compliance then other patients. After operation 1 patients showed stricture urethra at 6th months of followup and managed with optical internal urethrotomy.Among 8 patients (16.6%) of renal failure, after fulguration 4 patients (8.4%) improved renal function and rest 4 patients (8.4%) developed end stage renal diseases and required dialysis. This result was similar to study conducted by Warren J, Pike JG et al [6]. 1 patient died at 1 year of followup from complication of renal failure. Among 21 patients with vesicoureteric reflux, most of them resolved spontaneously but 4 patients (19.04%) required antireflux surgery, in 3 cases on bilateral and in 1 cases unilateral site. This result was similar to study conducted by Hoover and Duckett [3].Early age of diagnosis with early adequate treatment provide good result and patient with renal failure, VUR and bladder dysfunction provide poor prognosis. Primary valve ablation remains the gold standard treatment of PUV, with vesicostomy reserved for selected cases. Long term bladder and renal dysfunction is common in this group and 30% still develop renal insufficiency even after fulguration [7]. So this disease mandates long term urological and nephrological followup[8].

Conclusion:

PUV patients will be individualized and alleviating obstruction promptly to prevent renal failures that have some of these patients.

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ORIGINAL ARTICLES

COMPARISON OF OUTCOME OF URETEROSCOPIC LITHOTRIPSY WITH AND WITHOUT STENTS FOR THE MANAGEMENT OF DISTAL URETERIC STONE

MSA CHOWDHURY[1], AZMZ HOSSAIN[2]

Abstract

Insertion of a ureteral stent is routinely done after ureteroscopic lithotripsy. Recently, several authors have questioned routine stenting after ureteroscopy for distal ureteral stones. We report our results comparing ureteroscopy with and without placement of stents for distal ureteral stones. In this prospective comparative study,.60 patients were selected.,30 of them were stented and rest 30 were non-stented. Patients was followed up at immediate post operative period, 3rd weeks (1st visit) and 3rd months (2nd visit). Patients were assessed for stone clearance,operative time,and stent related symptoms(haematuria, flank pain, lower abdominal pain, irritative bladder symptoms, stent migration),hospital stay and risk of ureteral stricture formation. Baseline variables were not significantly different in two groups.The variables chosen to measure the outcome were haematuria, flank pain, lower abdominal pain, irritative bladder symptoms and hospital stay. All but lower abdominal pain responded significantly well in stented group .Mean operative time was much higher in stented group. These entire outcomes suggest that non-stented ureteroscopic lithotripsy is a better option than stented ureteroscopic lithotripsy for the management of uncomplicated distal ureteric stone by using ureteroscope.

Introduction

Distal ureteral calculi are a common urological problem often requiring surgical intervention.Ureteroscopy with or without the use of lithotrite for stone fragmentation is the preferred endourological treatment of distal ureteral calculi[1]. Recently our interest is on how to decrease the morbidity of ureteroscopic lithotripsy further while maintaining efficacy. To date, the standard of care has been to place a ureteral stent at the end of ureteroscopic lithotripsy.

Stent use is thought to minimize post operative complications, including flank pain secondary to ureteral edema, ureteral stricture development and possibly aid with the passage of small stone fragments[1]. Stenting may promote ureteral healing[5].

However, the ureteral stent itself causes morbidity, including bladder irritation, loin pain, haematuria, infection, Pyelonephritis, encrustation, breakage and even stent migration, that requires subsequent surgical removal[4]. Stents need to be removed later on.

Very recently, urologists from various parts of the world and also in Bangladesh are on way to change traditional stented ureteroscopic lithotripsy to non- stented ureteroscopic lithotripsy.

Few studies has been done in Bangladesh to compare the result of ureteroscopic lithotripsy with & without ureteral stent for management of distal ureteral calculi.

Keeping this idea in mind this study has been designed to focus on the ureteroscopic lithotripsy without ureteral stent and to compare the outcome of ureteroscopic lithotripsy with ureteral stent for management of uncomplicated distal ureteral calculi.

Materials and Methods

This prospective, comparative clinical study was conducted in Dhaka Medical College Hospital.60 patients were selected according to inclusion criteria with distal ureteric stone,age ranges between 18 to 70 years.

Patients were excluded from the study if they had abnormal ureteral anatomy (may interfere selective operative procedure),long standing impacted stone,Ureteral injury or perforation, previous ureteroscopy & failed for treatment of same stone, renal failure, solitary functioning kidney, pregnancy indwelling ureteral stent preoperatively, radiolucent stone (that made follow up by plain X-ray difficult) . All the cases were evaluated by history, physical examination, urinalysis, ultrasonogram, S. Creatinine and IVU.

Patients were selected using purposive sampling method. Selected patients were numbered chronologically and odd number selected as Group-A (stented,n=30) and even number as Group-B (non-stented,n=30).

Cytoscopy followed by ureteroscopy (by semirigid ureteroscope), with the help of guide wire was done and

stone fragmentation done by pneumatic lithotripsy. In group- A patient D-J stent (6 Fr.) was placed under combined fluoroscopic and cystoscopic guidance. In group- B patient stenting was not done. In group-A patients D-J stents was removed after 3 weeks.

During post-operative period, all patients were followed properly for all outcome variables (haematuria, flank pain, lower abdominal pain, irritative bladder symptoms-dysuria, frequency, urgency, stent migration, ureteral stricture). Each of the patients was followed up at immediate post operative, three weeks (1st visit) and 3 months (2nd visit). The follow-up was done with strict adherence to the defined protocol

Data were collected of the variables of interest using a structural data collection format. Collected data were processed and analyzed using computer software SPSS-win-12 version (Statistical Package for Social Sciences). Student's t-test, chi-square test and Fisher's exact probability test were used to analyze the data. Significant value was determined at 0.05 levels.

Results

The findings of the study showed age and sex are almost identically distributed in both groups. The mean ages of Group-A and Group-B were 38.9+11.2 and 36.3+12.3 years respectively. A male predominance was observed in both groups with 56.7% male in Group-A and 70% in Group-B. Stone size was also observed identically in both groups. 46.7% of stone was smaller than 10 mm in Group-A and 43.3% stone was smaller than 10 mm in Group-B. Stone clearance rate was found 93.3% in group A and 96.7% in group B, which had no influence on outcome variables. None of other baseline variables found varied between groups.

It was also observed statistically that mean operative time was much higher in group A (68.5 ± 11.8) patients as compared to group B patients (43.2 ± 9.42).

Immediate complications were higher in Group-A than those of Group-B. Haematuria in Group-A 50% compared to 6.7% in Group-B. Flank pain in Group-A was found 5 6.7% as opposed to 16.7% in Group-B. Lower abdominal pain in Group-A (33.3%) was observed to be more than 2 times higher than in Group-B (16.7%). Irritative bladder symptom was found in 66.7% in Group-A and 3.3% in Group B.

More than 90% of patients of Group-B were released from the hospital within 3 days after operation, in contrast about 40% in Group-A left the hospital within 3 days.

Comparison after 3 weeks showed some differences (higher in Group-A) but that was not significant. Irritative bladder symptom was staggeringly less in Group-B, the rest of the outcome variable like haematuria, flank pain and lower abdominal pain were no different between groups in statistical term.

Evaluation of the subjects three months after operation revealed that none of them in either group had any type of complaints. All the outcomes evaluated thus demonstrated that the non-stented group was better than the stented group.

Table-I

Comparison of baseline characteristics between groups

Baseline characteristics	Group		p-value
	Group-A (n = 30)	Group-B (n = 30)	
Stone clearance#	28(93.3)*	29(96.7)	0.500
Associated UTI#	2(6.7)	00	0.246
IVU excretion (delayed) #	8(26.7)	8(26.7)	0.614
IVU PC system (dilated) #	17(56.7)	18(60.0)	0.500
Operation time (minutes)¶	68.5 ± 11.8	43.2 ± 9.42	< 0.001

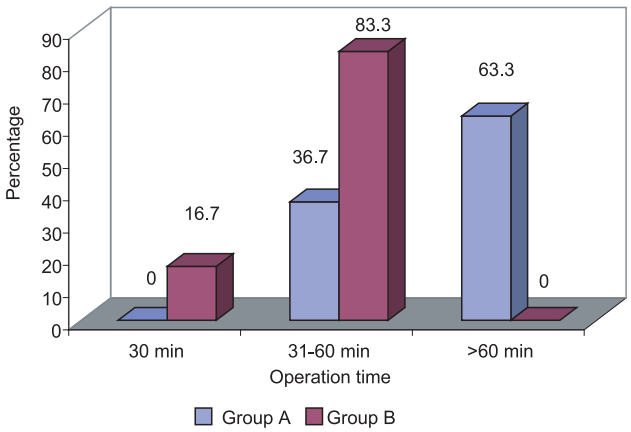

Fig.-1: *Distribution of operation time*

Table II

Comparison of immediate outcome between groups

Variables	Group		p-value
	Group-A (n = 30)	Group-B (n = 30)	
Haematuria#	15(50.0)	2(6.7)	< 0.001
Flank pain#	17(56.7)	5(16.7)	0.001
Lower abdominal pain#	10(33.3)	5(16.7)	0.136
Irritative bladder symptoms#	20(66.7)	1(3.3)	< 0.001
Hospital stay (days)¶	4.0 ± 1.49	2.27 ± 0.45	< 0.001

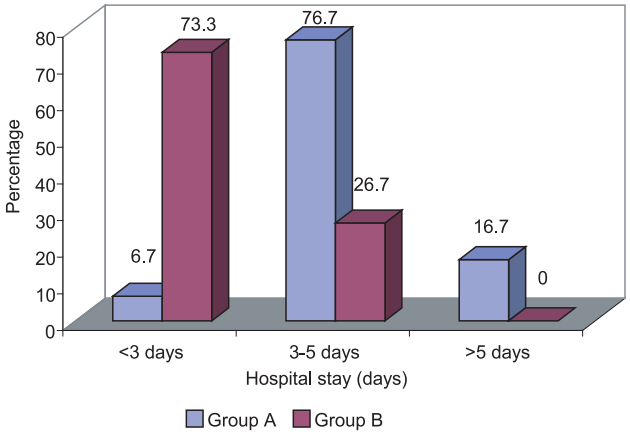

Fig.-2: *Distribution by hospital stay*

Table III

Comparison of outcome after three weeks between groups

Variables	Group		p-value
	Group-A (n = 30)	Group-B (n = 30)	
Flank pain	5 (16.7)	3 (10.0)	0.353
Lower abdominal pain	5 (16.7)	2 (6.7)	0.212
Irritative bladder symptoms	6 (20.0)	1 (3.3)	0.051
Stent migration	1 (3.3.)	00	0.500

Discussion

The present study has been designed to compare the outcome of ureteroscopic lithotripsy with and without stents for the management of distal ureteric stone.

The finding derived from data analysis leaves some scope for discussion to arrive at a conclusion. All the variables of interest are discussed chronologically. Before comparing the outcome of interest, a statistical rigor demands that the groups should be comparable with respect to demographic and baseline characteristics that might influence outcome of treatment.

There was no significant difference observed between groups in terms of age and sex. Comparison of patient's other baseline variables also had done, which might had influence the outcomes of intervention. Beyond stone size, the other variables chosen were stone clearance, associated urinary tract infection, renal function and condition of the pelvi-caliceal system and operative time. None of these variables except operative time was found to vary between two groups as evidenced by p>0.05. So, it is obviously seen that both group were almost identical.

Mean operative time was much higher in group A patients (68.5+11.8 minutes) as compared to Group B patients (43.2+9.42 minutes). Hollenbeck et al (2001) showed in a study that mean operation time 67.4 minutes in stented group and 46.4 minutes in non-stented group, which was very similar to the present study (p <0.001).

Byrne et al (2002) showed in a study that operative time was decreased in the non-stented group (43 minutes vs 55 minutes; p= 0.013). They concluded that ureteral stent placement following ureteroscopy may be avoided, thereby reducing operative time.

So, it is likely to give us more perfect idea of safety and efficacy of intervention (stented ureteroscopic lithotripsy or non stented ureteroscopic lithotripsy).

Some of the immediate outcomes found in the present study considerably higher in Group A than those of Group B.

In the present study, haematuria was observed in 15 (50%) cases of Group A compared to 2 (6.7%) cases in Group B which is highly significant (p<0.001). But it was not observed during second follow-up at 3 weeks. Urinalysis showed no proof of cystitis. Hence it might be concluded that stent was a cause of heamaturia in majority of cases. It is comparable to other studies. Heamaturia may be observed after D-J stenting.

In a study of 58 cases randomly divided into stented and non-stented group after URS for distal ureteric stones showed heamaturia in 16 (55%) cases in stented group whereas 1 (3%) in non-stented group[4].

In the present study flank pain was observed in 17 patients in Group A and 5 patients in Group B. Flank pain is significantly higher (P=0.001) in Group A (56.7%) than in Group B (16.7%).

In another study patients had statistically significantly more post-operative flank pain (p= 0.005) compared to those without stents1. This study was conducted among 113 patients with distal ureteral calculi amenable to ureteroscopic lithotripsy.

Jeong, et al., in 2004 showed unstented patients complained of flank pain as an immediate symptom, but this can be relieved with an oral analgesic and is only transient. They thought that routine stenting is unnecessary after uncomplicated ureteroscopic lithotripsy and it should be used selectively.

Lower abdominal pain in this study were 10 (33.3%) patients in Group-A (stented) and 5 (16.7%) in Group-B (non-stented) which was statistically non-significant (p =0.136).

In a study conducted among 113 patients with distal ureteral calculi amenable to ureteroscopic lithotripsy.with stents had statistically significantly more post operative lower abdominal pain (p<0.001) compared to the unstented group1.

Another study showed lower abdominal pain was significantly greater in stented group than non-stented group (mean score 3.5 vs 0.9; p= 0.001)5 .

Irritative bladder symptoms present in the present study were 66.7% (20) patients in Group A (stented) and 3.3% (1) in Group B (non-stented), which is statistically significant (p<0.001).

Report is similar to the study conducted by Cheung et al (2003) and Chen, et al., 2002.

Present study compares the outcome 3 weeks after operation between groups. Irritative bladder symptoms was staggeringly less in the non-stented group than that of the stented group (p = 0.051). Rests of the outcome variables like flank pain, lower abdominal pain and stent migration were no different between groups in statistical term (p > 0.05).

Non significant findings like above mentioned outcomes were also mentioned by Denstedt et al (2001).

In the present study 1 stent migrated (3.3 %). Stent migration is also a complication associated with indwelling ureteric stents. Faqih et al (1991) reported an incidence of stent migration of 3.7% cases.

Ringel et al (2000) showed in a study that stent migration was 8.2% patients. Although silicone stents have a lower risk of calcification, their smooth regular surface renders them susceptible to migration.

Evaluation of the subjects 3 months after operation revealed that none of them in either group had any type of complaints. All the outcomes evaluated thus demonstrated that the non-stented group was better than the stented group. This inference is also supported by Denstedt et al (2001), and Chen et al (2002).

After 3 months patients were evaluated for ureteric stricture formation, none patient was found to have developed stricture formation.

In a study of 48 patients undergoing ureteroscopy for distal ureteric stone, Srivastava et al (2003) has done radiologic follow-up at the end of 3 months. None of the patients had evidence of ureteral stricture formation.

A prospective nonrandomized study by Rane et al (2000) followed 27 patients without stents after distal ureteroscopy for stones. Post-operative imaging was performed in 94% of their patients with no evidence of ureteral stricture.

In a separate study involving 107 patients they found that those without stents not only had significantly less bladder pain, urinary symptoms and narcotic use post-operatively, but also had fewer flanks and over all pain compared to the stented group. Their present study allowed intra-operative distal ureteral dilation with balloon or tapered dilators.

More than 90% of patients of Group-B were released from the hospital within 3 days after operation, in contrast about 40% in Group-A left the hospital within 3 days. This difference in hospital stay was probably due to more complications in Group-A patients as compared to Group-B patients.

The other potential benefits to leaving patients without stents after ureteroscopy include cost savings, reduced operation time and avoidance of follow-up cystoscopy for stent removal1.

Although cost analysis was not performed for this clinical trial, a direct cost savings to the health care system would be anticipated by the decreased use of stents, balloon dilators, baskets-graspers and secondary procedures to remove the stent. Indirect cost savings in the form of patient time lost from work because of stent symptoms and return visits for stent removal would also be expected in the non-stented group[5].

Although not evaluated in the present study the additional operating room time needed to place a ureteral stent had been shown by Cheung et al to average 11 minutes. Combining the cost of a stent and additional time required to place a stent, significant cost savings could be realized by leaving patients without stents. The cost and inconvenience to the patient for follow-up office cystoscopy and stent removal if required, should also be considered. In addition, patients without stents are not exposed to the numerous potential risks that stents have been shown to be associated with, including migration, infections, pyelonephritis, breakage, encrustation and stone formation, all of which have potential additional costs[1,9,10].

A weakness in the study is that surgeons were aware of the randomization result, stent or no stent, at the beginning of the procedure. This knowledge may have introduced some bias, encouraging the surgeon to be less traumatic with unstented cases. Although the multi-institutional design was intended to allow the results to

be generalizable, the majority of patients were from a single institution.

Based on their findings, Borboroglu and his colleagues, believe that a significant number of patients can be safe without receiving a ureteral stent after ureteroscopy for distal ureteral calculi, even those in whom intraoperative distal ureteral dilatation is used. However, common sense should prevail. They do not suggest that all patients be without stents after ureteroscopy[1].

As outcome is considered it is seen that both study group experienced a favourable outcome. However, in relative terms the outcome of Group-B was much better than that of Group-A.

Data required validation by other studies conducted around the world on the same issue.

Entire outcomes suggest that non-stented ureteroscopic lithotripsy is a better option than stented ureteroscopic lithotripsy for the management of uncomplicated distal ureteric stone by using ureteroscope.

Conclusion

Ureteroscopy is an accepted procedure for management of distal ureteric stone worldwide. To prevent the uncontrolled complications including flank pain secondary to ureteral edema, ureteral stricture development and easy passage of small stone fragments of ureteral stones, D-J stents has been being used for long time. But fear of these complications was found unfounded. Avoiding stents may be particularly cost effectve in developing countries.

This present study revealed nonstented urtrescopic lithotripsy is better option for the management of uncomplicated distal ureteric stone by using semi rigid ureteroscope, in term of less complications and less operation time.

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A STUDY ON GESTATIONAL DIABETES MELLITUS IN RELATION TO FAMILY HISTORY

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Abstract:

A retrospective study was undertaken among diabetics at current pregnancy. The study was conducted in order to find out relationship between gestational diabetes and family history. In this study 202 Gestational Diabetes Mellitus (GDM) cases were included. Of them 139 with family history and 63 without family history of Diabetes Mellitus (DM). Out of 139 positive family history GDM, 42 (20.8%) have maternal diabetes mellitus. It has been found that maternal diabetes has significant influence to develop gestational diabetes mellitus in her daughter. The mean age is 29 ±5.50 irrespective of family history. Those, who are GDM, are euglycaemic at a certain age becomes intolerance to 2 hours after glucose in later age. Family history of diabetes mellitus showed significant higher age for the genesis of GDM.

Fasting blood sugar in 73 had <5.8 mmol/L (105 mg %) = A1, 82 had 5.8 - 7.1 mmol/L (105 - 129 mg %) = A2 and 67 had >7.2 mmol/L (> 130 mg %) = B1. No significant difference has been found in mean blood sugar of fasting and 2 hours after glucose in both groups, (p > 0.10). Weight, age, trimester had significant (p <0.01) value in family history positive group over family history negative group of gestational diabetes mellitus So, family history is a classic risk factor which should be considered and evaluated carefully to detect GDM and prevent maternal and fetal complications and loss.

Introduction

Bangladesh is a developing country with a population of approximately 150 million, half of them are female and more than million are at reproductive age group (15-45 yrs) - who are at risk of dying due to causes associated with pregnancy and labor. In Bangladesh maternal mortality rate and infant mortality rate is understandably high. There are several risk factors for maternal morbidity and mortality. There are several classic risk factors for developing gestational diabetes. Family history of diabetes mellitus is one of them. The problem of gestational diabetes can be realized by noting that since 5% women are diabetic in their reproductive life, there are 50 future diabetics in every 1000 antenatal patients[1]. Moreover, 50% of perinatal deaths occur in women who would become diabetic. In Bangladesh 0.07% women are victims of diabetes in their reproductive age. Effects of gestational diabetes in mother and foetus produce important hazards[2]. Effects on mothers are: abortion, repeated urinary tract infections, increased incidence of pre-eclampsia (25%). hydramnios (25-50%), maternal distress due to big baby and hydramnios during pregnancy, prolongation of labour due to big baby, shoulder dystocia, perinatal injuries, post-partum haemorrhage, operative interference, puerpural sepsis and failing lactation[3]. Foetal effects are- foetal macrosomia (30-40%), congenital malformation (6-8%) and birth injury. Neonatal complications include- hypoglycaemia, polycythaemia and hypocalcaemia. The overall perinatal mortality is increased 2-3 times in diabetics than the non-diabetics[4].

Now a days it is hardly possible to study a disease without its genetic background. There is no doubt that diabetes mellitus is at least a part of genetic disorder. The lack of genetic marker has made it even impossible to trace accurately the transmission of diabetogenic gene in families. There is widely diverse mode of inheritance: recessive, dominant, co-dominant and multi-factorial. HLA-DR3 and HLA-DR4 have been reported to be increased in gestational diabetes compared to non-diabetic. HLA study on Gestational Diabetes Mellitus (GDM) has not been done in Bangladesh[5]. For that reason this study was performed with the hypothesis of – i) A large number of gestational diabetes has family history of diabetes mellitus, ii) Pregnant women with family history of diabetes mellitus mostly develop clinical diabetes at earlier trimester, iii) Majority of pregnant women having family history are multigravida. The aims of this study were to identify the relationship between gestational diabetes with family history of diabetes mellitus cases. It is expected that the study will provide an information for the physicians to give emphasis on family history of diabetes mellitus during antenatal checkup and suggest appropriate investigations in early pregnancy which will in turn prevent complications due to late diagnosis[6].

So the present study is planned to determine that family history have a predictive value- over carbohydrate intolerance in pregnancy. It is expected that this study will make an awareness among the health care

personnel that Gestational Diabetes Mellitus (GDM) is not uncommon, and it is a treatable problem.

Materials and Methods

This was a retrospective study conducted in Gynaecology and Obstetric department of BIRDEM hospital. BIRDEM is a WHO recognized well-equipped, research institution, situated in the heart of Dhaka city where large number of diabetic patients as well as gestational diabetic patients are attending every day and having excellent curative, preventive, promotive and rehabilitative services. Discipline and strict administration is mandatory to this institution. Record keeping is accurate and nice. The unpredicted cooperation extended by record keeping centre at gynaecology and obstetric department is praiseworthy. This study was carried out by using the records of 202 Gestational Diabetes Mellitus cases, after obtaining permission from the authority. Gestational diabetic patient having family history positive and negative were the study population. Record of all subjects like, age. parity, gravidity, gestational age, weight, blood pressure and urinary albumin were taken. They were from different socio-economic classes. Previous history of abortion, still birth, intrauterine foetal death were recorded. History of congenital malformation, previous delivery of large baby and hydromnios were not recorded in the document. They had not been considered in this study. This study was conducted with hypothesis of a large number of gestational diabetes has family history of diabetes mellitus; pregnant women with family history of diabetes mellitus mostly develop clinical diabetes at earlier trimester and majority of pregnant women having family history are multigravida. The general objectives of this study was to identify the relationship between gestational diabetes with family history of diabetes mellitus cases. The specific objectives were to find out the age and parity of gestational diabetes, to find out the occurrence of gestational diabetes mellitus in relation to gestational age (trimester), to find out the gravidity at which gestational diabetes appear, to find out the family history of diabetes as a classical risk factor, to recommend appropriate measures for control and preventing of GDM. The ultimate objectives were expected that the study will provide an information for the physicians to give emphasis on family history of diabetes mellitus during antenatal checkup and suggest appropriate investigations in early pregnancy which will in turn prevent complications due to late diagnosis.

A master sheet was prepared first and the relevant variables were taken from the document of GDM file and recorded in the master sheet. After data collection, master sheet was checked with care and attention and scrutinized to reduce error and to ensure quality of data. The data were then put into computer. The important variables were considered, they showed correlation among them. Scientific and statistical methods were used in analysing the data. Calculations were done by using scientific calculator and computer.

In this study out of 202 GDM cases 139 (68.9%) with family history positive and 63 (31.3%) without family history. Prevalence of GDM is markedly higher when mother have diabetes mellitus. In the present study 42 (20.8%) mothers have diabetic history. Moisted et al. depicted, in human diabetics pregnancies epidemiological studies point to the fact that in addition to genetic transmission of diabetes, a diabetic intrauterine milieu exerts a diabetogenic influence on the offspring, the risk for non-insulin dependent diabetes mellitus is significantly higher when the mother rather than father had non-insulin dependent diabetes mellitus and gestationai diabetes occur more frequently in the offspring of diabetic mothers than in the off springs of diabetic fathers. Prevalence of gestational diabetes among who have history of diabetes of their father is 22 (15.8%) in contrast to 42 (20.8%) of their mothers.

In the present study most of the GDM cases (39, 61.9%) were detected at last trimester in negative family history (table I). This feature is same to Lois Javenovic and Charles M. Peterson's findings[3] (N=300). They were screened at three times points 9-20 weeks 27-31 weeks and 33-36 weeks. An additional group of 300 women were screened at two times points 27-31 weeks and 33-36 weeks. From the first 300 patients screened for GDM between 9 and 20 weeks only 1 (0.3%) discovered to have GDM. When these patients were regarded at 27-31 weeks and additional 90 abnormal Glucose Challenge Test (GCT) (30%) occurred. Glucose tolerance test in this 90 women resulted in 4 (4%) additional women with GDM. The second 300 parents who were screened for the first time between 27 and 31 weeks and the 299 who were rescreened produced 28.8% (N = 173) with abnormal GCTs and of these 6.9% (12/173) had GDM. An overall incidence of 2.2% had GDM at 27-31 weeks. An additional 6 women received the diagnosis of GDM at 33-36 weeks. Therefore it is clear that GDM increases with gestational period.

In the current study, positive family history group menifest gestational diabetes earlier than negative group. 30 (21.6%) were with positive family history in first trimester in contrast to 10 (15.9%) in first trimester of without family history. At second trimester positive group there are 48 (34.5%) and in negative group 14 (22.2%) are GDM which is contradictory to Javenic and Charles M Peterson finding. But in third trimester negative group 39 (61.9%) is more than positive group 61 (43.9%). Therefore family history of diabetes mellitus has significant (x^2 = 5.63, p=<0.02) influence for the menifestation of gestational diabetes at an earlier trimester.

Most of the patients are multigravida in both negative and positive family history of gestational diabetes mellitus. A large number of patients of non-diabetic family are primigravida. A significant number of patients are grand multipara from diabetic family. Therefore family history of diabetes mellitus has no significant role on gravidity for the menifestation of gestational diabetes (x^2 = 7,82, p=>0.01).

Mean weight of positive family history group is 63.26±10.57 and mean weight of negative family history is 62.35±11.85. Therefore, family history group has significant (p = <0.01) higher weight than family history negative group.

The mean fasting blood sugar of positive family history group was 6.48±1.90 mmol/L and mean fasting blood sugar of negative family history group was 6.67±2 mmol/L. (p >0.10). Mean blood sugar of 2 hours after glucose with family history positive was 11.62±3.76 and mean blood sugar of 2 hours after glucose in negative family history group was 11.49±4.05 mmol/L, (p >0.10). Therefore, no significant difference exists in blood sugar of both groups. Maximum patients detected as IGT which treated as diabetic in pregnancy to prevent maternal and foetal complications. 'Maximum IGT (impaired glucose tolerance patient) revert back to normal after delivery.

Out of a total of 202 cases, 9 patients, who were with positive family history group had positive urinary albumin. Among these nine patients, four were hypertensive and five were normotensive. Hypertensive group had higher mean blood sugar values with moderate to severe urinary albumin. In contrast to hypertensive group, normotensive group had mild urinary albumin, but their mean weight is higher. Therefore, with increased weight, urinary albumin are responsible for developing toxaemia of pregnancy.

Results

A total of 202 gestetional diabetes mellitus patients were studied. The patients were divided into two groups. Group I considered as diabetic family and group II considered as non-diabetic family. Out of total 202 cases, 181 were from urban area and 21 were from rural area. Total cases are 202, group I constituted 139 (68.9%) and group II constituted 63 (31.1%) In group I- connubial 12 (5.9%), father 22 (10.9%). mother 42 (20.8%), brother 13 (6.4%), sister 11 (5.4%), siblings 3 (1.5%) and others 36 (17.8%). Mother exhibited higher percentage of relationship for the genesis of GDM (Table-I).

It is illustrated that frequency of GDM is more at the age group of 25-29 years in both groups of diabetes mellitus. Mean age of group I is 29.71 ± 5.73 years and mean age of group II is 27.41 ± 4.63 years (Table-II).

Most of the patients detected as GDM at last trimester in both groups. Thirty (21.6%) at first trimester, 48 (34.5%) at second trimester and 61 (43.9%) at third trimester of 139 cases in group I showed gestational diabetes. In group II, out of total 63 cases. 10 (15.9%) at first trimester, 14 (22.2%) at second trimester and 39 (61.9%) at last trimester, had gestational diabetes mellitus. Group I patients exhibited gestational diabetes at an earlier age than the group II patients, on the contrary group II exhibited higher number at last trimester (table -III).

In table- IV it is depicted that most of the patients diagnosed as GDM were multigravida. In group I. out of total 139 cases 83 (59.7%) were multigravida and in group II, out of 63 cases 39 (61.9%) were multigravida. Mean gravidity in group I is 2.06± 0.63 and in group II is 1.90 ± 0.61, x^2 = 7.82, p > 0.01 (table-IV).

Maximum number of patients of gestational diabetics were primipara. In group I, 49 (24.3%) and i group II, 25 (12.4%) were primipara. Thirtyeight (18.8%) in group I and 19 (9.4%) in group II were multipara. Mean parity in group I is $x\text{-}_1$ = 1.55 ± 1.63 and in group II it is x_2 = 1.90 ± 0.61 (table-V).

Frequency is more in the range of 50-59 kg in both groups, 51 (25.2%) m group I and 24 (11.9%) in group II. Mean weight of group-I was 63.26 ± 10.57 kg and mean weight of group II is 62.35 ± 11.85 kg. Group I patient was more heavier than group II (table - VI).

Seventy five (53.96%) in group I and 20 (31.75%) in group II had developed bad obstetrical history. Those who had bad obstetrical history in group I, their mean fasting blood glucose was 6.6 mmol/L and 2 hrs after

glucose was 11.94 mmol/L. In group- II with bad obstetrical history, their mean fasting blood glucose was 7.7 mmol/L and 2 hrs after glucose was 13.44 mmol/L (table-VII).

Mean systolic blood pressure was 114.25 ±. 10.15 mmHg Maximum systolic pressure is 150 mmHg, and minimum blood pressure was 90 mmHg. Mean diastolic blood pressure was 74.45+ 7.97. Maximum diastolic blood pressure was 100 mmHg and minimum systolic blood pressure was 60 mmHg. Eighty (39.6%) had their systolic blood pressure within 110 mmHg, 66 (32.7%). had their diastolic blood pressure within 80 mmHg (table - VIII).

Out of total 202 cases, only 9 had positive urinary albumin. Among them 4 patients were hypertensive with moderate to severe urinary albumin and 5 patients were normotensive with mild urinary albumin. Those who were normotensive, mean weight was 62.25 Kg, mean fasting blood sugar was 7.9 mmol/L, mean 2 hours after glucose was 12.45 mmol/L. In case of normotensive patient, mean weight was 67.6 Kg, mean fasting blood sugar was 6.56 mmol/L and 2 hours after glucose was 11.66 mmol/L (table-XIII).

Among these 202 cases, 73 had fasting blood sugar <5.8 mmol/L - A_1(82 had 5.8-7.1 mmol/L - A_2 and 67'had >7.2 mmol/L - 61. (Pie diagram). In group-I, 55 had fasting blood sugar <5.8 mmol/L and 84 had >5.8 mmol/ L. In Group-II, 18 had fasting blood sugar <5.8 mmol/L and 45 had >5.8 mmol/L. In group - I, 41.7% had 7.8-11.1 mmol/L at 2 hours after glucose (IGT level), 28.1% had 11.2-11.4 mmol/L at 2 hrs after glucose and 13.7% had 14 1-17.0 mmol/L 2 hrs after glucose. They were diabetic. In group - II. 42% had 78-11.1 mmol/L 2 hrs after glucose (IGT level). 28.6% had 11.2-11.4 mmol/L and 14.3 had 141-170 mmol/L at 2 hrs after glucose, they were diabetic (table IX-XII).

Table-I

Distribution of GDM cases according to family history

Family segment	Number of GDM +ve family history	(%)	Number of GDM -ve family history	(%)
Connubial	12	5.9	63	31.1
Father	22	10.9		
Mother	42	20.8		
Brother	13	6.4		
Sister	11	5.4		
Siblings	3	1.5		
Others	36	17.8		
Total	139	68.7	63	31.1

GDM = Gestational diabetes mellitus.

Table-II

Distribution of GDM cases by age in both groups (FH +ve FH –ve)

Age of mother	Family history +ve group		Family history-ve group	
in years	No. of mother	Percentage	No. of mother	Percentage
15-19	7	5.0	1	1.6
20-24	15	10.8	16	25.4
25-29	47	33.8	27	42.9
30-34	38	27.3	16	25.4
35-40	29	20.9	1	1.6
41-44	2	1.4	2	3.1
45+	1	0.0	0	0.0
Total	139	100.0	63	100.0
Mean age	$\bar{x}_1$ = 29.71+5.73 years		$\bar{x}_2$ = 27.41 + 8.63 years	

P = <0.01.

Table-III

Distribution of GDM cases according to trimester

Trimester	Family history positive		Family history negative	
	No. of cases	Percentage	No. of cases	Percentage
1st	30	21.6	10	15.9
2nd	48	34.5	14	22.2
3rd	61	43.9	39	61.9
Total	139	100.0	63	100.0

Table-IV

Distribution of 202 GDM cases by gravidity

Gravidity	Family history -ve/ Group-I		Family history –ve/Group-II	
	No. of GDM	Percentage	No. of GDM	Percentage
Primigravida	24	17.3	15	23.8
Multigravida	83	59.7	39	61.9
Grand multi	32	23.0	9	14.3
Total	139	100.0	63	100.0

Primigravida = 1, Multigravida = 2-4, Grand multi = >4.

X^1= 2.06±0.63 = 1.90±0.61

X^2 = 7.82 p = >0.01

Table-V

Distribution of GDM cases by parity in both groups

Parity	Family history +ve/ Group-I		Family history -ve/Group-II	
	Frequency	Percentage	Frequency	Percentage
0	38	18.8	19	9.4
1	49	24.3	25	12.4
2	21	10.4	9	4.5
3	17	8.4	5	2.5
4	7	3.5	2	1.0
5+	6	2.5	2	1.0
Total	138	67.9	62	30.8

X^1= 1.55±1.63 X^2 = 1.90±0.61

Table-VI

Distribution of GDM cases by weight in both groups

Weight in Kg	Family history +ve/ Group-I		Family history -ve/Group-II	
	Frequency	Percentage	Frequency	Percentage
30-39	1	0.5	1	0.5
40-49	8	4.0	5	2.5
50-59	51	25.2	24	11.9
60-69	42	20.8	22	10.9
70-79	27	13.4	5	2.5
80-89	8	4.0	4	2.0
90-99	2	1.0	2	1.0
Total	139	68.9	63	31.3

= 63.26±10.57 KgMaximum Wt. = 92KgMinimum Wt. = 39Kg= 62.35±11.85 KgMaximum Wt. = 98KgMinimum Wt. = 39Kg

P = <0.01 significant.

Table-VII

Distribution of bad obstetrical history

Family history +ve/ Group-I					Family history -ve/ Group-II				
No. of Total pts.	No. of pts. with BOH		Mean of Fasting glucose	Mean of 2 hrs. after glucose	No. of Total pts.		No. of pts. with BOH	Mean of Fasting glucose	Mean of 2 hrs. after glucose
	No.	%			No.	%			
139	75	53.96	6.6	11.94	63	20	31.75	7.7	13.44

Table-VIII

Distribution of GDM cases according to blood pressure

Blood pressure systolic	Frequency	Percent	Blood pressure systolic	Frequency	Percent
90	6	3.0	60	23	11.4
95	1	0.5	70	23	11.4
100	22	10.9	75	1	0.5
105	1	0.5	80	66	32.7
110	80	39.6	84	1	0.5
120	75	37.1	85	3	1.5
130	6	3.0	88	1	0.5
140	8	4.0	90	15	7.4
150	2	1.0	95	1	0.5
160	1	0.5	100	3	1.5
Total	**202**	**100.1**	**Total**	**137**	**67.9**

Mean systolic blood pressure = 114±10.15 mmHg
Maximum systolic blood pressure = 150 mmHg
Minimum systolic blood pressure = 90 mmHg
Mean diastolic blood pressure = 74±7.97 mmHg
Maximum diastolic blood pressure = 100 mmHg
Mean diastolic blood pressure = 60 mmHg

Table-IX

Age distribution in relation to fasting blood sugar with positive family history

Age in years	Fasting blood sugar mmol/L					
	<3.6	3.6-5.5	5.6-7.7	7.8-11.1	11.2-14.0	Row Total
15-19	-	2	4	1	-	7
	-	1.4	2.9	0.7	-	5.0
20-24	-	6	7	2	-	15
	-	4.3	5.0	1.4	-	10.8
25-29	1	17	19	9	1	47
	0.7	12.2	13.7	6.5	0.7	33.8
30-34	-	16	10	11	1	38
	-	11.5	7.2	7.9	0.78	27.3
35-39	-	10	11	8	-	29
	-	7.2	7.9	5.8	-	20.9
40-44	-	-	1	1	-	2
	-	-	0.7	0.7	-	1.4
45+	-	-	-	1	-	1
	-	-	-	0.7	-	0.7
Column	1	51	52	33	2	139
Total	0.7	36.7	37.4	23.7	1.4	100.00

= 6.48±1.90 mmol/L.

Table-X

Age distribution in relation to blood sugar of 2 hours after glucose with positive family history

Age in years	2 hours blood sugar after glucose mmol/L								
	3.6-5.5	5.6-7.7	7.8-11.1	11.2-14.0	14.1-17.0	17.1-20.0	20.1-23.0	26.0	Row Total
	2.00	3.00	4.00	5.00	6.00	7.00	8.00	10.00	
15-19	1	-	3	2	-	7	-	-	7
	0.7	-	2.2	1.4	-	0.7	-	-	5.0
20-24	-	1	10	2	1	1	-	-	15
	-	0.7	7.2	1.4	0.7	0.7	-	-	10.8
25-29	-	5	21	9	7	1	3	1.0	47
	-	3.6	15.1	6.5	5.0	0.7	2.2	0.7	33.8
30-34	-	1	17	14	6	-	-	-	38
	-	0.7	12.2	10.1	4.3	-	-	-	27.3
35-39	-	3	7	12	4	3	-	-	29
	-	2.2	5.0	8.6	2.9	2.2	-	-	20.9
40-44	-	-	-	-	1	1	-	-	2
	-	-	-	-	0.7	0.7	-	-	1.4
45+	-	-	-	-	-	1.	-	-	1
	-	-	-	-	-	0.7	-	-	0.7
Column	1	10	58	39	19	7	4	1	139
Total	0.7	7.2	41.7	28.1	13.7	5.0	2.9	0.7	100.0

= 11.62±3.76 mmol/L.

Table-XI

Age distribution in relation to fasting blood sugar glucose with no family history

Age in years	2 hours blood sugar after glucose mmol/L								
	3.6-5.5	5.6-7.7	7.8-11.1	11.2-14.0	14.1-17.0	17.1-20.0	20.1-23.0	26.0	Row Total
	2.00	3.00	4.00	5.00	6.00	7.00	8.00	10.00	
15-19	-	-	1	-	-	-	-	-	1
	-	-	1.6	-	-	-	-	-	1.6
20-24	-	1	8	5	2	-	-	-	16
	-	1.6	12.7	7.9	3.2	-	-	-	25.4
25-29	1	3	12	6	2	2	1	-	27
	1.6	4.8	19.0	9.5	3.2	3.2	1.6	-	42.9
30-34	-	5	7	4	-	-	-	-	16
	-	7.9	11.1	6.3	-	-	-	-	25.4
35-39	-	-	-	-	1	-	-	-	1
	-	-	-	-	1.6	-	-	-	1.6
40-44	-	-	1	-	-	-	-	-	1
	-	-	1.6	-	-	-	-	-	1.6
Column	1	10	58	39	19	7	4	1	139
Total	0.7	7.2	41.7	28.1	13.7	5.0	2.9	0.7	100.0

= 6.77±2.0 mmol/L.

Table-XII

Age distribution in relation to blood sugar of 2 hours after glucose with no family history

Age in years	Fasting blood sugar mmol/L				
	3.6-5.5	5.6-7.7	7.8-11.1	11.2-14.0	Row Total
	2.00	3.00	4.00	5.00	
15-19	-	1	-	-	1
	-	-	1.6	-	1.6
20-24	5	7	4	-	16
	7.9	11.1	6.3	-	25.4
25-29	7	13	5	2	27
	11.1	20.6	7.9	3.2	42.9
30-34	4	6	6	-	16
	6.3	9.5	9.5	-	25.4
35-39	-	1	-	-	1
	-	1.6	-	-	1.6
40-44	-	1	1	-	2
	-	1.6	1.6	-	3.2
Column	16	29	16	2	63
Total	25.4	46.0	25.4	3.2	100.0

= 11.49± 4.05 mmol/L.

Table-XIII

Distribution of 9 cases by urine albumin

	High blood pressure					Normal blood pressure			
No.	Alb	Wt	Fg	2 hr	No.	Alb	Wt	Fg	2 hr
4	++	78	80	11.0	5	+	66	5.9	10.0
	++	53	6.5	11.8		+	58	8.5	12.1
	++	56	8.4	12.0		+	58	8.5	12.1
	+++	62	9.0	15.0		+	63	7.8	11.1
						+	92	3.4	13.0
Mean =	62.25Kg	7.9	12.45 mmol/L		67.6Kg	6.56	11.66mmol/L		

Discussion

In this study total 202 cases have been enlisted, out of these 181 (89.6%) are from urban area and 21 (10.4%) are from rural area. Bangladesh is a developing agricultural country, 85% percent of its population live in the village. But modern health service delivery system is city-oriented. Therefore a large number of the people are deprived of their basic human health needs[7].

Beside these, they are illiterate, unaware of their health problems. Communication problem is another important factor. They are ignorant of diabetes mellitus as well as gestational diabetes mellitus. Though the rural population are not included satisfactorily in this study, but the 202 cases are collected from central diabetic hospital. Subjects included in this study can be considered sufficient to guess over the gestational

diabetes and influence prevalence of family history of GDM. In this study, mean age of GDM is 29 ±5.5 in both groups. In group I mean age is 29.71 ± 5.7, mean age of group II is 27.41 ±4.63 years[8].

Work by a single individual within the institutional curriculum framework and without any financial support was very difficult and several limitations disturbed the author during this study. The time assigned for the study was not sufficient. Due to limitation of time sample size is small. Retrospective study does not satisfy the quest necessary to establish correlation.

In the present study an attempt has been taken to procure the importance of family history for the genesis of GDM, 202 cases represent all socio-economic classes, it is neither community based, nor population based, nor a follow-up study. In this study >68.9% had family history. Family history, age, weight and parity had suggestive role for glucose intolerance[10]. With this risk factors, pregnant women should have screening test for GDM at frequent intervals Fasting blood glucose should not be relied upon, because many of them are euglycemic, but can be a predictor for magnitude of gestational glucose intolerance. Two hours after glucose is suggestive of glucose intolerance in pregnancy. Therefore from the present study it is concluded that genetic factors along with family history and other risk factors should be evaluated clearly for proper management to reduce maternal, perinatal, neonatal morbidity and mortality[11].

Gestational diabetes is an important public health problem which causes maternal and her child morbidity and mortality. Therefore emphasis should be given to early detection of GCM and with proper management reduced maternal, prenatal, neonatal morbidity and mortality[12].

Conclusion

Prevention programmes needs to be integrated with the existing health services (e.g. the primary health care system) and comprehensive programmes of control. Private health service programmes should also incorporate preventive methods. Sedentary life style, overnutrition, obesity linked to genesis of non-insulin dependent diabetes mellitus as well as gestational diabetes mellitus. Correction of which may reduce the risk both of diabetes and its complications. Prevention programmes may most effectively be directed at those people who are genetically susceptable to diabetes (i.e those with a close family member with IDDM or evidence of ethnic susceptibility). Possible method of prevention include modification of diet to avoid or correct obesity and increase in physical activity. More research is needed to identify effective methods of influencing those at risk to change their eating and exercise habits.

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REVIEW ARTICLE

ANDROGEN INSENSITIVITY SYNDROME

ZH BHUIYAN[1], MF ISLAM[2]

Introduction

The gonads and the adrenal glands produce the androgen or testosterone. The androgens bind to androgen receptors and enter the cell. Testosterone is converted into dihydrotestosterone; the active form of androgen in the cells containing the 5 alpha reductase enzyme. Impairment of binding of androgen to its receptor to enter the cell results impairment of its action to be performed in variable extent; depending on the severity of the genetic anomalies.

Androgen insensitivity syndrome (AIS) is a genetic disorder that results in the partial or complete inability of the cell to respond to androgen[1, 2, 3]. This syndrome is the largest single entity that leads to 46XY with undermasculinised genitalia[4].The unresponsiveness of the cells to androgenic hormones can prevent, impair or undermasculinization of male genitalia in the developing male fetus, as well as the development of male secondary sexual characteristics at puberty but does not significantly impair female genital or sexual development[3]. So the insensitivity to androgens is only clinically significant when it occurs in genetic males (46XY) [1]. Phenotypically these individuals' ranges from a normal looking male with mild spermatogenic defect or reduced secondary terminal hair to a full female habitus[1].

Epidemiology:

The incidence of androgen insensitivity syndrome has been studied relatively on small population size in many published literature[1]. But a nationwide survey done in Netherlands; estimate that the minimal incidence of complete androgen insensitivity (CAIS) is 1 in 99,000; partial androgen insensitivity (PAIS) is 1 in 130,000. Due to its subtle presentation, mild androgen insensitivity (MAIS) is not typically investigated except in the case of male infertility[5].

Historical Background:

Recorded descriptions of the effects of androgen insensitivity syndrome date back for hundreds of years. Since it was not understood that all different presentations were caused by different levels of mutations the single (androgen receptor gene) gene, a unique name was given to each new combination of symptoms. So a distinct name has been given to many of the various presentations of androgen insensitivity syndrome. The different names were Reifenstein syndrome (1947), Goldberg-Maxwell syndrome (1948), Morris' syndrome (1953), Gilbert-Dreyfus syndrome (1957), Lub's syndrome (1959), "incomplete testicular feminization" (1963), Rosewater syndrome (1965), and Aiman's syndrome (1979)[6].

Over the last 60 years, different phenotypes were reported to occur even among members of the same family[1] and the steady progress was made towards the understanding of the underlying molecular pathogenesis of AIS. It has been demonstrated that these disorders are different phenotypic expressions of one syndrome caused by molecular defects in the androgen receptor gene[7].

In 1950: Lawson Wilkins first documented pathophysiology of androgen insensitivity syndrome[1]. In 1970: Mary F. Lyon and Susan Hawkes reported a gene on the X chromosome responsible for complete insensitivity to androgens in mice[8]. In 1981: Barbara Migeon et al. identified the probable locus of the human androgen receptor gene (Xq11 and Xq13)[9]. In 1988: Terry Brown et al. report first the mutation of gene causing AIS[9]. In 1989 they also report the exact locus of the AR gene (Xq11-Xq12)[10]. In 1994: The androgen receptor gene mutations database is created and was published in journals and conference proceedings[11].

Pseudohermaphroditism, testicular feminization syndrome to AIS:

The popular term "Pseudohermaphroditism" used in the medical literature is to describe the inconsistencies between the internal and external sex organs. The "true" sex of an individual was determined by the internal organs, and the external organs determined the "perceived" sex of an individual[12]. For example, 46, XY individuals that have a female phenotype, but also have testes instead of ovaries — a group that includes all individuals with CAIS, as well as some individuals with PAIS — are classified as having "male

pseudohermaphroditism". While individuals with both an ovary and a testis (or at least one ovotestis) are classified as having "true hermaphroditism."[13]. Usage of the word in the medical literature predates the discovery of the chromosome, and thus its definition has not always taken karyotype into account when determining an individual's sex.

American gynecologist John Morris provided the first full description of "testicular feminization syndrome"[3]. He wanted to mean that testes produced a hormone that had a feminizing effect on the body. But it is now understood to be due to the failure of action of androgens and it's subsequent aromatization into estrogen[1]. Wilkins clearly demonstrated the lack of a therapeutic effect when 46,XY women were treated with androgens, caused a gradual shift in nomenclature from "testicular feminization" to "androgen resistance"[14] but now it is known as AIS[1].

Variants of AIS:

AIS are divided into three categories that are differentiated by the degree of genital masculinization. CAIS is termed when the external genitalia is that of a normal female, MAIS is termed when the external genitalia is that of a normal male, and the PAIS is termed when the external genitalia is partially, but not fully masculinized[7].

Pediatric endocrinologist Charmian A. Quigley et al in 1995[3]; categorized AIS in seven grades. Grade 1 is indicated when the external genitalia is fully masculinized but has got impaired spermatogenesis, grade 6 is indicated when the external genitalia is fully feminized, and grades 2 through 5 quantify four degrees of decreasingly masculinized genitalia that lie in the interim. Grade 7 is indistinguishable from grade 6 until puberty and in puberty secondary terminal hair is absent in grade 7. The Quigley scale can be used in conjunction with the traditional three classes of AIS to provide additional information regarding the degree of genital masculinization[2].

So it is also well established that the same AR mutation may cause significant variation in the degree of masculinization in different individuals, even among members of the same family[1]. Exactly what causes this variation is not entirely understood. The AR gene is located on the proximal long arm of the X chromosome (Xq11,12)[10].

More complex relationships have been observed as a consequence of mutated AR; some mutations may have association male phenotypes and male breast cancer, prostate cancer, disease of the central nervous system(spinal and bulbar muscular atrophy)[15].

Over 400 AR mutations have been reported and the number continues to grow[2]. Inheritance is typically maternal and follows an X- link recessive pattern[1]. So the individuals with a 46 XY karyotype will always express the mutant gene. But in 30% of the cases the AR mutation may occur spontaneously, results from germ cell mosaicism in the gonad of one of the parents, or a mutation in the fertilized egg itself [16]. There may be de novo mutations result in somatic mosaicism[1]. It is worthwhile to note that only a small number of individuals may adversely affect when other genetic factors are present[17].

Some individuals with CAIS (up to 5%) or PAIS (up to 27 – 72%) may not have any AR mutation despite clinical, hormonal, and histological features sufficient to warrant an AIS diagnosis[18].

According to the Quigley scale[2] a person with a (46,XY karyotype) can have either a male (MAIS) or female (CAIS) phenotype but has the testes in all cases. So a 46, XY female does not have ovaries or a uterus[19] and can't contribute an egg towards conception or gestate a child.

Genetic females (46,XX karyotype) have two X chromosomes, and thus have two AR genes. A mutation in one of the AR genes results them as carrier. They are minimally affected and fertile. Some of them may have slightly reduced body hair, delayed puberty, and or tall stature, presumably due to skewed X-inactivation[20]. A genetic female with mutations in both AR genes could theoretically result from the union of a fertile man with androgen insensitivity (Grade I, Quigley scale; MAIS) and a female carrier of the gene, or from de novo mutation. However, fertile androgen insensitive men and low incidence of both X AR mutations in 46, XX karyotype; the chances of this occurrence are small. The phenotype of such an individual is a matter of speculation; Till to date no such documented case has been published[20].

Individuals with partial androgen insensitivity, unlike those with the complete or mild forms, present at birth with ambiguous genitalia, and the decision to raise the child as male or female is often not obvious[1].

Fetal developmental progress

Human embryos develop similarly for the first six weeks, regardless of genetic sex (46, XX or 46,XY karyotype)

and the gonads are called indifferent gonads[21]. The only way to differentiate them during this time period is to look for Barr bodies or a Y chromosome [21]. By the sixth week, the indifferent gonads begin to differentiate according to genetic sex. If the karyotype is 46,XY, testes develop due to the influence of the SRY gene on the Y chromosome[22]. This process does not require the presence of androgen, nor a functional androgen receptor[22]. Till approximately the seventh week of development, the embryo has indifferent sex accessory ducts also, which consist of two pairs of ducts: the Müllerian ducts and the Wolffian ducts[21]. The fetal testes secrete anti-Müllerian hormone that causes its degeneration[21]. Without this anti-Müllerian hormone, the Müllerian ducts develop into the female internal genitalia (uterus, cervix, fallopian tubes, and upper vaginal barrel)[21]. Unlike the Müllerian ducts, the Wolffian ducts will not continue to develop by default[23]. In the presence of testosterone and functional androgen receptors, the Wolffian ducts develop into the epididymides, vasa deferentia, and seminal vesicles[21]. If the testes fail to secrete testosterone, or the androgen receptors do not function properly, the Wolffian ducts degenerate[24]. Mutations in the androgen receptor gene can cause problems with any of the steps involved in androgenization, from the synthesis of the androgen receptor protein itself, through the transcriptional ability of the dimerized, androgen-AR complex[3].

Diagnosis

Only the phenotypic changes are no diagnostic hallmark of AIS[4]. Physical findings indicative of AIS include the presence of a short vagina[25] or undermasculinized genitalia[1], partial or complete regression of Müllerian structures[26], bilateral nondysplastic testes[27], and impaired spermatogenesis and / or virilization[1].

Laboratory findings include a 46, XY karyotype[2] and normal or elevated postpubertal testosterone, luteinizing hormone, and estradiol levels[4]. The androgen binding activity of genital skin fibroblasts is may be diminished[3]. Conversion of testosterone to dihydrotestosterone may also be impaired[3]. The diagnosis of AIS is confirmed if androgen receptor gene sequencing reveals a mutation except PAIS, where other causes of AIS insensitivity may be present[2].

Differential diagnoses:

There is a long list of differential diagnoses to consider[1]. These may includes

Chromosomal anomalies:

- Klinefelter syndrome (47,XXY karyotype)
- Turner syndrome (45,XO karyotype)
- Mixed gonadal dysgenesis (45,XO/46,XY karyotype)
- Tetragametic chimerism (46,XX/46,XY karyotype)

Androgen biosynthetic dysfunction in 46,XY individuals:

- Luteinizing hormone (LH) receptor mutations
- Smith-Lemli-Opitz syndrome (associated with mental retardation)
- Lipoid congenital adrenal hyperplasia
- 3â-hydroxysteroid dehydrogenase 2 deficiency
- 17á-hydroxylase deficiency
- 17,20 lyase deficiency
- 17â-hydroxysteroid dehydrogenase deficiency
- 5á-reductase deficiency

Androgen excess in 46, XX individuals:

- 21-hydroxylase deficiency
- 3â-hydroxysteroid dehydrogenase 2 deficiency
- Cytochrome P450 oxidoreductase deficiency (disorder in mother causes 46,XX fetal virilization)
- 11â-hydroxylase deficiency
- Aromatase deficiency
- Glucocorticoid receptor mutations
- Maternal virilizing tumor (e.g. luteoma)
- Increased androgen exposure in utero, not otherwise specified (e.g. androgenic drugs)

Developmental

- Mayer-Rokitansky-Küster-Hauser syndrome (46,XX karyotype)
- Swyer syndrome (46,XY karyotype)
- XX gonadal dysgenesis (46,XX karyotype)
- Leydig cell agenesis or hypoplasia, not otherwise specified (46,XY karyotype)
- Absent (vanishing) testes syndrome
- Ovotesticular DSD
- Testicular DSD (i.e. 46,XX sex reversal)

Teratogenic causes (e.g. estrogens, antiestrogens)

Other causes:

- Frasier syndrome (associated with progressive glomerulopathy)
- Denys-Drash syndrome (associated with nephropathy and Wilms tumor)

- WAGR syndrome (associated with Wilms tumor and aniridia)
- McKusick-Kaufman syndrome (associated with postaxial polydactyly)
- Robinow syndrome (associated with dwarfism)
- Aarskog-Scott syndrome (associated with facial anomalies)
- Hand-foot-genital syndrome (associated with limb malformations)
- Popliteal pterygium syndrome (associated with extensive webbing behind knees)
- Kallmann syndrome (often associated with anosmia)
- Hypospadias not otherwise specified
- Cryptorchidism not otherwise specified
- vaginal atresia not otherwise specified

Management

Management of AIS is currently limited to symptomatic management. These include psychological counseling, sex assignment, genitoplasty, gonadectomy in relation to tumor risk, hormone replacement therapy. Gene therapy to correct a malfunctioning androgen receptor gene mutation are not currently available[28].

Conclusion:

Androgen insensitivity syndrome is a spectrum of diseases of genetically male (46XY), ranges from mild abnormality in spermatogenesis of phenotypically normal looking man to phenotypically female with presence of testes and absence of female internal genital organ. In both extreme of cases diagnosis is often delayed. Proper history including family history, evaluation of hormonal status and genetic analysis can confirm the diagnosis. The management also ranges according to clinical presentation of the disease. Patients and the parents have to be explained the nature of disease. Various options including simple observation, ICSI, gonadectomy together with hormone replacement therapy, genitoplasty, gender assignment etc may be need.

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ABSTRACT FROM CURRENT LITERATURE

Discrepancies between cytology, cystoscopy and biopsy in bladder cancer detection after Bacille Calmette-Guerin intravesical therapy

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Objectives: To evaluate discrepancies in the detection of Bacille Calmette-Guerin (BCG)-resistant bladder cancer by cystoscopy, bladder biopsy and urinary cytology.

Methods: Between January 1992 and August 2006, 127 bladder cancer patients underwent a cycle of eight weekly BCG instillations. Four weeks after the last BCG instillation, urinary cytological analysis and cystoscopy with targeted biopsy in addition to eight–nine selected-site biopsies were performed.

Results: Biopsy-proven cancer was found in 11/27 (40.7%), 5/42 (11.9%), and 11/58 (19.0%) of positive, suspicious, and negative cytology cases, respectively. Abnormal and normal cystoscopic findings correlated with a biopsy-proven cancer in 13/53 (24.5%) and 14/74 (18.9%) cases, respectively. The combination of a macroscopic cystoscopic suspicion and a positive cytology missed malignant cases in 15.9% of the cases. In 100 cases without biopsy-proven cancer, the rates of denuded urothelium at biopsy in the cases with positive and non-positive cytology were 7/16 (43.8%) and 16/84 (19.0%), respectively

Conclusions: According to our study, routine biopsy is recommended in the evaluation of BCG treatment, even if the timing, limitations and disadvantages of the procedure should be taken into account.

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Transurethral ethanol injection therapy of benign prostatic hyperplasia: Four-year follow-up

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Objective: Evaluating long-term (50 months) efficacy of transurethral intraprostatic injection of absolute ethanol to treat benign prostatic hyperplasia (BPH).

Methods: A prospective studywas conducted to evaluate 35 patients with BPH treated by transurethral injection of dehydrated ethanol. Mean age was 66.3 years. Endoscopic injection of 6–12 mL ethanol was carried out at 5–10 sites in the prostate. International Prostate Symptom Score (IPSS), maximum flow rate, prostate volume, postvoid residual and side effects or complications incidence were logged.

Results: Mean IPSS _ standard deviation improved significantly from 22.0 _ 3.89 preoperatively to 9.85 _ 2.23 at 50 months follow-up. Mean peak urinary flow rate increased from 5.87 _ 3.69 mL/s to 16.89 _ 4.12 after 4 years. Mean residual urine volume had decreased from 68.6 _ 49.98 mL to 36.02 _ 20.87 after 4 years ($P < 0.05$). The prostate volume decreased from 52.67 _ 20.43 g preoperatively to 49.94 _ 21.28 g after 4 years (statistically significant). There were no intra-operative complications but post-operative urine retention occurred in all patients requiring catheterization for amean 6.7 days. Acute epididymitis and chronic prostatitis occurred in two patients. Urethral stricture occurred in one patient.

Conclusions: This technique appears to be safe and cost effective. No occurrence of retrograde ejaculation was detected. The long-term effects of ethanol injection of the prostate were satisfactory and acceptable as a minimally invasive therapeutic modality of selected patients.

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Risk factors for lymph node metastasis in clinically node-negative penile cancer patients

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Objectives: To analyze the effects of pathological T stage, grade, extent of surgery for primary tumor, and

age group on the risk of developing lymph node metastasis in clinically node-negative penile cancer patients.

Methods: We performed a retrospective analysis of 200 clinically node-negative penile cancer patients who were kept under surveillance, after treatment of the primary tumor in our institution. The primary outcome parameter was cytologically or histologically proven lymph node metastasis. Logistic regression analysis was used to compute odds ratios in univariate and multivariate settings.

Results: Lymph node metastasis occurred in 31 patients at a median time of three months. Histological grade 3 and grade 2 tumors had a statistically significant increased odds ratio for lymph node metastasis, (7.1[P < 0.001] and 2.7 [P = 0.04], respectively), compared with grade 1 tumors. Although increasing pT stage was associated with increasing odds ratios, the differences were not statistically significant. Nor did the extent of surgery of the primary tumor or the age group significantly influence the risk of developing lymph node metastasis.

Conclusions: Histological grade is the most significant parameter influencing the risk of lymph node metastasis in clinically node-negative penile cancer patients on surveillance. Patients with grade 3 and grade 2 tumors may benefit from elective inguinal lymphadenectomy.

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Radical retropubic prostatectomy with running vesicourethral anastomosis and early catheter removal: Our experience

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Objectives: To assess the outcomes of patients undergoing radical retropubic prostatectomy (RRP) with a running vesicourethral anastomosis and catheter removal on postoperative day 3 or 5.

Methods: From February 2006 through December 2007, 55 patients underwent RRP at our institution. All procedures were performed by a single surgeon using a running suture for the vesicourethral anastomosis. A cystogram was carried out before catheter removal in all patients. The initial 23 of 55 patients (Group 1; n = 23) had the cystogram on postoperative day 5, the other 32 patients (Group 2; n = 32) had the cystogram on postoperative day 3. Removal of the catheter was only carried out if there was no anastomotic extravasation.

Results: The success rate of catheter removal in group 1 and 2 was 100% and 96.9%, respectively. Overall continence rates were 83.3%, 87% and 90.7% at 24, 48 and 72 h after removal of the catheter, respectively. There was no significant difference in terms of continence rate between groups 1 and 2. None of the patients had acute urinary retention and/or anastomotic stricture after catheter removal.

Conclusions: These findings suggest that an advanced running vesicourethral anastomosis during RRP is technically feasible, allowing safe early catheter removal in most patients.

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Prostate-specific antigen (PSA) kinetics in untreated, localized prostate cancer: PSA velocity vs PSA doubling time

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Objective: To compare the accuracy of prostate-specific antigen (PSA) velocity (PSAV) vs PSA doubling time (DT) for predicting the repeat biopsy results in men with localized prostate cancer on active surveillance (AS), as the utility of PSAV vs PSADT in untreated prostate cancer has not been well studied.

Patients and Methods: Eligible patients had favourable-risk localized prostate cancer (T1/2a, PSA level d”15 ng/mL, Gleason score d”3+4, and percentage positive biopsy cores d”50%), and consented to AS between 2002 and 2005. Repeat biopsies were taken after 18–24 months, with adverse histology defined as any of: primary Gleason gradee”4, >50% cores positive, or initial Gleason score 3+3 upgraded to e”3+4. Using all PSA

values for the 2 years preceding repeat biopsy, the PSAV and PSADT were calculated using linear regression and the log-slope method (DT=ln2/slope), respectively.

Results: In all, 199 patients were assessable; the median PSAV and PSADT were 0.71 ng/mL/year and 5.29 years, respectively. Fifty-three patients (27%) had adverse histology on repeat biopsy. On univariate analyses, PSAV (P<0.001) and PSADT (P=0.019) were associated with adverse histology. The area under the receiver operating characteristic curve for predicting adverse histology was 0.70 and 0.63 for PSAV and PSADT, respectively. The mean difference was 0.07 (95% confidence interval 0.03–0.12; P<0.001).

Conclusions: PSAV is more accurate than PSADT for predicting adverse histology on repeat biopsies. These data suggest that PSAV should be used in preference to PSADT to describe PSA kinetics in untreated, localized prostate cancer.

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One preoperative dose randomized against 3-day antibiotic prophylaxis for transrectal ultrasonography-guided prostate biopsy

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Objective: To compare the incidence of infective events between a single dose and 3-day antibiotic prophylaxis for transrectal ultrasonography (TRUS)-guided prostate biopsy.

Patients and Methods: Patients were randomized to receive either one preoperative dose consisting of two ciprofloxacin 500 mg tablets 2 h before prostate biopsy, or 3 days of ciprofloxacin treatment. They had a clinical examination at study inclusion, the day of the biopsy and 3 weeks later. The day after the procedure all patients were contacted by telephone to inquire about any significant event. Biological testing and urine cultures were conducted 5 days before and then 5 and 15 days after the biopsy; a self-administered symptom questionnaire was completed by the patient 5 days before and then at 5 and 15 days.

Results: The study group included 288 men, of whom 139 were randomized to the single-dose arm and 149 to the 3-day arm. Six patients in each group had an asymptomatic bacteriuria with no leukocyturia. One patient in each group had documented prostatitis, with *Escherichia coli* identified on urine culture. The strain identified in the patient from the 3-day group was resistant to ciprofloxacin. There was no difference between groups in symptoms at 5 and 21 days after biopsy.

Conclusions: Current TRUS-guided prostate biopsy techniques lead to very few clinical infectious complications when accompanied by antibiotic prophylaxis. We found no argument to advocate the use of more than one dose of antibiotic prophylaxis.

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Assessment of voiding function of orthotopic neobladders in elderly patients with long-term survival

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Objective: To compare the voiding status in elderly patients (aged e”80 years) with that in younger patients undergoing orthotopic neobladder substitution during long-term survival.

Patients and Methods: The voiding status was assessed in 111 patients (ileal neobladder in 62, ascending colonic neobladder in 14, sigmoid colonic neobladder in 21 and ileocolonic neobladderin 14) who lived for >5 years after radical cystectomy with an orthotopic neobladder, using a self-completed questionnaire and uroflowmetry. According to the age at the time of these assessments, patients were divided into two groups (group 1,<80 years, 94; group 2,e”80 years, 17). The voiding status was compared between the groups.

Results: In all, 78 patients (92%) in group 1 and 16 (94%) in group 2 were capable of spontaneous voiding. In group 1 and 2, respectively, daytime continence was achieved by 67 (74%) and 12 (75%) patients, but night-time continence was achieved by 54 (60%) and six

(38%), although the difference was not statistically significant. In groups 1 and 2, respectively, the median maximum flow rate was 13.3 and 11.7 mL/s and the median postvoid residual urine volume was 19 and 18 mL. The only statistically significant difference was for voiding posture, assessed in men.

Conclusions: There was no significant difference in voiding status of patients with orthotopic neobladders except for voiding posture between patients aged <80 or carefully selected elderly patients aged e" 80 years during long-term survival. However, night-time continence might be clinicallyworse in the elderly than in the younger group.

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Assessing the minimum number of lymph nodes needed at radical cystectomy in patients with bladder cancer

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Objective: To identify the likelihood of finding one or more positive lymph nodes (LNs) according to the number of LNs removed at radical cystectomy (RC), as the number of LNs removed affects disease progression and survival after RC.

Patients and Methods: Between 1984 and 2003, 731 assessable patients had RC and bilateral pelvic lymphadenectomy at three different institutions. ROC curve coordinates were used to determine the probability of identifying one or more positive LNs according to the total number of removed LNs.

Results: Of the 731 patients, 174 (23.8%) had LNs metastases. The mean (median, range) number of LNs removed was 18.7 (17, 1–80). The ROC coordinate-based plots of the number of removed LNs and the probability of finding one or more LNs metastases indicated that removing 45 LNs yielded a 90% probability. Conversely, removing either 15 or 25 LNs indicated, respectively, 50% and 75% probability of detecting one or more LNs metastases.

Conclusions: These data indicate that removing 25 LNs might represent the lowest threshold for the extent of lymphadenectomy at RC. Our findings confirm the importance of an extended lymph node dissection.

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Outcome of nephron-sparing surgery for T1b renal cell carcinoma

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Objective: To present our experience with nephron sparing surgery (NSS) for T1b renal cell carcinoma (RCC) in a high-volume tertiary referral centre. NSS for RCC of <4 cm (T1a) is increasingly accepted, although its role for RCC of 4–7 cm (T1b) remains controversial.

Patients and Methods: The records of 67 consecutive patients who had NSS for RCC of 4–7 cm at our institution were reviewed retrospectively. Data were collected on surgical indications, tumour characteristics, complications, changes in serum creatinine level, time to recurrence and time to death. Clinical progression-free survival (CPFS), overall survival (OS), cancer specific survival (CSS) rates were estimated statistically.

Results: The mean patient age was 62 years. Surgical indications were absolute in 26 (39%) patients, relative in 11 (16%) and elective in 30 (45%). Two patients (3%) required postoperative embolization, and none developed a urinary fistula. Four patients (6%) had positive resection margins; none of these developed tumour recurrence. After a median (range) follow-up of 40.1 (1–98.3) months, 10 patients (15%) had died, of whom only one death was related to NSS (postoperative hypovolaemic shock). The tumour recurred in seven patients (10%) all of whom were alive at the last follow-up. Three patients (4%) developed a local recurrence and four (6%) developed locoregional or distant disease. The projected 5-year CPFS, CSS and OS rates were 84%, 99% and 72%, respectively. Seven (10%) patients developed de novo renal insufficiency. Elective and relative indications were

not associated with a significant change in serum creatinine level (*P*=0.22 and 0.10, respectively); in the absolute category this difference was statistically significant (*P*=0.005). The main limitation is that the study was uncontrolled and retrospective, with a medium-term follow-up.

Conclusions: This study showed the excellent surgical feasibility and CSS for NSS in T1b RCC. Local cancer control was achieved in the large majority of patients, with preservation of renal function in those with elective indications. Absolute indications significantly correlated with loss of renal function.

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A population-based comparison of survival after nephrectomy vs nonsurgical management for small renal masses

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Objective: To examine population-based rates of cancer-specific and other-cause mortality after either non-surgical management (NSM) or nephrectomy, in patients with small renal masses, as several reports from selected institutions support the applicability of surveillance in patients with small renal masses, but there are no population-based studies confirming the general applicability of this therapy.

Patients and Methods: Of 43 143 patients with renal cell carcinoma identified in the 1988–2004 Surveillance, Epidemiology and End Results database, 10 291 had localized small renal masses (d”4 cm) and were offered NSM (433, 4.2%) or nephrectomy (9858, 95.8%). Univariable matched and multivariable unmatched competing-risks regression models were used in the analyses.

Results: Cumulative incidence plots based on unmatched data, where the effect of other cause mortality was controlled for, showed a 5.2%, 6.5% and 9.4% survival benefit for nephrectomy vs NSM at 1, 2 and 5 years after nephrectomy or diagnosis, respectively. The same magnitude of the benefit (4.5%, 5.6% and 8.0%) persisted in analyses matched for age, tumour size and year of diagnosis or of nephrectomy. Finally, in multivariable analyses, treatment type, age, tumour size and year of diagnosis or of nephrectomy were independent predictors.

Conclusion: Relative to nephrectomy, NSM appears to undermine the overall and cancer-specific survival of patients with small renal masses by as much as 9.4%, at 5 years.

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